

1050

THIS BOOK FOR HARBOUR WORK ONLY

DIETZGEN
INCORPORATED

ENGINEERS
FIELD BOOK
No. 403

25 Perm. Point

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6 + (20 - 16) \div 2$ or 2 ft. added to $30.6 = 32.6$. For slopes of 1 on 1 1/2 see inside of back cover.

Copyright, 1914, by Eugene Dietzgen Co.

Mon S.W. Cor. A.H. x E.S.

S Line Water St

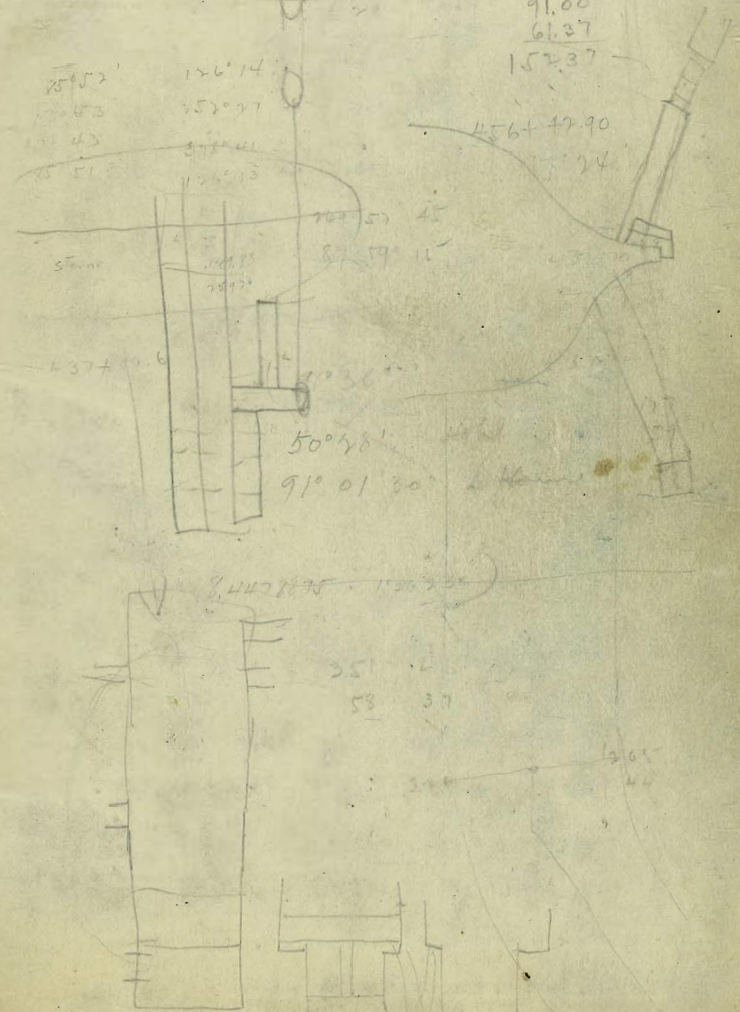
100 000
40 714
59 286

95
66.8
161.8

91.00

61.27

152.37



282.50
1.01008

12.48
270.00

101.01

101008

282.54
101.01
282.54
282.50
0.04

282.5
101.01
282.1
282.50
285.35326

27
707.07
202.02
272.27

31.00

1.52
19.48
7

403+00
285.35
405+85.35
272.73

403458.08
272.73

41430.81
272.73

41403.54
272.73

41676.27
272.73

41949.00
272.73

42221.73
78.43

00.10

101.01
19.48

408.08
408.08

90909

101.01

19676748

101.01

77.65

505.05

606.06
707.07
808.08
909.09
434265

189+98.58

148+46.00

41+52.38

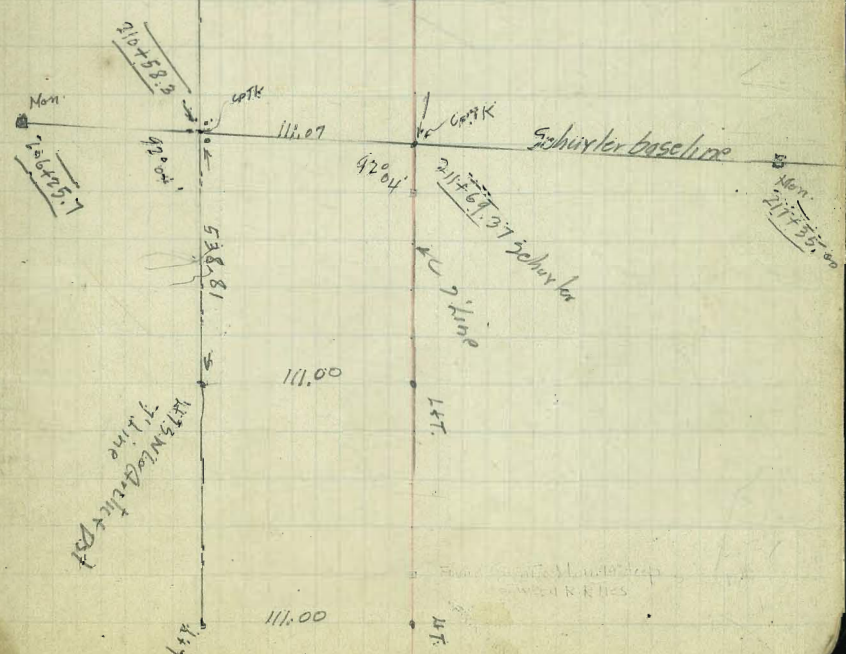
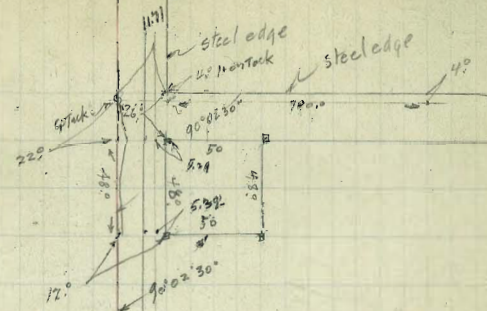
Index

Page

Tideland Survey (Schuyler line 189+99 to 201+50)	1.
Sketch of Survey "B" Line Schuyler Tideland Survey	3
Sketch showing Int. of St lines with "B" line	4
Sketch showing Atlantic & Ties to Schuyler line	75
Schuyler's line beginning at Sta. 423+00 to 569+28.95	19-31
Traverse from 336+40 to 403+00	32
Survey Dutch flats Int. P.L. lines with Withers St	39-40
Angle Ties to Schuyler line from 00 Old Town <small>angles turned up 16 times</small>	41-42
Survey to Determine line of Vine St & Calif St Int.	43
Survey and setting of P.L. Cors. East of Scott St	44

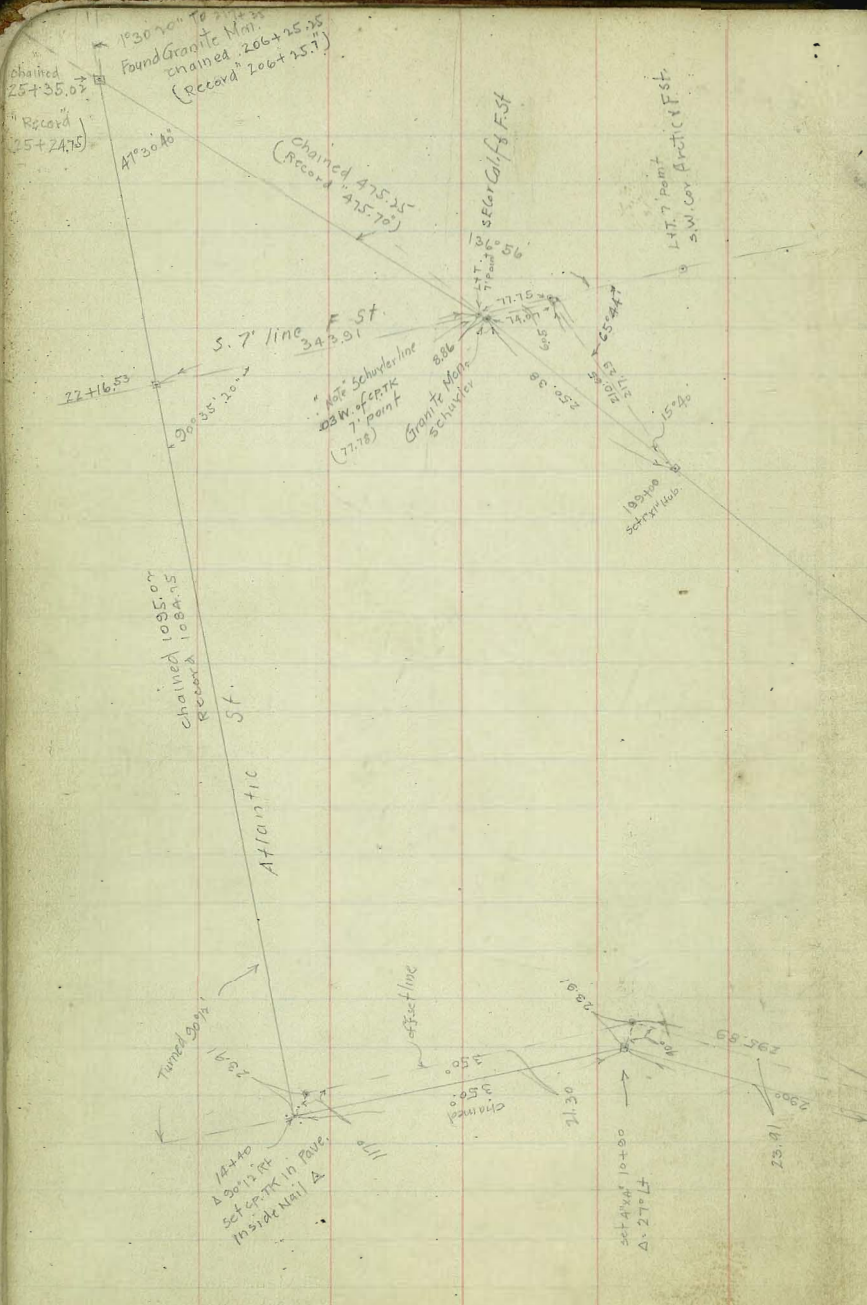
C
H
10
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32
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34
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36
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38
39
40

to l
of r
exa
30

$$\begin{array}{r} 210 + 58.30 \\ 111.07 \\ \hline 21469.37 \end{array}$$


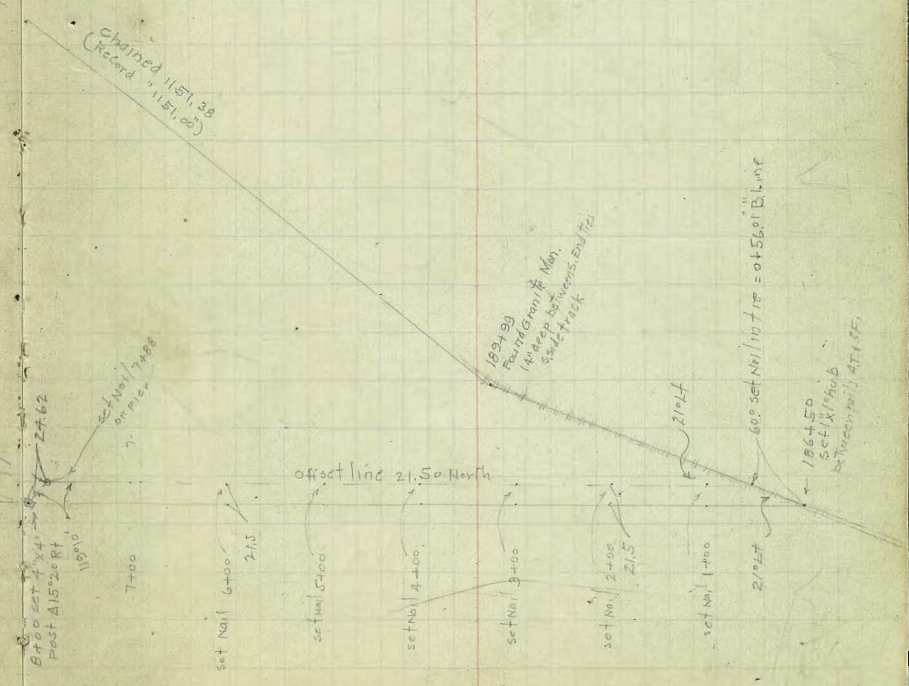
N56°52'15"W

89+99
89
88
87
86+50

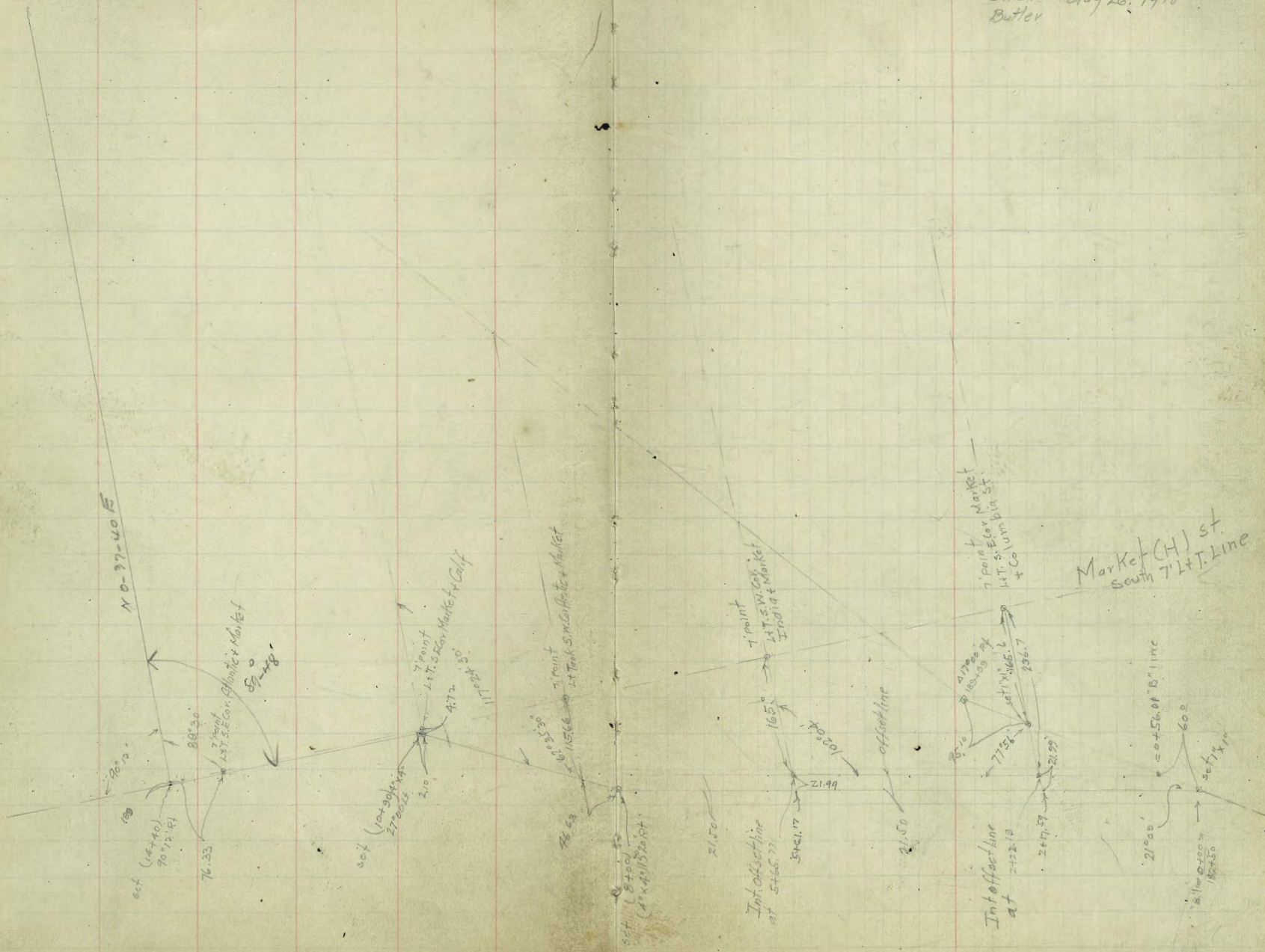


1°30'45"
 47°30'40"
 79°01'25"

Williams
 Offen
 Butler
 Aug 20-21-22
 1918



Williams
Ottens Aug 26, 1918
Butler



199

set 2" x 2" plug

198

set cp. TK. in Asphalt Pavement.

197

set cp. TK. in asphalt Pav.

196

Found old engine 1' x 2" P.W. Hub. (chained 195+99.92)

195

Barn

set Hub

194

Nail in sidewalk

193

set Hub

192

+99.84

Not set
set Nail

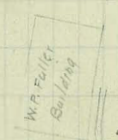
set Nail 191+99.84

191

set Hub

189+99

$\Delta 17^{\circ}00' R$ $N 39^{\circ}52' 15'' W$



Granite Mon (Schuyler) 14" deep
between end RR. Ties

189

Point of frog

188

187

186+50

$N 56^{\circ}52' 15'' W$



set 1" x 1" F.R.R. Track
Point of frog

211

+58.3 Int. 5.7 Line Broadway (D.st)

210

209

208

207

+82.09 Int. 5.7 line E.st.

206

+25.7
25.75 chained (1°14'20")

Δ 49°01 R x N2°08 45 E

205

204

203

202

+50.0
+50.38 chained

Δ 7°00 Lt x N46°52 N W

201

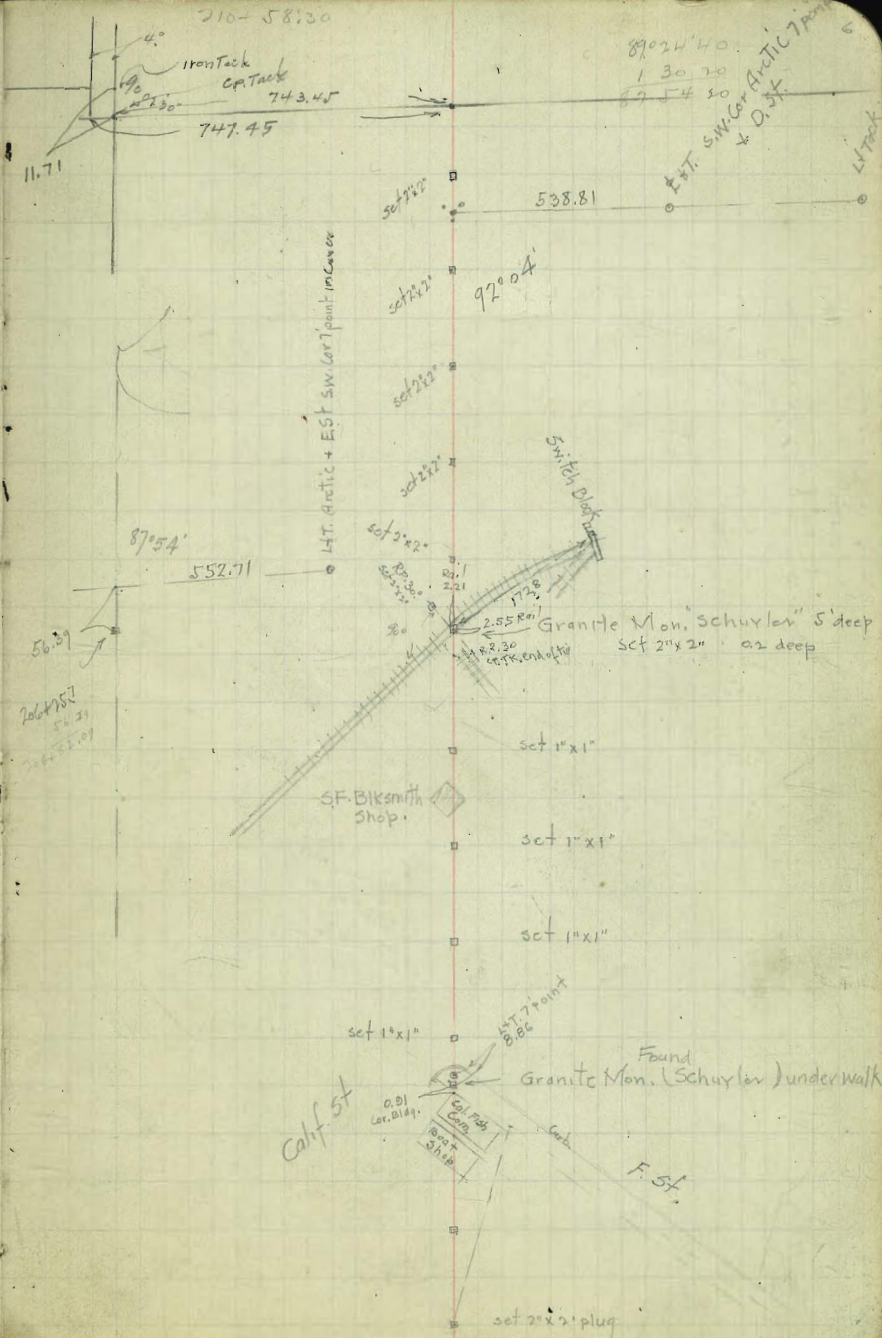
200

199

N39°52'15" W

1109.3

Record 425.70
chained 475.27



223

222 +12.46 Int s.7' line A-St

221

220

219

218

217

+35.00
+98.5

Distance and line comes on rail
Set 1"x1" cp TR

$\Delta 1^{\circ}47' N \times N 6^{\circ}21'45'' E$

216

Tack in tie

215

Hub

$N 2^{\circ}08'45'' E$

214

1109.3

213

212

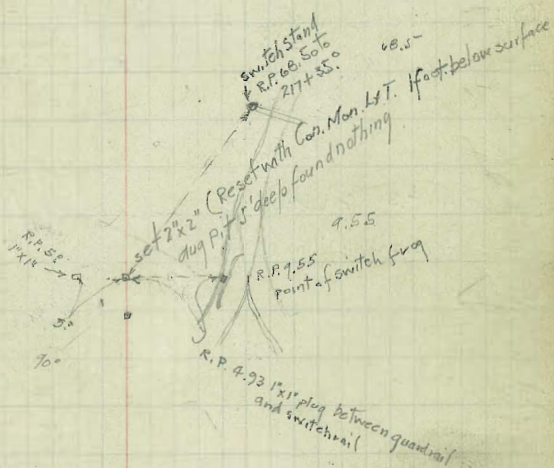
set 2x2"

$90^{\circ}20'30''$

236.38

Left in Mon with line Call
37' line A-St.

Arctic
Mon with line



235

234

+53.62 57' line Cedar Int.

233

232

Found Nothing
Set Con. Mon Lt + T. 18" deep. $\Delta 8^{\circ}00$ Lt

$N 7^{\circ}38'15'' W$

231

230

+05.30 ♀ Beech. ST

+72.22 57' line Beech.

229

228

227

226

+91.93 Int + S. Line Ash.

225

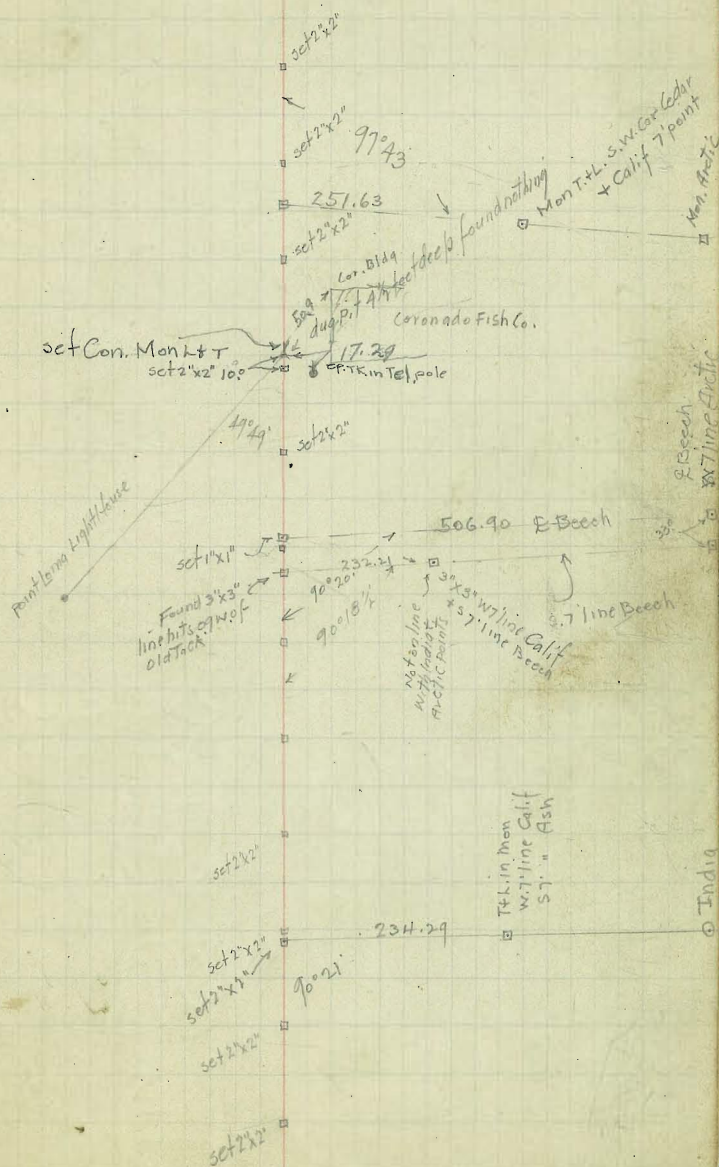
224

97°43'

226 00

8.07

92579193



♀ Beech
ST line Arctic

♂ Indig

247

246

245

244

243 +41.69

242

241

240

239

238

237

236

N7°38'15"W

102°34'15"

1670
99.5
266.5

50'24"

50'24"

50'24"

50'24"

50'24"

50'24"

50'24"

50'24"

50'24"

50'24"

50'24"

50'24"

50'24"

243+41.69

266.50

102°34'15"

Cont. Mon. S. 71 line (North St)
E. 25' line Calif

1 point
@ 71' 1/2

247 259 +07.35 E Kalmia

246 258

245 257

244 256

243 255 +27.04 E Juniper

242 254

241 253

240 252

239 251 +13.78 S. 7 Line Ivy

238 250

237 249

236 248 +10.21

Δ 11°24'45" Lt N19°03'W ×

N19°03'W

2279.88

11054.30
11025
10017.30

213.64

143.36

380.11

413.26

158.86

303.78

146.33

300.30

380.27

413.18

303.70

380.23

347.6

90°

50°

90°

70°

Track

Mon. 14

Arctic St

Mon

Mon

Kalmia
Mon. 18 deep
Set 2" x 2" on top

Juniper
Mon. 18 deep
Set 2" x 2" on top

Ivy
Mon. 18 deep
Set 2" x 2" on top

Hawthorn
L in Mon. E Calif 5 line

Schuyler line

Calif. 7.5 line

20 52
x 7.36 W.
12-32 W. = 3229
764
138016
17009
77007.56
16422
7611.61

(Schuyler)
Found Granite Mon.

47.5' deep
Set 2" x 2" on surface 76.46

78°

58°54'30"

78°22'30"

164.79

70°

302.32

302.32

13.16

163°45'

271 (+90) = 39.88 chd. Set Con. Mon. L track $\Delta 16^{\circ}15' Lt$ N $35^{\circ}18' W$
+49.23 E Nutmeg St

270.

269

268

267

+68.87 E Maple St

266

265

N $19^{\circ}03' W$

264

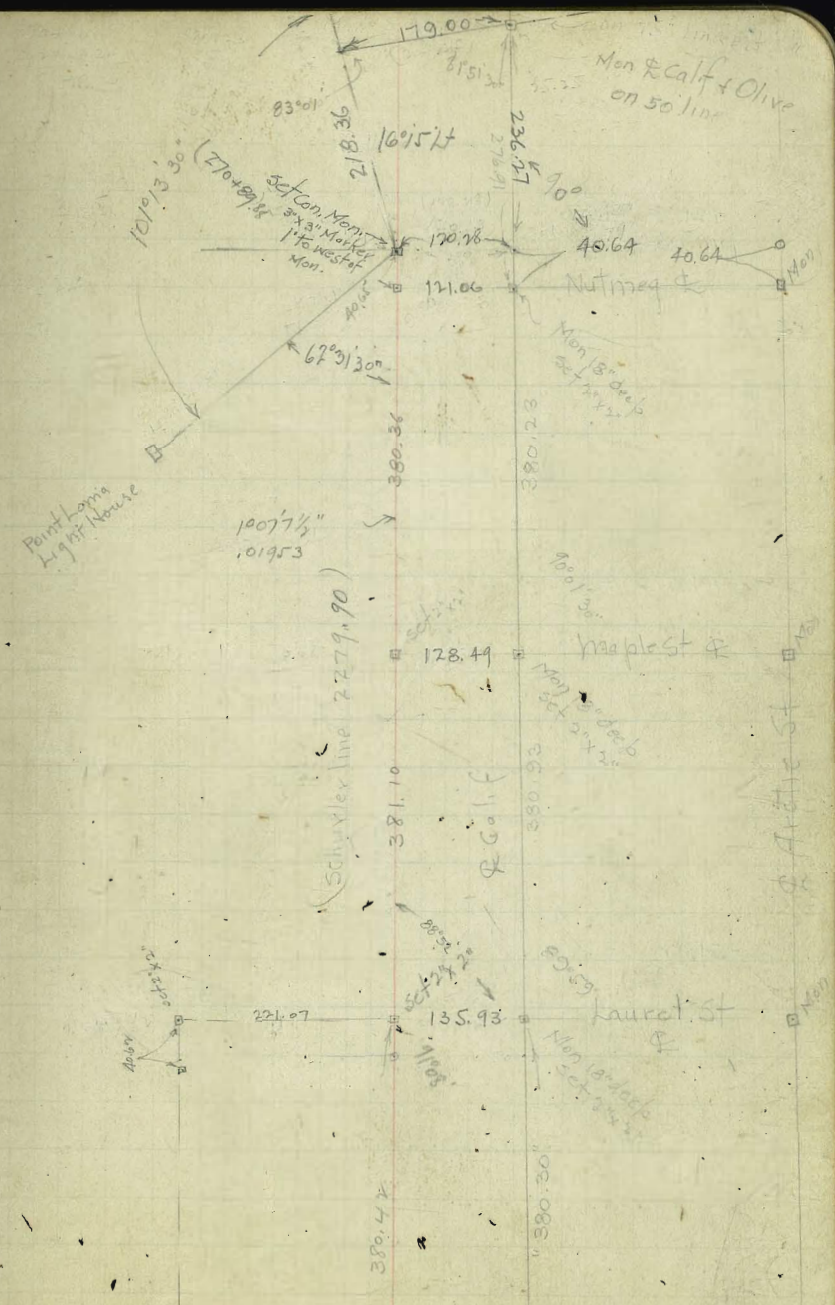
263

+87.77 E Laurel St

262

261

260



77.00
62.64
46.99
196.63

283 +21.38 ♀ Redwood

282

281

280

279 +40.56 ♀ Quince

278

277

276

+59.92 ♀ Palm

275

274

273 +08.36 ♀ Olive

272

N35°18'N

Chained 3009.60

92.97
70
65.7790

53.70
65.78
61.70
181.19

16036

134.91
54.14
189.05

95.07
40.38
54.14

89.49
21
40.745
62.643
67.1175
20.13
46.17

20.13

75 30"

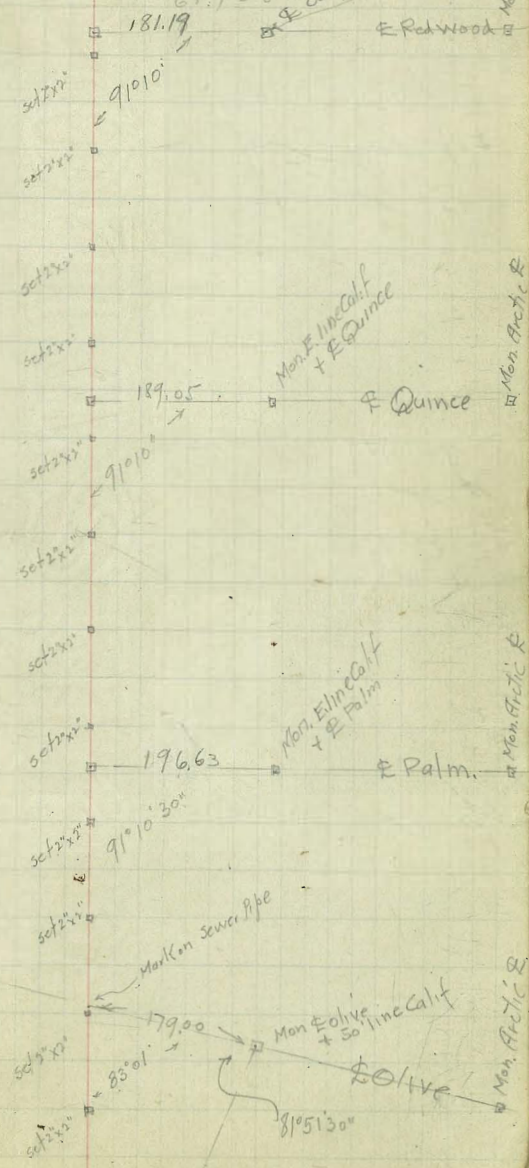
87.00
162.64
66.77
196.63

100.00
59.44
40.56

64.38
75.28

32178
32190
57942
61.708

Mon. on E. (1)
Line Calf (1)



163.03

295

+63.03 ♀ Thorn

294

293

292

291

+82.53 ♀ Sassafras

N35°18'W

290

289

288

287 +01.81 Int. Spruce st ♀

286

285

284

95.37
75.10
20.27

291+00.00
17.47
290+87.53

set 1"x1"

158.12

set 1"x1"

set 1"x1"

91°10'30"

89°29'15"

set 1"x1"

set 1"x1"

set 1"x1"

155.85

set 1"x1"

91°09'30"

set 2"x2"

set 2"x2"

173.46

set 2"x2"

set 2"x2"

set 2"x2"

91°09'30"

♀ Redwood

♀ Spruce

♀ Sassafras

♀ Thorn

"Note" (Mon on E line)

(Mon on Calif)

"Note: this mon. is 15 E. of E of old Row."

83.58

52.00

135.58

20.27

75.85

♀ Sassafras

"Note" (Mon on E line)

(Mon on Calif)

♀ Spruce

♀ Redwood

170.24
57.12
73.00
130.12
43.34
173.46

95.60
52.26
43.34

2.27
173.46

Mon Arctic ♀

Mon Arctic ♀

Mon Arctic ♀

♀ Redwood

307

306

305 +18.12 set 2"x2" plug Int R Atlantic & Schuyler

304

303

302

301 +09.60 and.

300

299

+43.53

298

297

296

shown 1899.82

$\Delta 34^{\circ} 20' \text{ Lt. } \times N69^{\circ} 38' \text{ W}$

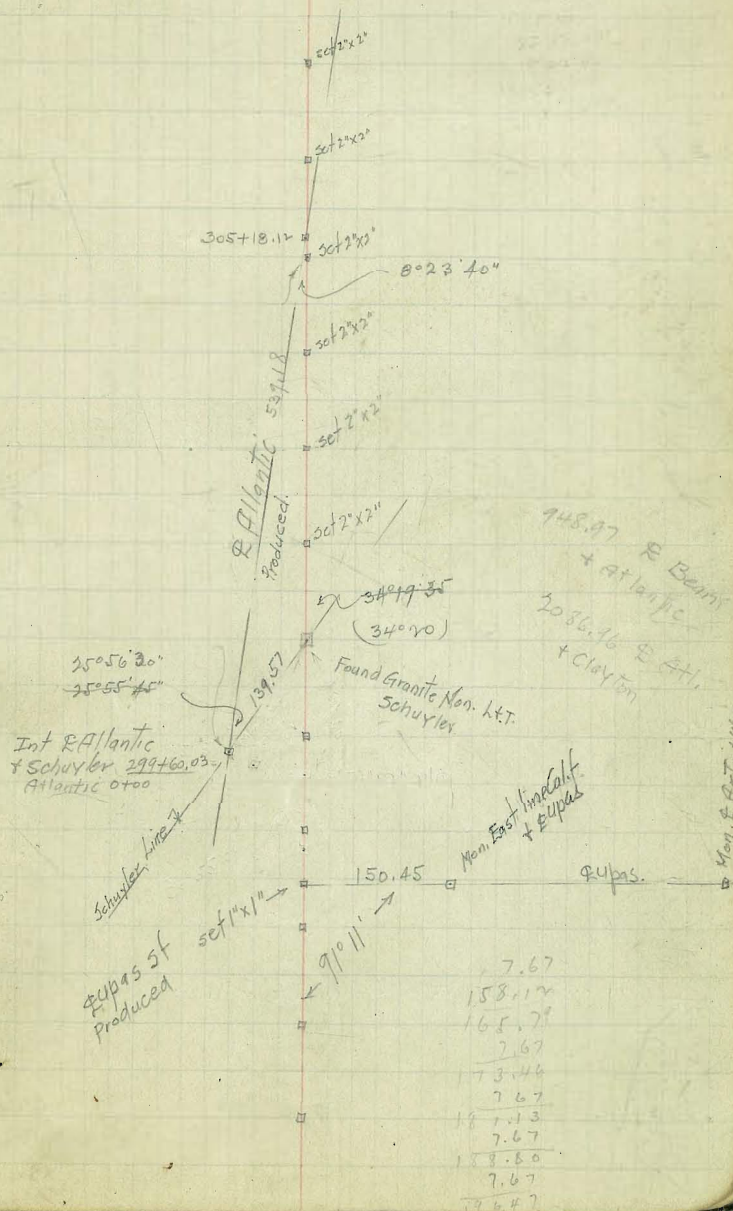
3009.60

2984 43.53

150.45

2555.45
25
25056.10

14



320 +00
319 +99.52 chd. to Granite Mon. Schuyler

319

318

317 +98.74 Int. E Harshy

316

315

314

313 +14.28 Int. E Emory

312

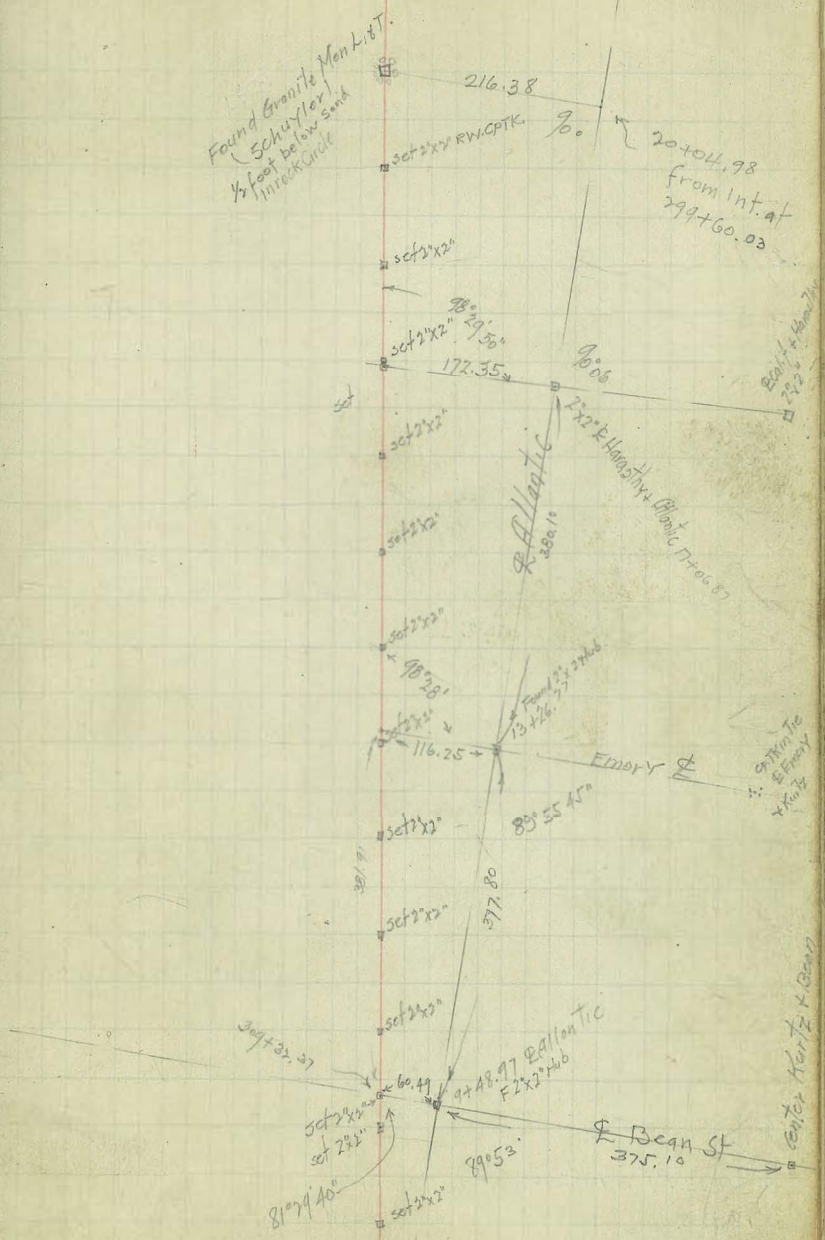
311

310

309 +32.27 Int. E Bean St + Schuyler

308

chained 1899.82
N69°38'W



center Harshy + Bean

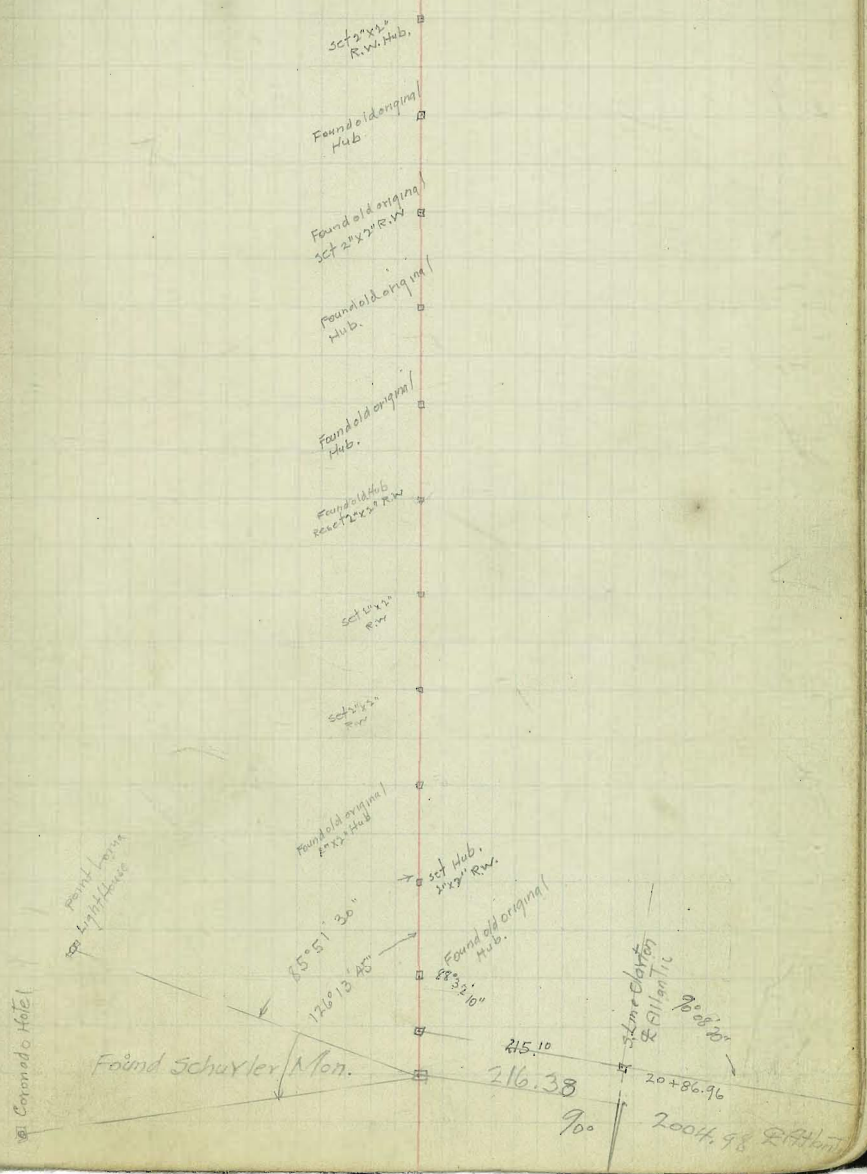
331
330
329
328
327
326
325
324
323
322
321

N 59° 38' W

Chained 1646.07

+42.59 Int. S.F. Property line Claxton

320 +00 Schurley Mon. 10° 00 RT. N 59° 38' W x
319 +99.82 chained



at Coronado Hotel

Line Claxton & Atlantic

90°

2004.98

409 +57.88 Int. 5.7' line James St

408

407

406 +85.12 Int 50.7' line Kingsley St

405

404

403+00 Found Schuyler Granite Mon.
(Note see page 30 for Int. Harbor Villa's (R.L. 1909))

(Note) See Page 37 for Traverse from 336+40. to 403+00

+40.07 Found Schuyler Mon. (Granite) E. side Disc 452°40 Lt

336

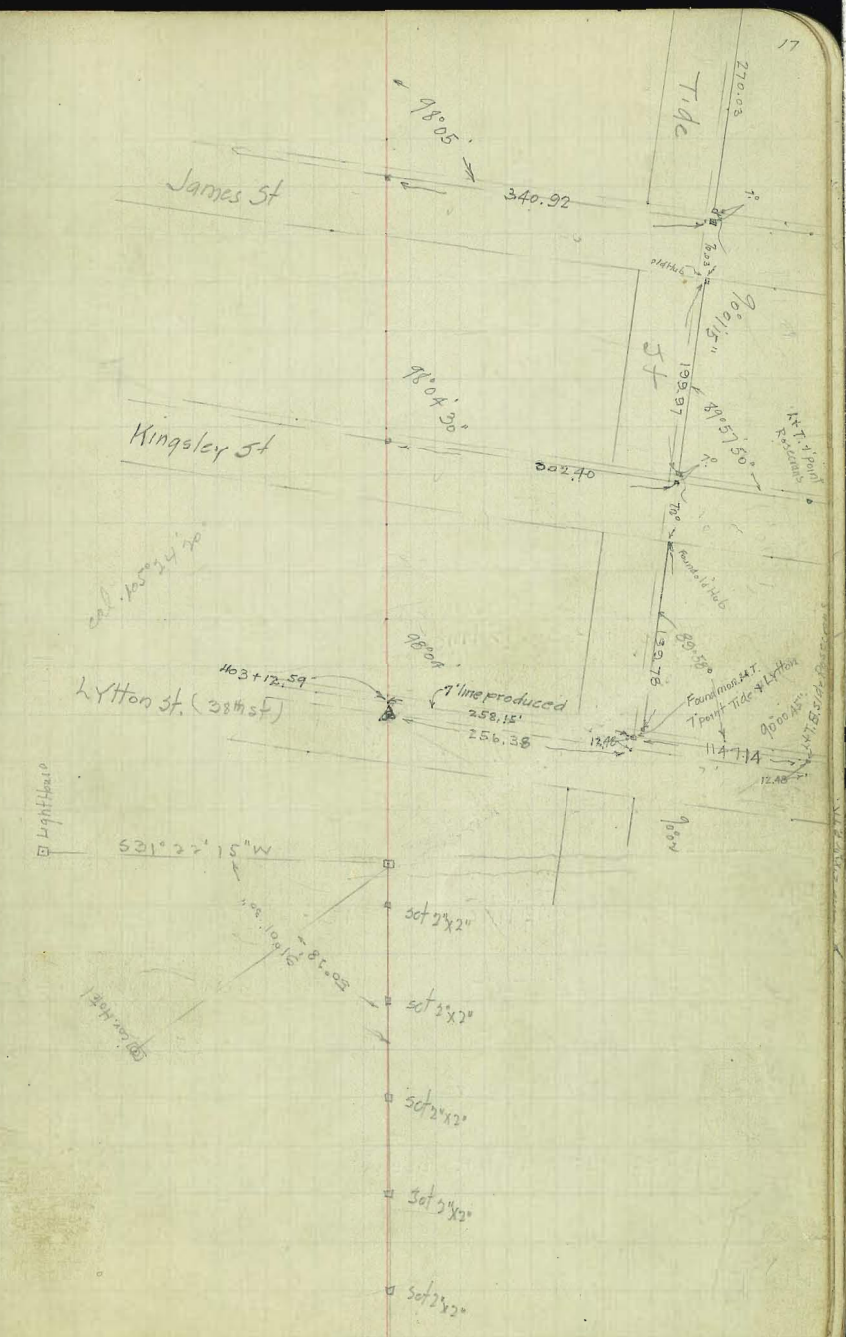
331

334

333

332

N59°34'W



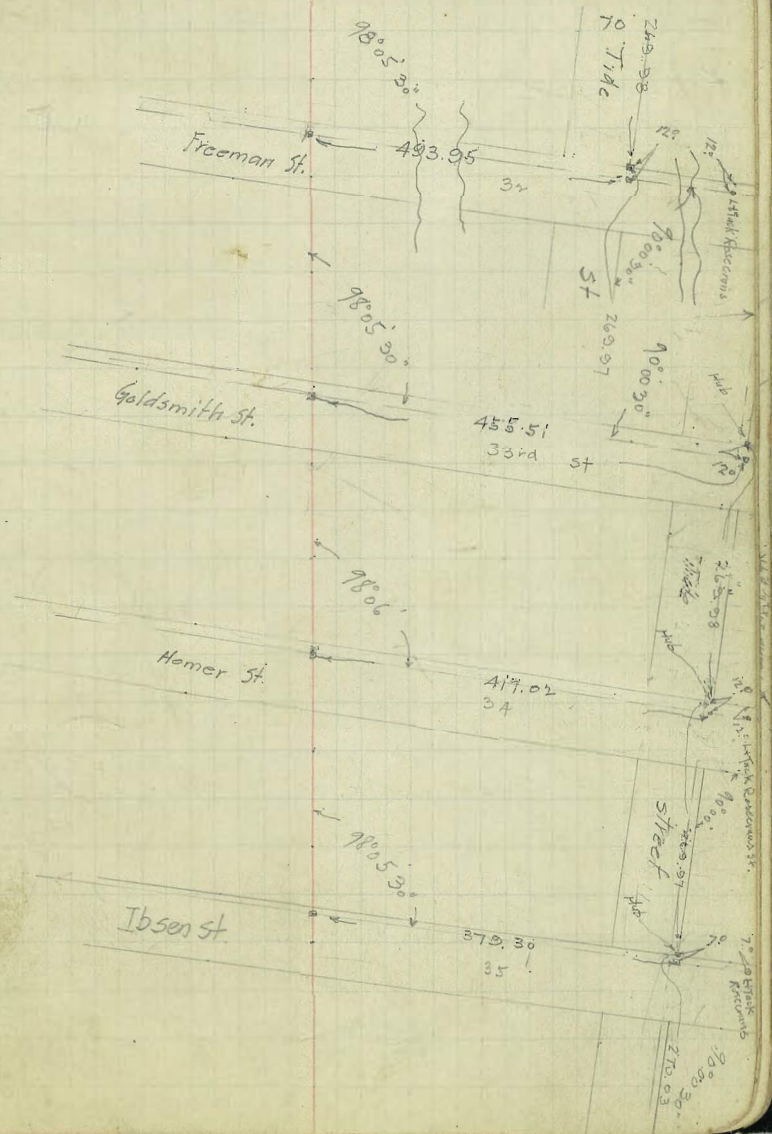
421
420
419
418
417
416
415
414
413
412
411
410

+43.69 Int 50.12' line 32nd st

+71.03 Int. 50.12' line 33rd st

+98.39 Int. 50.12' line 34th st

+30.72 Int 50.7' line Ibsen St.



14.7
+6.6

433

432

+20.55 Int. 60.7' line Browning St

431

430

429

+62.33 Int 50.7' line Curtis St

428

427

426

425

+57.33 Int N. Line Dumas St.

424

423+00 (Chaining checks) Found Original Schuyler Granite Mon. in place $\Delta 42^\circ 48' R$

422+00 +16.50 Int. 50.12' line 31st St

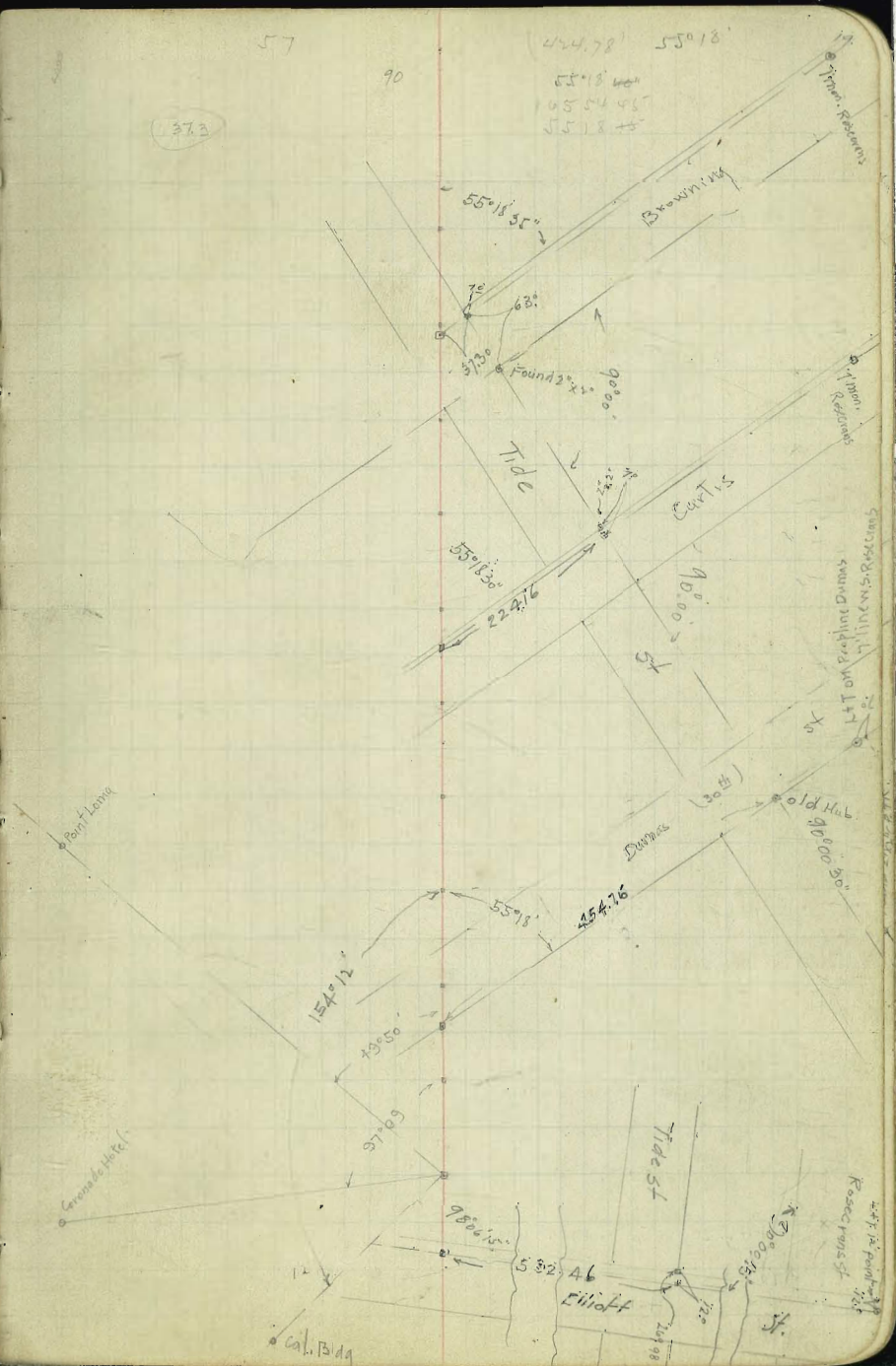
57

(372)

90

434.78 550.78

55.18 44
43.54 45
55.18 45



454.00
 1.41
 450.59 8.59

20.15

63.66
 36.34
 143.00
 179.34

457

+42.90 Int so. 7' line Tennyson St

456

455

454 +77.80 Int so. 7' line Udal

453

452

451 +28.59 Int. so. 7' line Voltaire

450

449

(Original mon. at 448 washed out)

448+00 = set cor. (100 from old original ex. hub) AZT°20'40" Lt
 mon. at sta. 447+00.

447+99.8 chained

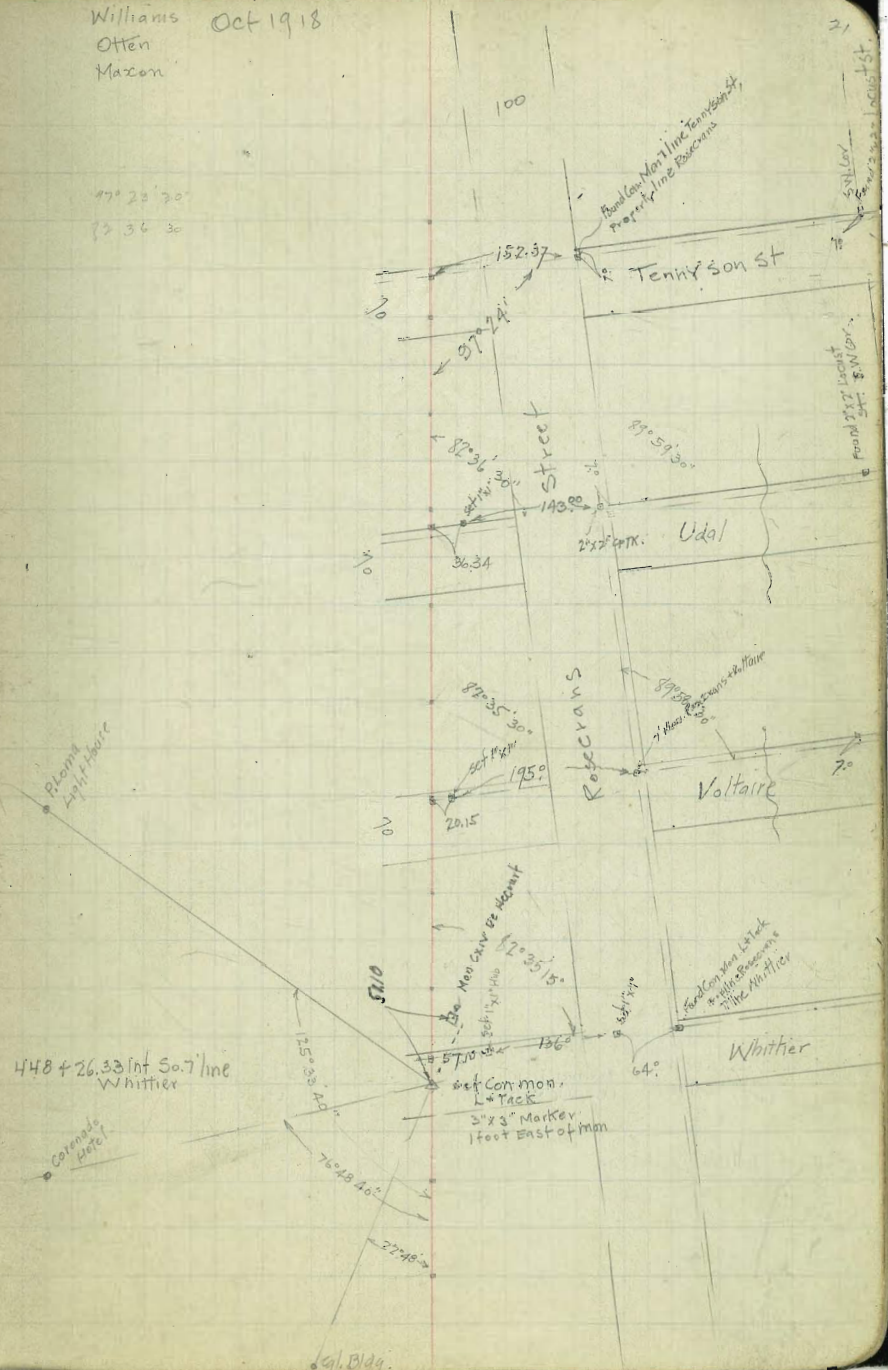
447+00 Found old Original 1" x 1" Hub

446+99.8 chained

446

Chained 1217.34
 Record 1217.53
 0.21

Williams Oct 19 18
 Otten
 Mazon

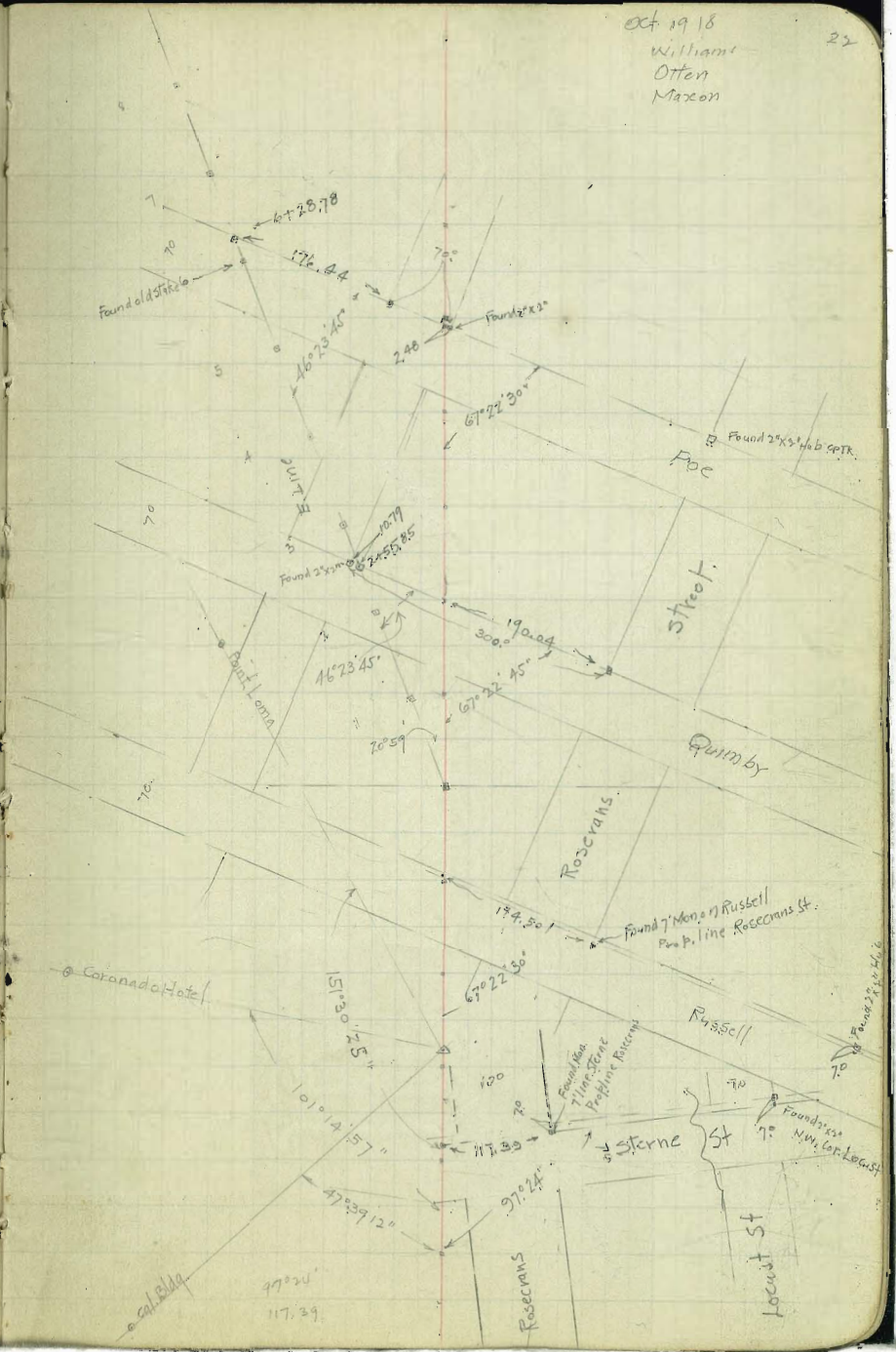


31

23.34
117.74

- 469
- 468 +92.63
- 467
- 466
- 465 +00.10 Int. So. Prop. line Quimby St
- 464
- 463 +32.40 =
0+00 E. line
- 462 +00.11 Int. So. 7 line Russell St.
- 461
- 460 +17.53 Record Found Original Schurck
+17.32 chained Granite Mon. Lt. $\Delta 29^{\circ}59'53''$ Lt Turned
30°06' Lt Record
- 459 +14.96 Int. So. 7 line Sterne St
- 458

Oct 19 18
Williams
Otten
Maxon



+ 92.70 Record Found Original Schuyler Δ 43° 58' L^t Turned Road
 + 92.67 chained Granite Men.

493

492

491

+63.63 Int. No. line Hugo St

490

489

488

+68.92 Int. N. line Ingelow

487

486

+51° Int. So. line Jarvis St

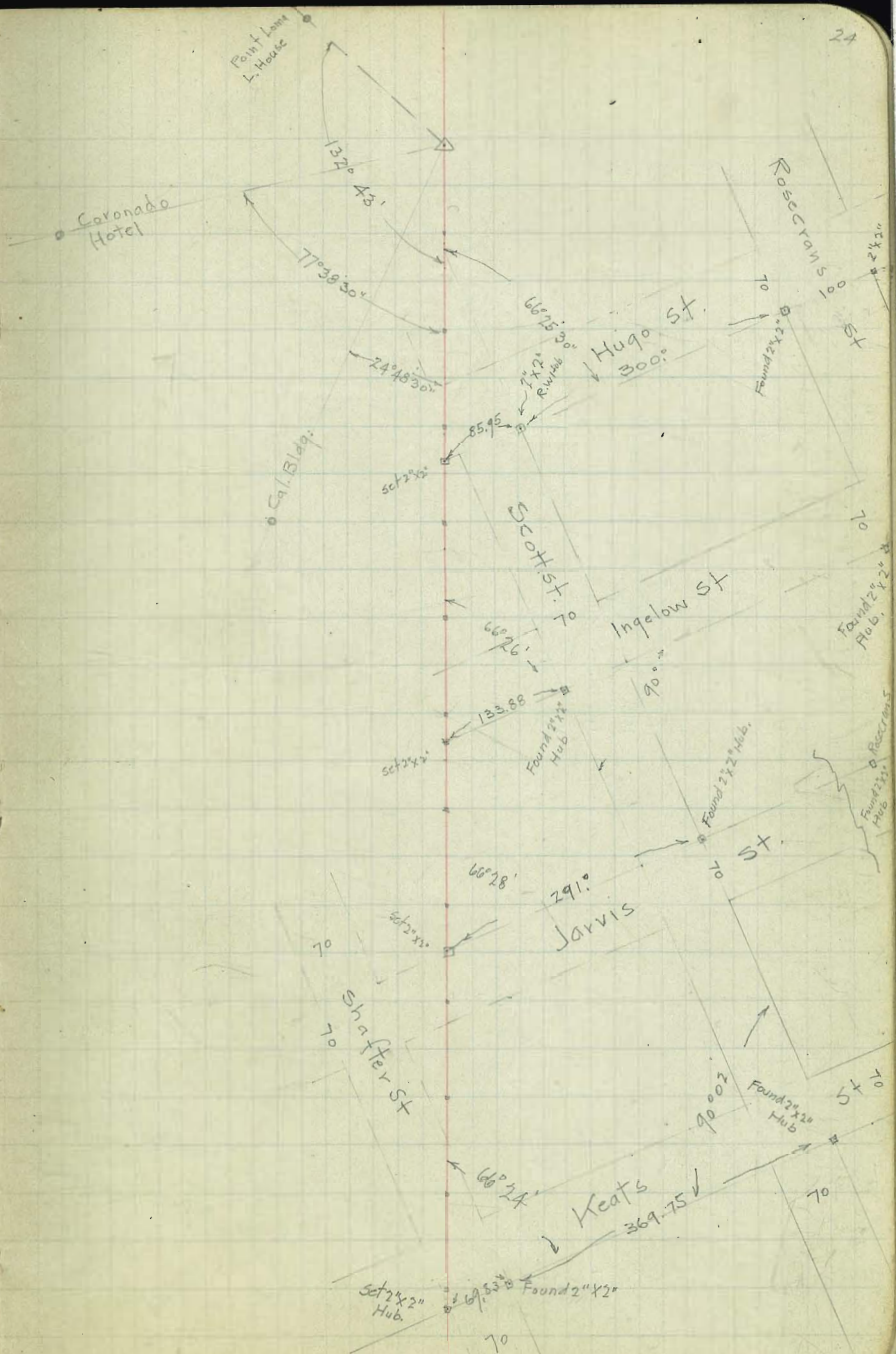
485

484

483

482

+79.50 Int. no. line Keats St



505

504

503 +97.76 Int w. line Dickins St.

502

501

500 +71.80 Int & Emerson St

499

498

497 +84.18 Int. & Fenelon St

496

495 +23.91 Int N. line Scott St.

494 +96.05 Int. & Goethe St
+92.70

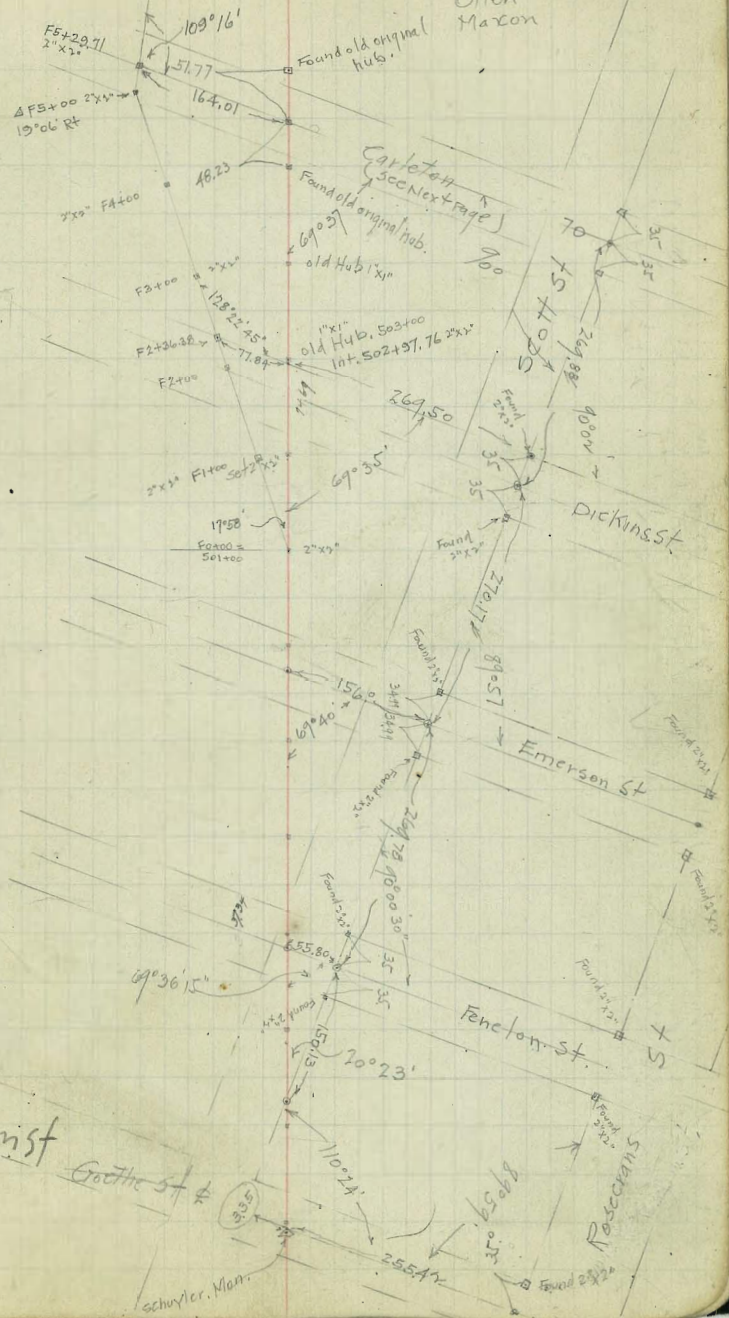
Δ 13° 58' L

1942-59 Chained
1942-84 Record

Oct. 1918 Williams

Ott
Marion

25



517

516

515

514

Found old original 1'x1" R.W. Hub and Jack

+35.54

Found old Schuyler Granite Mon. Washed out and laying flat. (Reest Mon. on line and record distance from old original hub at Station 514+00

Δ = 48°01' Rt. Turned 48°00' Record

513

512

511

+24°

Int. E Addison St

510

509

+36.09

Int E Byron

508

507

506

+86.45

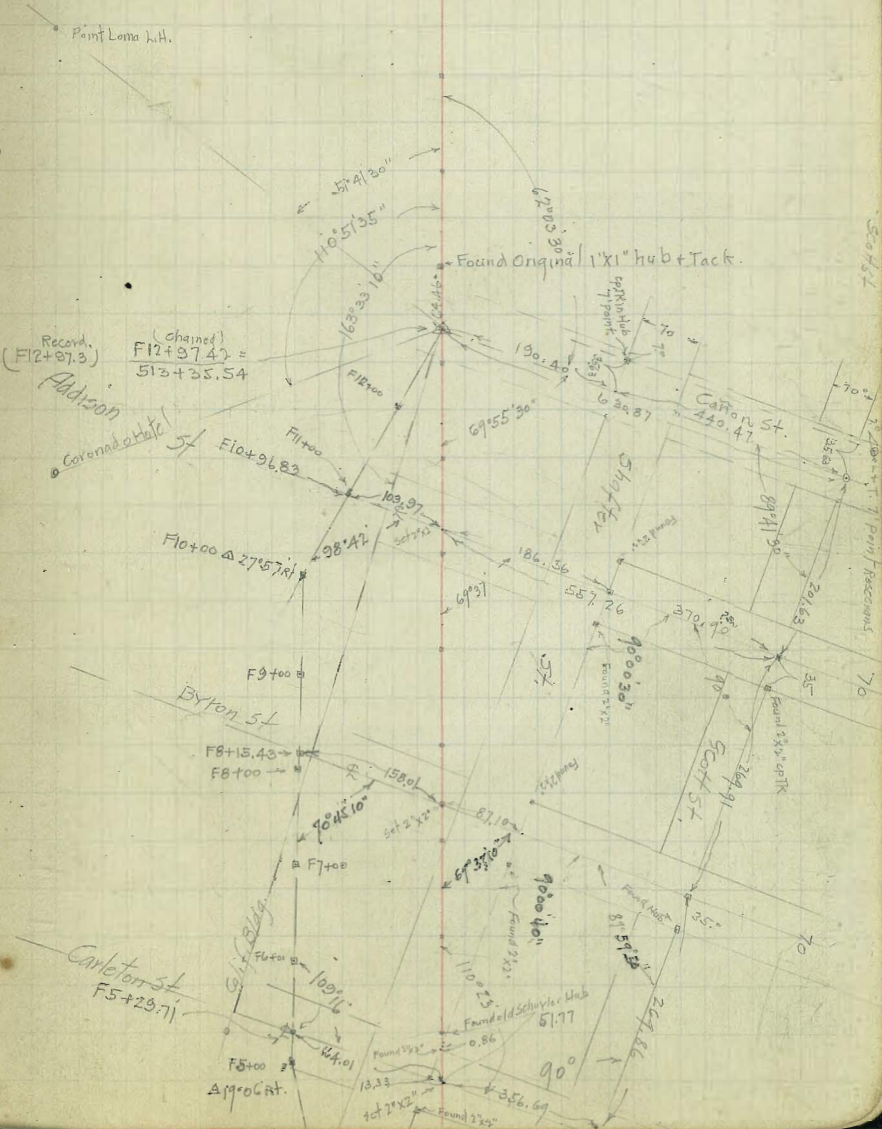
Int N Line Shafter

+48.23

Int E Carleton

Chained 1865-97

Chained 1942-84



529

+38.81 Int East line PL. 186

528

527

526

525

+49.95 Int. Westerly line Bay Shore Addition to New Roselle
(Map B.11)

524

523

522

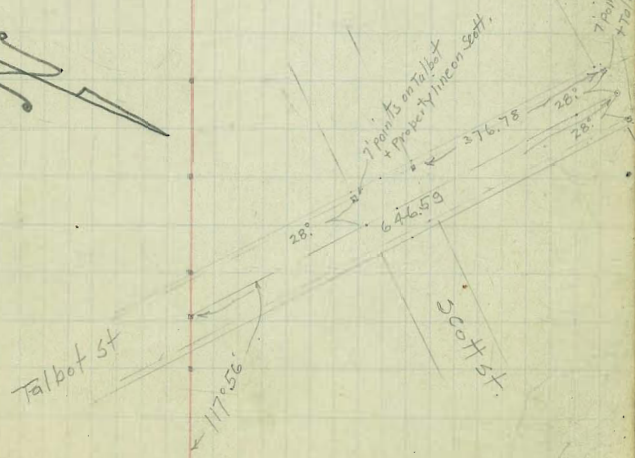
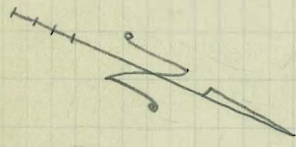
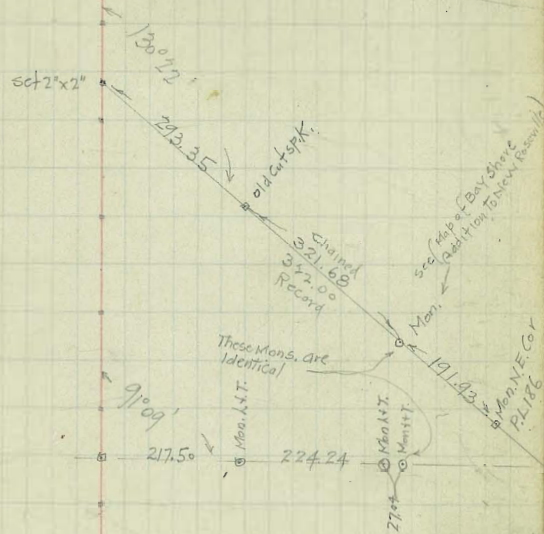
521

520

+55.34 Int & Talbot St

519

518



541

540

539

538

+71.20 Int. N. line P.L. 175

537

536

535

534

533

(Chained Record)

532 +01.51

Found Original Schuyler
Granite Men. & T.

$\Delta 38^{\circ} 20' H$ Topped

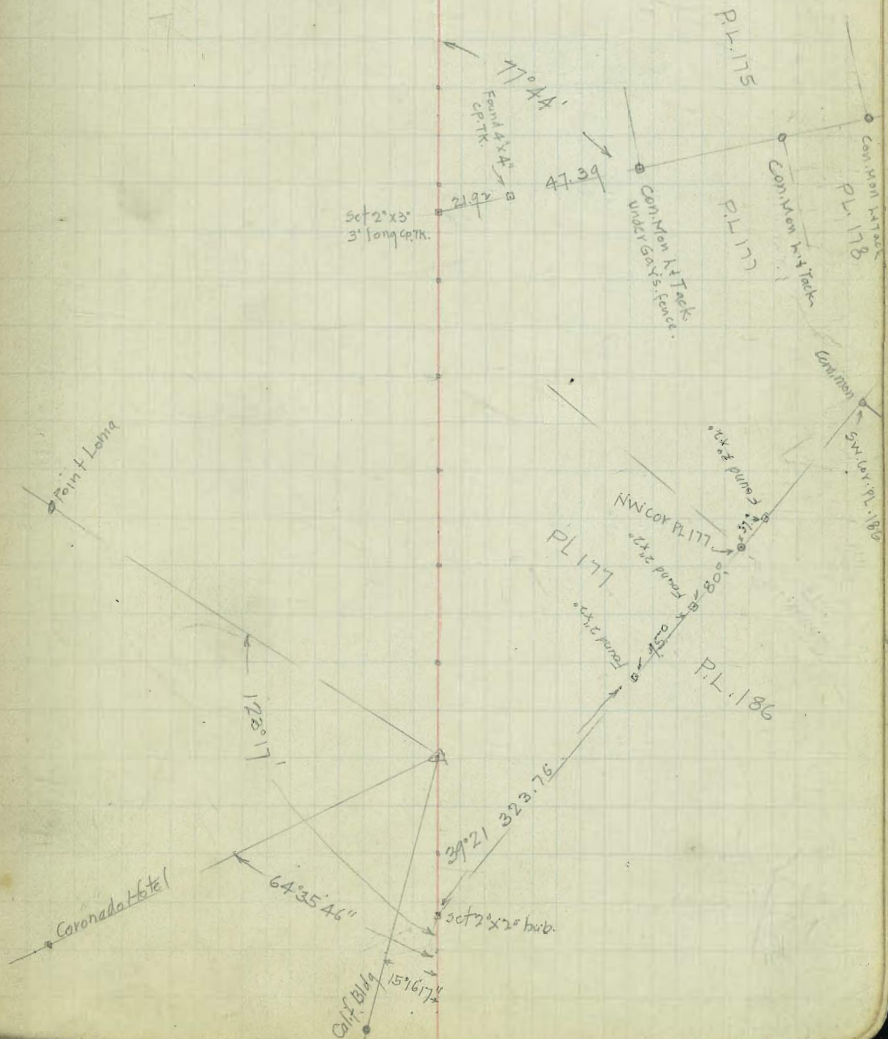
531

+35.56

Int. S. Line 186 P.L.
& N. Line 177 P.L.

530

Found old Hub on line of distance



553 +50.90 Int. & Owen St

552

551 +38 Reset old Schuyler Mon. Granite
Record line (dist. from Sta E50+00) 28°09' Record
Δ 28°10' Turned Rt.

550 +29.56 Int. & Perry St.

549

548

547

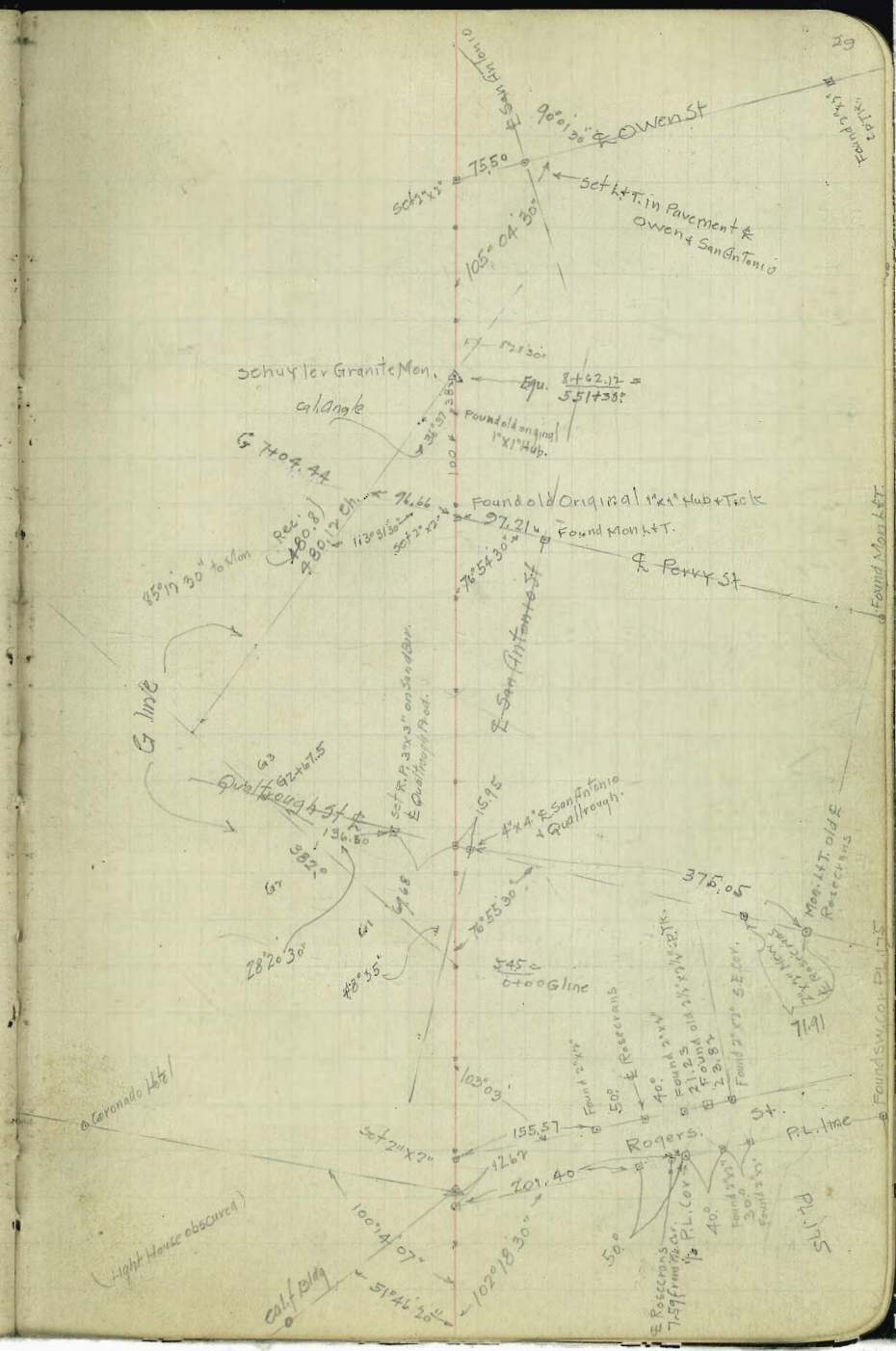
546 +30.39 Int. & Quail Trough St

545

544

543 +46.76 Int. south line Rodgers St
+56.53 Record Found Schuyler Mon.
+56.62 Chamed Lt+Tack Δ 25°30' Lt
+49.00 Int. s. line P.L. 175

542



565

564 +19.18 ← +19.32 Corrected Sta. (See note on sketch)
Int. & Lawrence St.

563

562

561

+66.13 Int. & McCall St.

560

559

558

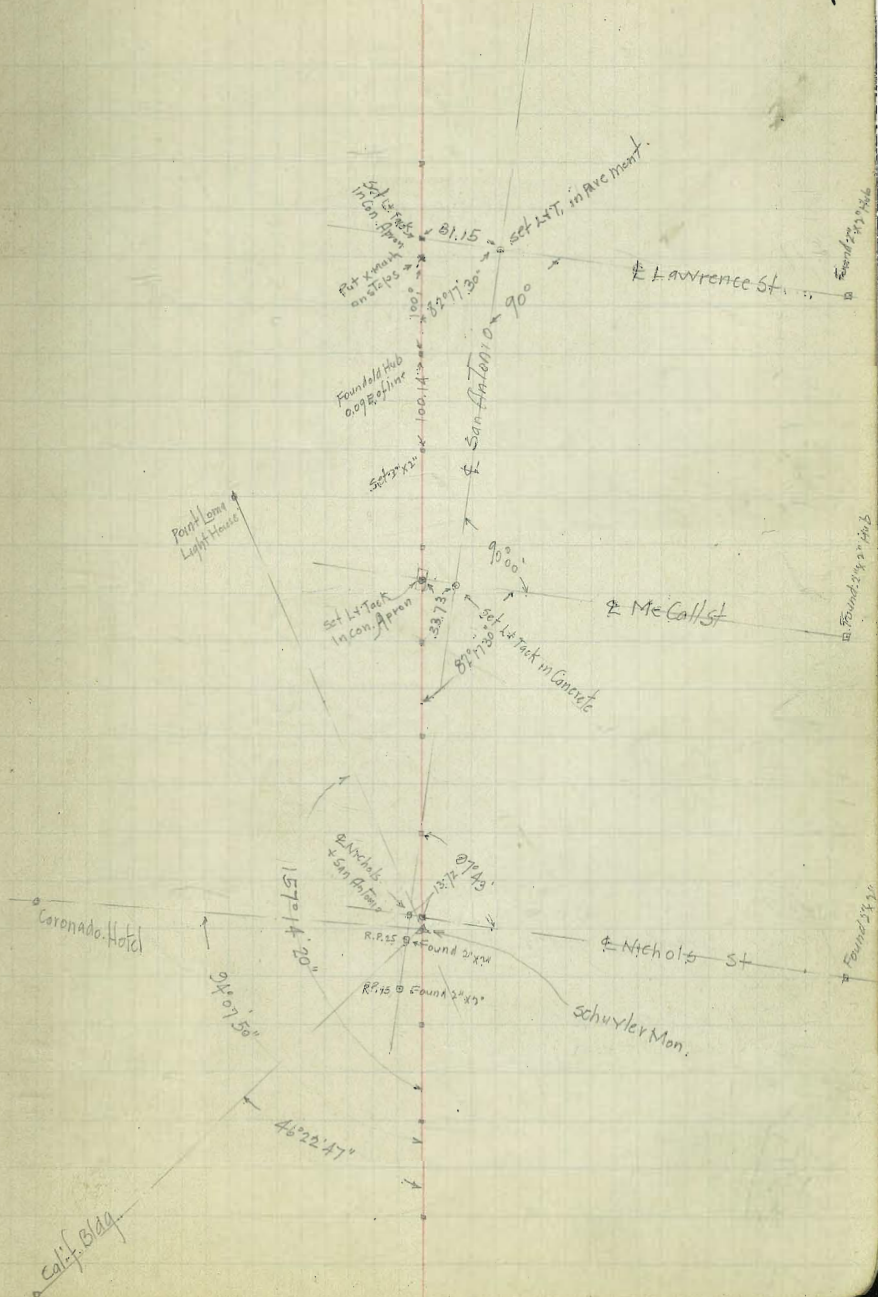
+12.88 Int. & Nichols St.
557 +00 Record Found original
557 +00.10 chained Schurley Granite Mon. $\Delta 22^\circ 47' 1\frac{1}{2}$ Record
 $\Delta 22^\circ 48' 50''$ Turned

556

555

554

Record 12.7895
Chained 12.29.24



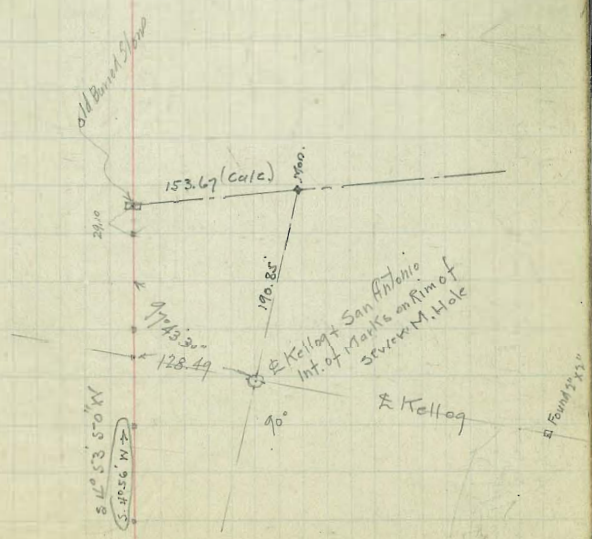
Calif. 6109

569 $\frac{+28.95}{+29.10}$ Record Chained Found Buried Stone Marked U.S. M.R. with X 5347
 Correct Sta. $+29.24$

568 Correct Sta. $+71.94$
 567 $+71.80$ Int @ Kellogue St.

567

566



Traverse from 336+40 to 403+00 Schuyler

11 +00

+60 Potl'xi'

10

9

8

7

6

5

4

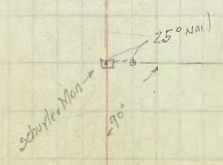
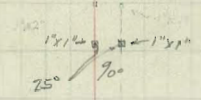
3

2

1

336+40°
0+00

N59°38W



24

23

22

+58.88 = Random
+59.26 Corrected

$\Delta 46^{\circ} 30' L^t$ = Random
 $\Delta 46^{\circ} 28' 30''$ Corrected

21

20

19

18

17

16

15

14

13

12

33° 20'

46° 30'

50.87

8.50

59.37

33

46.68

27 / 200
58
20
27

$46^{\circ} 30' L^t$ = old random.
 $46^{\circ} 28' 30''$ corrected

21+58.88 = Random
21+59.26 Corrected line

21+50.38 Corrected

(Corrected)
(0.28 W)

25
90°

Corrected
68.15
687.88 Random

Mon 7 line
Tides +
Kurtz St

Kurtz St

set 1' x 1"

70°

set 1' x 1"

25°

37

36

35

34

33

32

31 = set Prof. 2" x 2" R.W CPTK. =
30 + 99.6m corrected

30 set Prof. 2" x 2" R.W CPTK.

29

28

27

26

25

Random line
Corrected line

about 45' past
Santa Fe Cigar
Bill Board sign

Corrected
92.24 182
72.24 112

Corrected
(0.66 W)

50

49

48

47

46

45

44

43

42

41 =
40 + 0.67 corrected set 2nd yr

40

39

38

J.V. 3325

35

Random line
Corrected line

SPC.G + Elec. Co Pole (J.V. 3325) Corrected
about 30' 1.07 W

6A+14° Mon 7 line Tide + Lytton

62

+ 48.87 corrected Int. Schuyler Int $\Delta = 46^{\circ} 11' 40''$ L

61 =
60 + 99.62 corrected

60

59

58

57

56

55

54

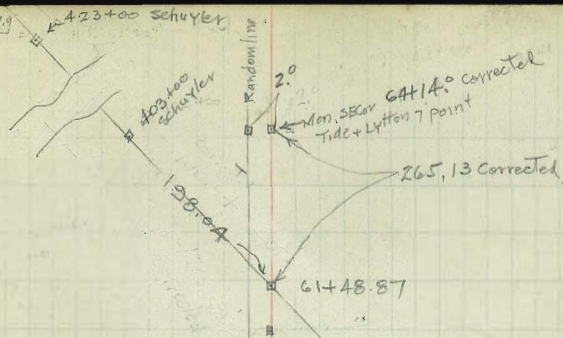
53

52

51 =
50 + 99.62

Set 2" x 2" cap TR.
P. O. T.

173" = $\frac{4437.9}{2}$



36

Corrected
2.0 W. To Mon.

Corrected
1.88 West

Corrected
1.47 West

Cor Atlantic + bank
Setup Cop tack #38 #3:0°00 Rt to Cal. Bldg.

- ① 161° 42' 40"
- ② 323° 24' 50"
- ③ 485° 07' 40"
- ④ 646° 50' 15"
- ⑤ 808° 33' 00"
- ⑥ 970° 15' 15"
- ⑦ 1131° 58' 00"
- ⑧ 1293° 40' 45"

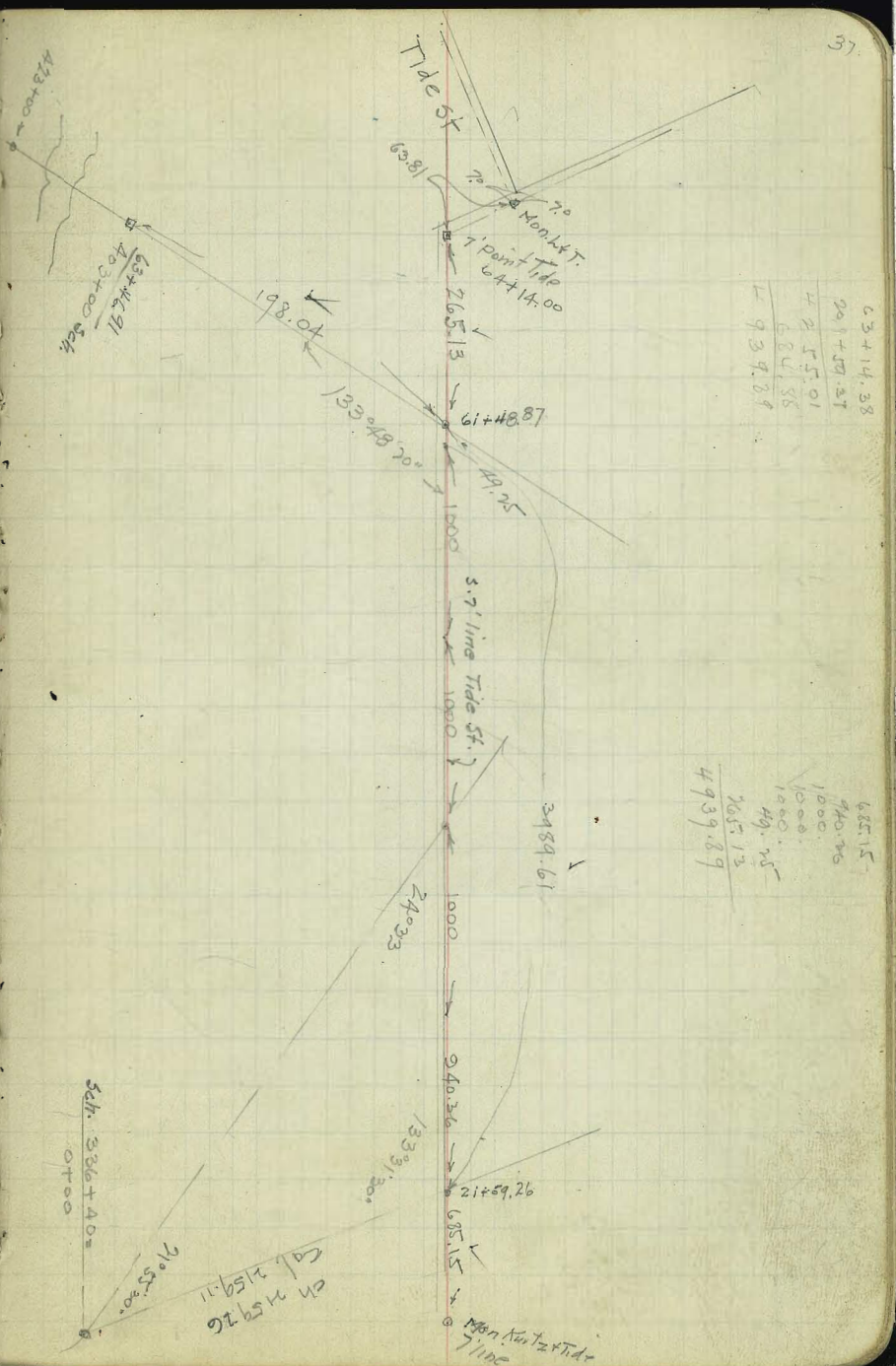
Cor Atlantic + bank #
Setup Cop tack #38 #63:0°00 Rt to #3

- ① 45° 18' 05"
- ② 90° 36' 30"
- ③ 135° 54' 50"
- ④ 181° 13' 00"
- ⑤ 226° 31' 20"
- ⑥ 271° 49' 50"
- ⑦ 317° 08' 00"
- ⑧ 362° 26' 30"

5.7 Line Market approx + Atlantic 0°00 Cal. Bldg Left to
Setup Cp Tack #38 130° 45' 15" Cop Tack
12 + 40

see Book 1081 Page 71

261° 30' 30"



63 + 14.38
201 + 37.37
42 15.01
684.85
939.89

657.15
740.76
1000
1000
1000
49.25
265.13
4939.89

Sch. 336 + 40 =
0700

71° 55' 30"
Cal. 2159.11
Ch 2159.26

Mon. Nutz + Tid
7.1100

Setup Mon 448+00 #0=0°00

To 423+00 = 0 9° 55' 30" Rt

① 19° 51' 00"

② 29° 46' 20"

③ 39° 41' 40"

④ 49° 37' 00"

⑤ 59° 32' 30"

⑥ 69° 27' 40"

⑦ 79° 22' 55" (C. base)

Setup 448+00 #0=0°00

① 32° 43' 40"

② 65° 27' 00"

③ 98° 10' 10"

④ 130° 53' 50"

⑤ 163° 37' 10"

⑥ 196° 20' 20"

⑦ 229° 04' 00"

32 43 40
21 14 40
14 21 30
5

Ave 32° 43' 26"

Setup 448+00 # Expo. Cal. = 0°00 Right to #33 Court House

① 18° 53' 00"

② 37° 45' 40"

③ 56° 38' 50"

④ 75° 31' 20"

⑤ 94° 24' 20"

⑥ 113° 17' 10"

⑦ 132° 09' 50"

18 53 00
11 35 35
6 14 5
6

Ave 18° 52' 50"

Setup 448+00 #33=0°00 Rt to #63

① 35° 08' 10"

② 70° 16' 00"

③ 105° 23' 50"

④ 140° 31' 30"

⑤ 175° 39' 20"

⑥ 210° 47' 30"

⑦ 245° 55' 30"

Setup 448+00 #63=0°00 to #3

① 48° 45' 00" Rt

② 97° 30' 00"

③ 146° 15' 00"

④ 195° 00' 00"

⑤ 243° 45' 00"

⑥ 292° 30' 00"

⑦ 341° 15' 00"

48 45 00
13 41 28
35

Ave 48° 45'

Setup 448+00 #3=0°00 Right to #5 Benning's

① 9° 00' 20"

② 18° 00' 30"

③ 27° 00' 50"

④ 36° 01' 00"

⑤ 45° 01' 15"

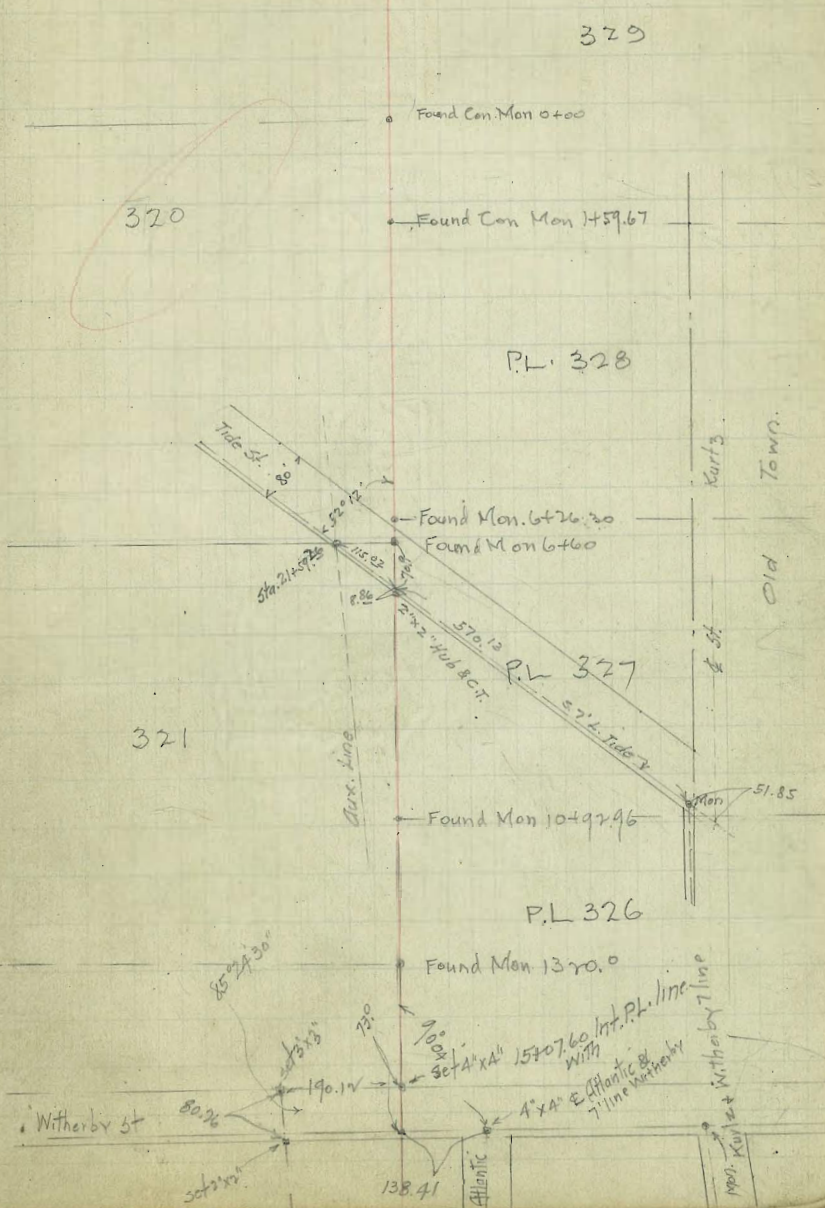
⑥ 54° 01' 30"

⑦ 63° 01' 50"

9 00 20
16 01 50

Ave 9° 00' 15"

See Note Book 1106-12
 Witherby - W Atlantic + Barnett Ave

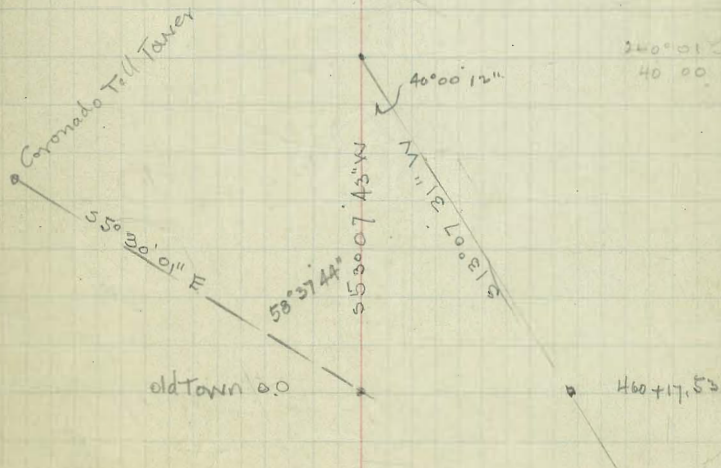
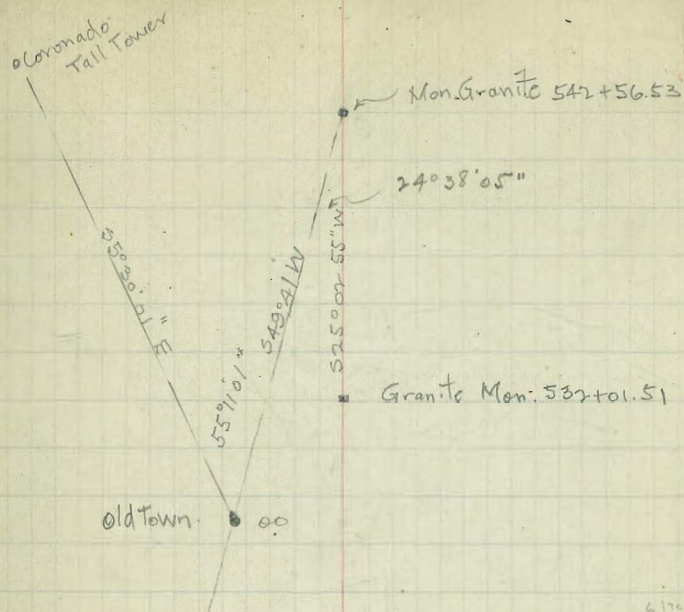


542+56.53

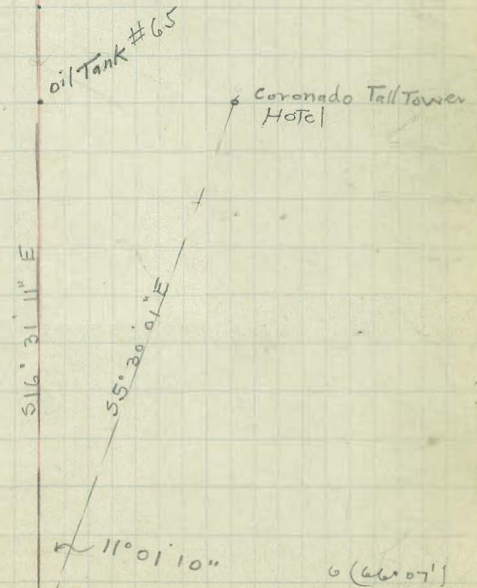
532+01.51

480+56.46

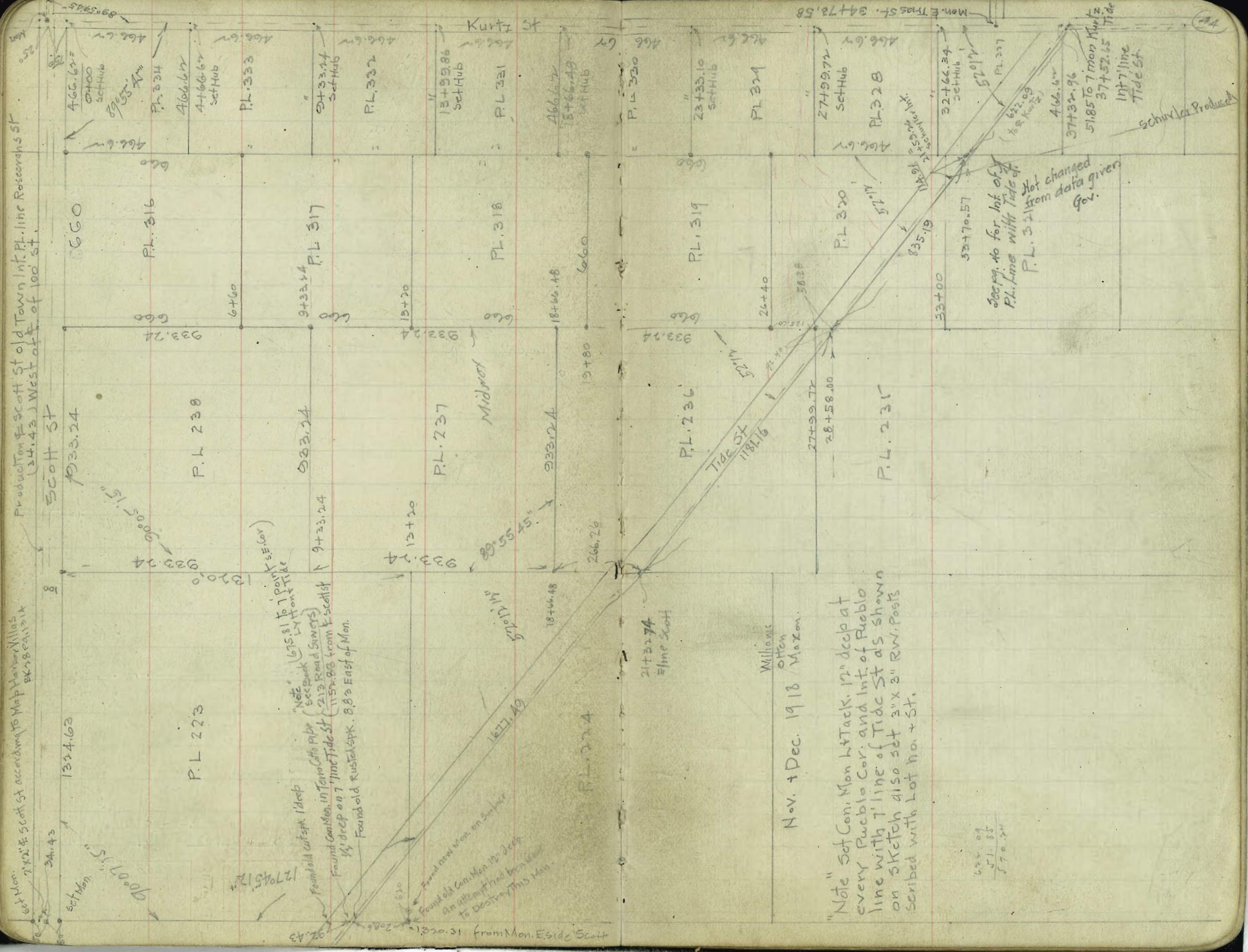
40°00'15"



USCGS 00 →
Old Town



6 (6607)



Production & Scott St old Town Int. Pl. line Rosecrans St
(34.43) West of E of 100 ft.

1/4 Sec. 14, 15 & Scott St according to Map
Bk 58, 59, 60, 61, 62

P.L. 223

P.L. 238

P.L. 316

W. Stolzi

Note: 1675.81 to 7 Point (E. of) Lyon & Tide

Found old cut-off deep
Found Con. Mon. in Topo City Map
1/4 deep on 7 line Tide St (213 Road Gravel)
157.82 from E. Scott St
Found old rusted cap. B. 83 East of Mon.

Found old Con. Mon. in 1914
An attempt had been made
to destroy this Mon.

P.L. 237

Midway

M. Clot

1320.31 from Mon. E. Side Scott

P.L. 236

P.L. 239

P.L. 319

P.L. 321

Williams
Office
Nov. + Dec. 1913
Mozen.

"Note" Set Con. Mon. in Tack. 1/4 deep at
every Pueblo Cor. and Int. of Pueblo
line with 7 line of Tide St as shown
on sketch also set 3" x 3" R.W. Posts
scribed with Lot no. + St.

622.09
571.85
570.24

2009.46 for Int. of
P.L. line with Tide St
P.L. 321
Not changed
from data given
Gov.

Schuyler Products

74

Gregory
West
Mare
Miller
Slam

Location of Buildings - W. of California St.

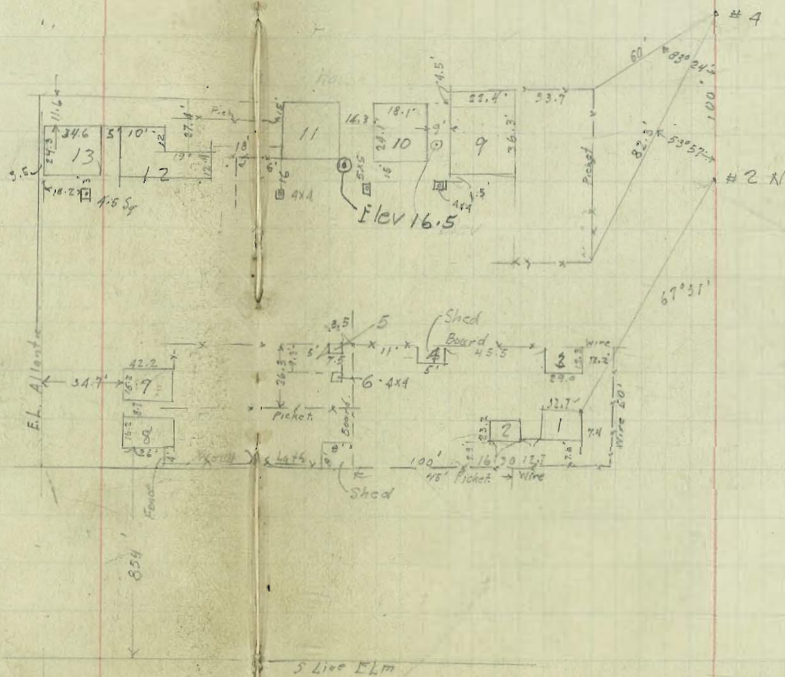
N.

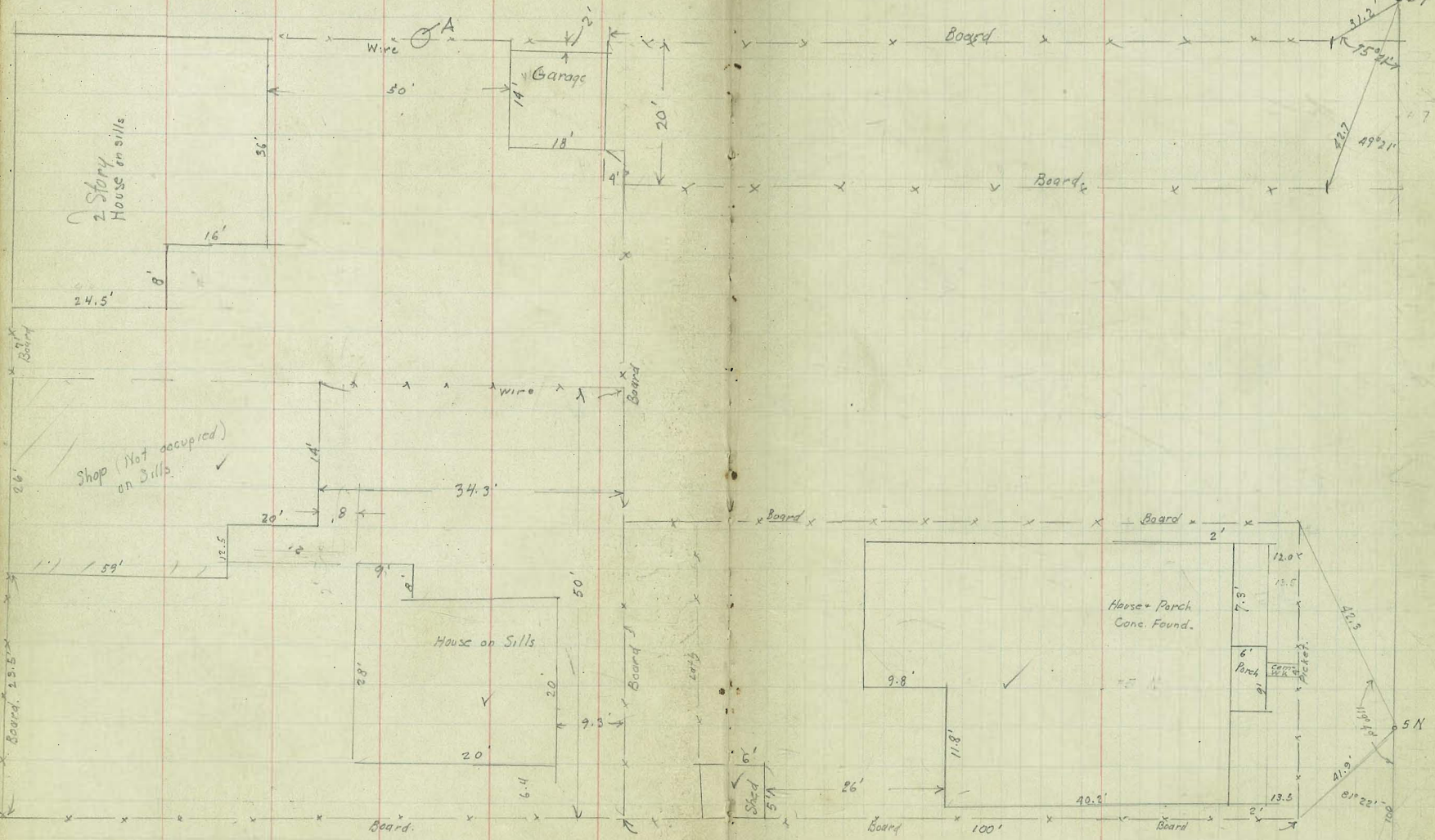
Tide Land Fill

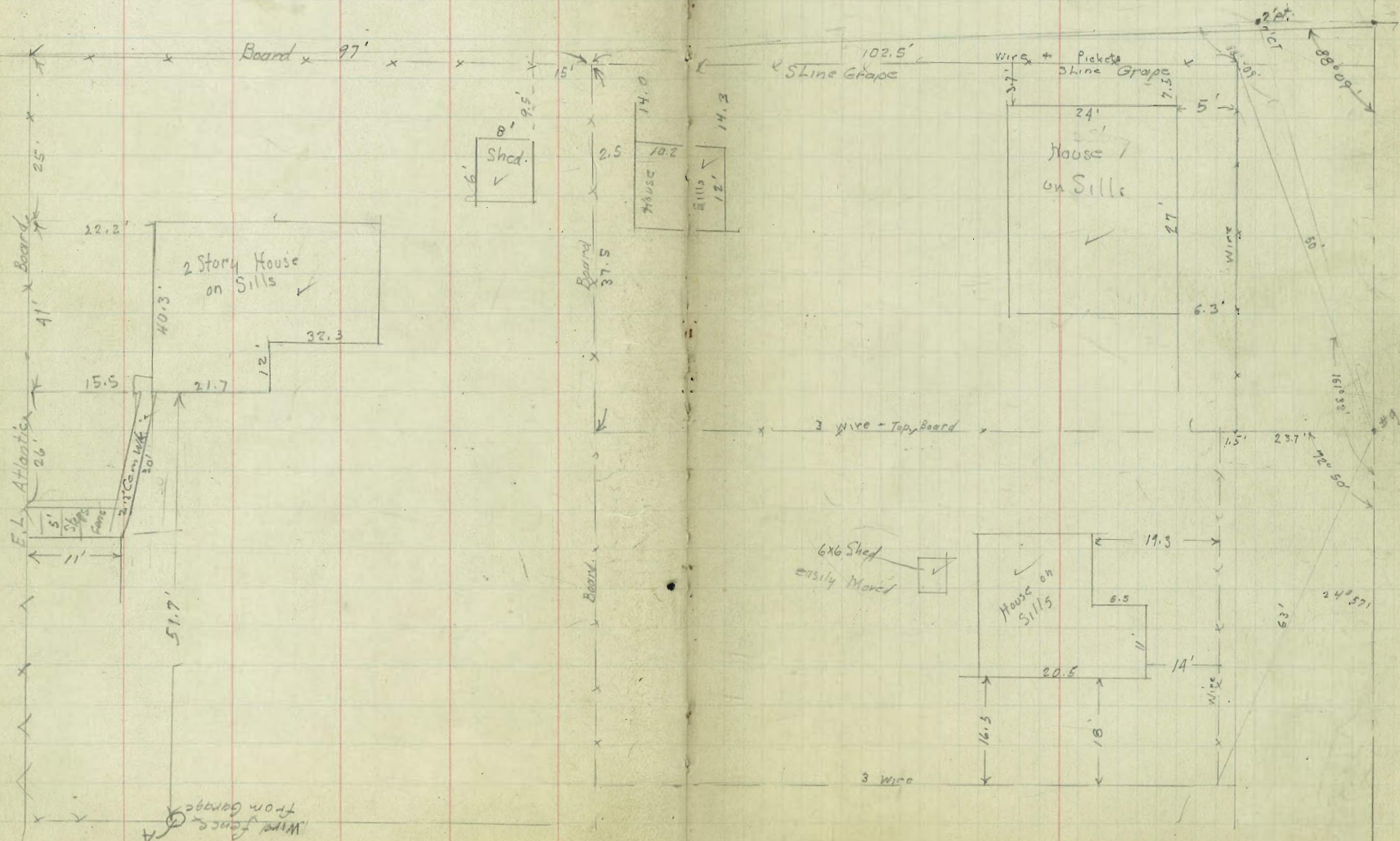
June 2 - 20

	Angle	Dist	to	Found.	Depth of Blk.	Bld
Sta # 2 N.	58° 32' 5"	88.4	SE Cor	Sills + Post	32.7 W	House
# 1.	67° 31'	79.2	NE Cor	"		
2	House		"	"		House
3	House		"	"		
4	Shed		"	"		
5	Shed		"	"		
6	Can		"	"		
7	House Alike		"	"		
8						
9	House					
10	"					
11	Same as 10					
12	House					
13						

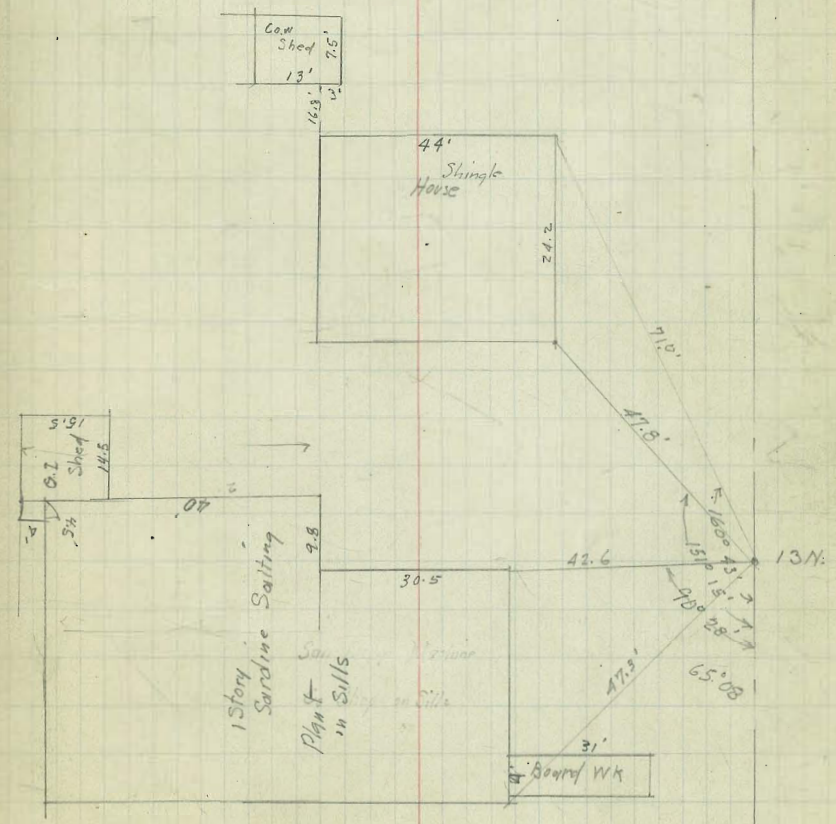
All Bldgs on Sills unless otherwise noted.

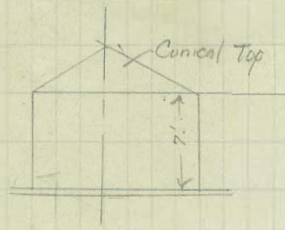






Wire fence from Garage

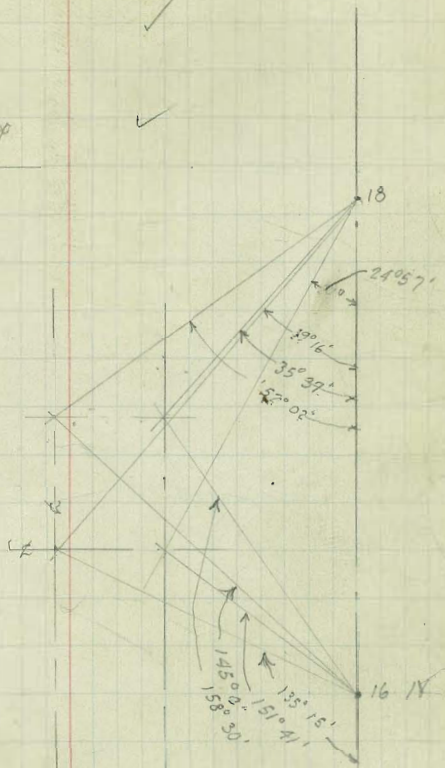


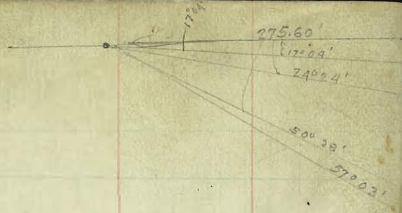


On thin Concrete found.
 4 6.I Oil Tanks
 Circ 53.5'
 height = 7'-0"

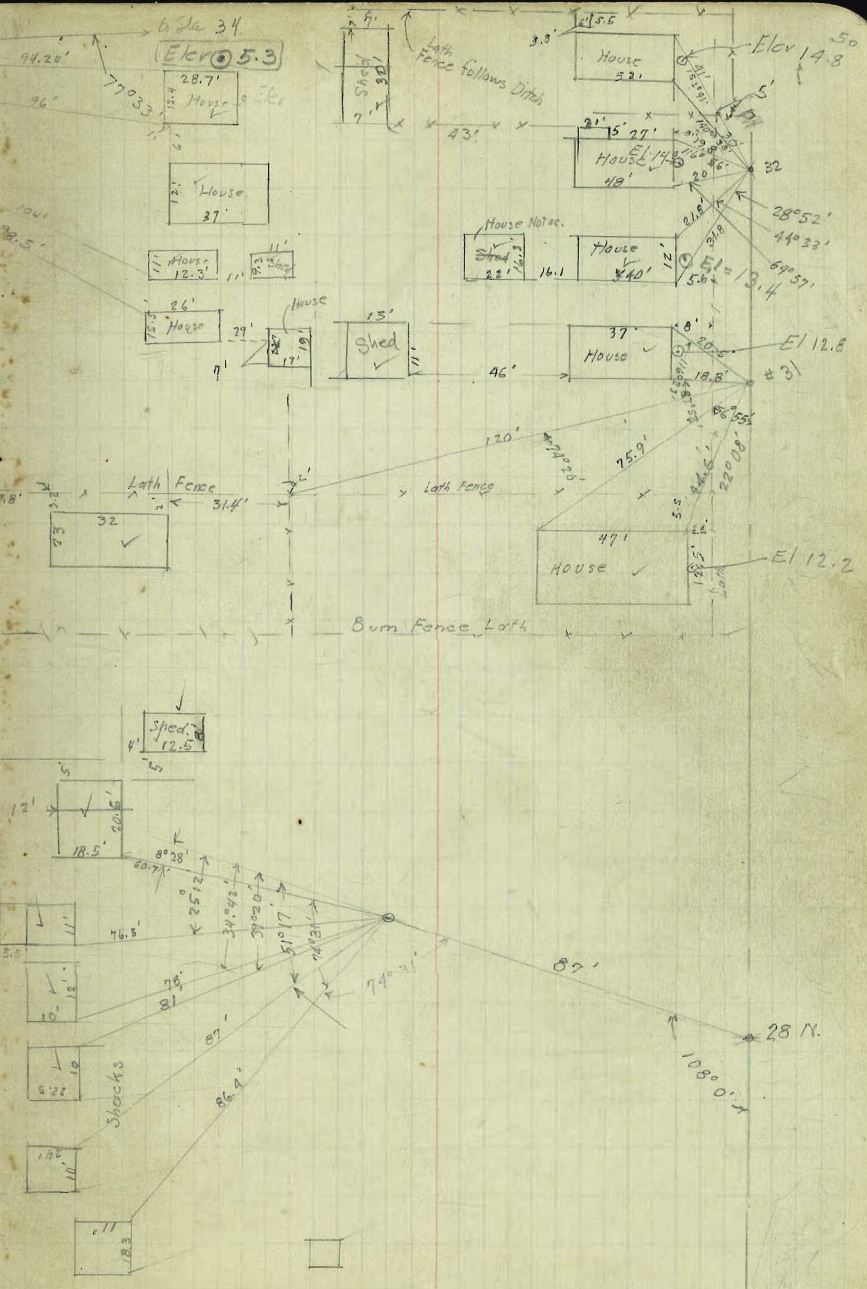
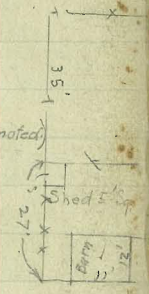
$$53.5 = 2\pi R$$

$$R = \frac{53.5}{2\pi} = 7.34$$





Occupied Shacks, (Flimsy fences, small outhouses not noted)



Note: See page 66 for balance of sets for 131+00

Setup Mon 131+00 148+46 = 0°00 Rt to Cal. Bldg.

① 36° 38' 50"

② 73° 18' 00"

③ 109° 57' 00"

④ 146° 36' 00"

⑤ 183° 15' 00"

⑥ 219° 54' 10"

⑦ 256° 33' 15"

Setup 131+00 #3 = 0°00 Rt to #5

① 13° 09' 30"

② 26° 18' 50"

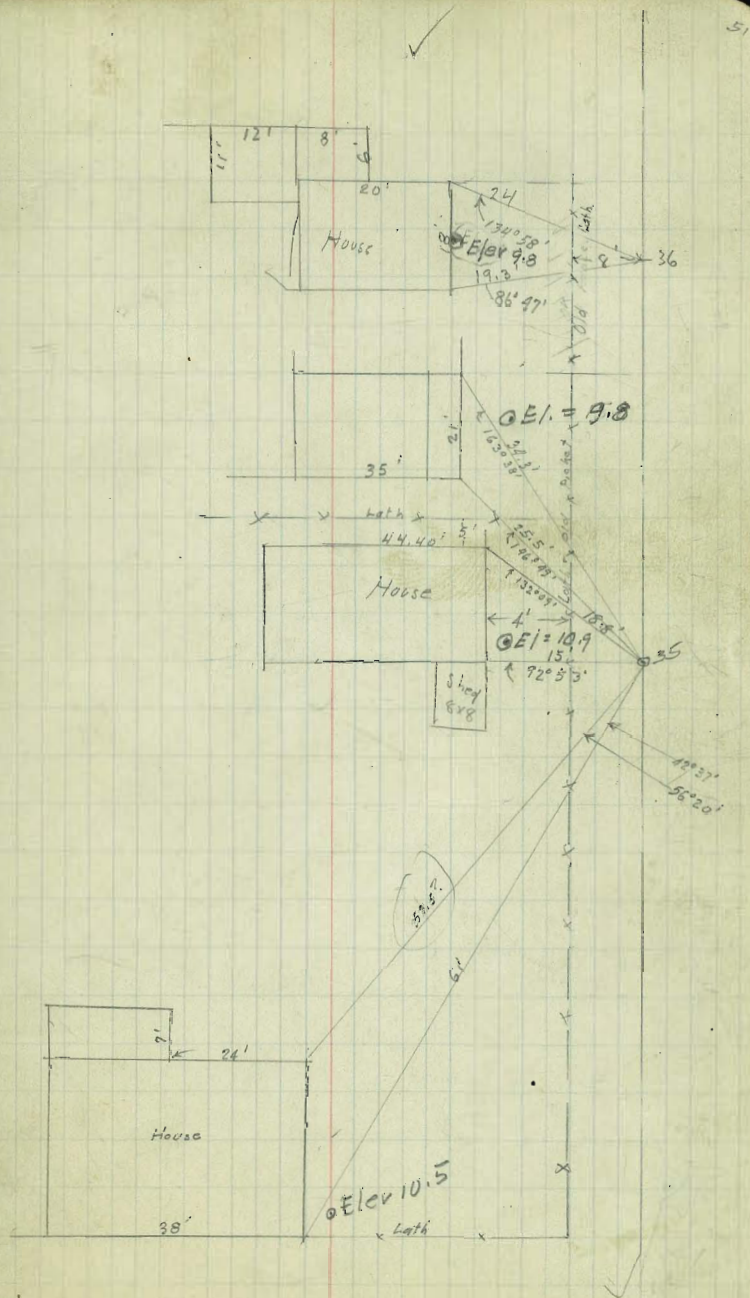
③ 39° 28' 00"

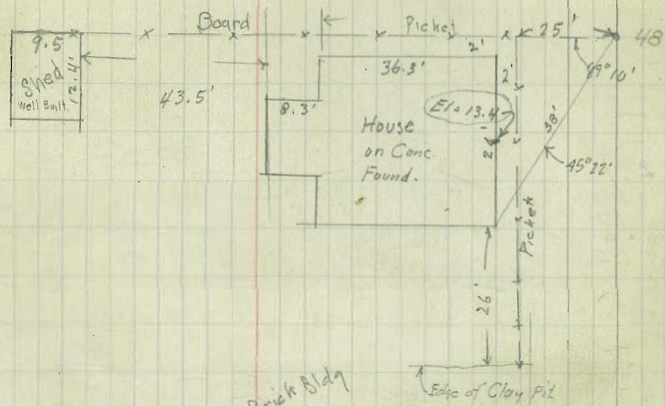
④ 52° 37' 30"

⑤ 65° 46' 50"

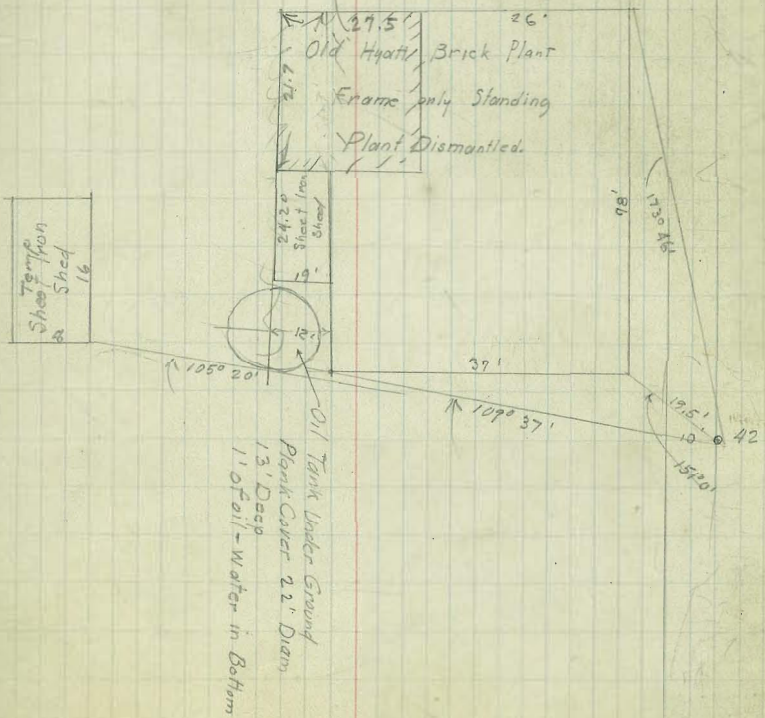
⑥ 78° 56' 00"

⑦ 92° 05' 30"





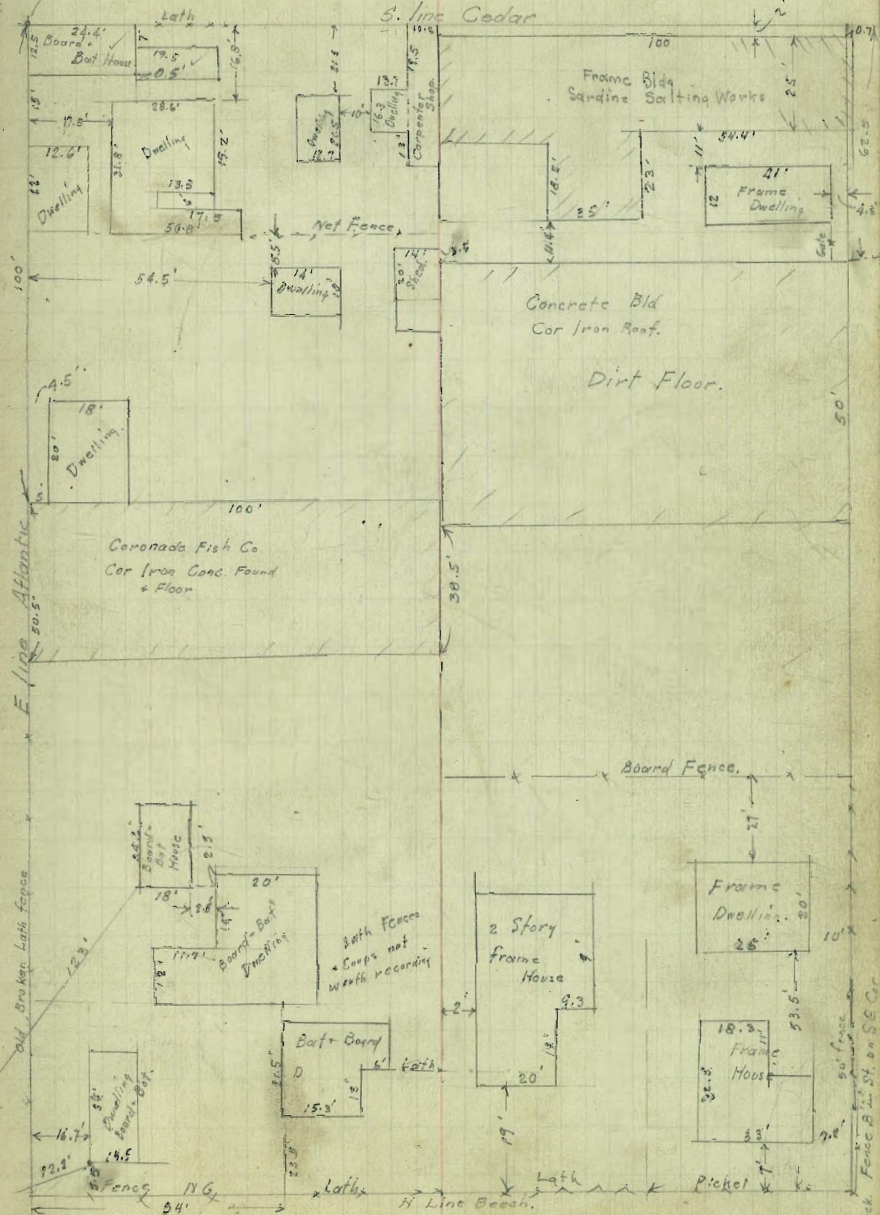
Brick Bldg



L Point

Iron Pin
Blk Cor found.

54

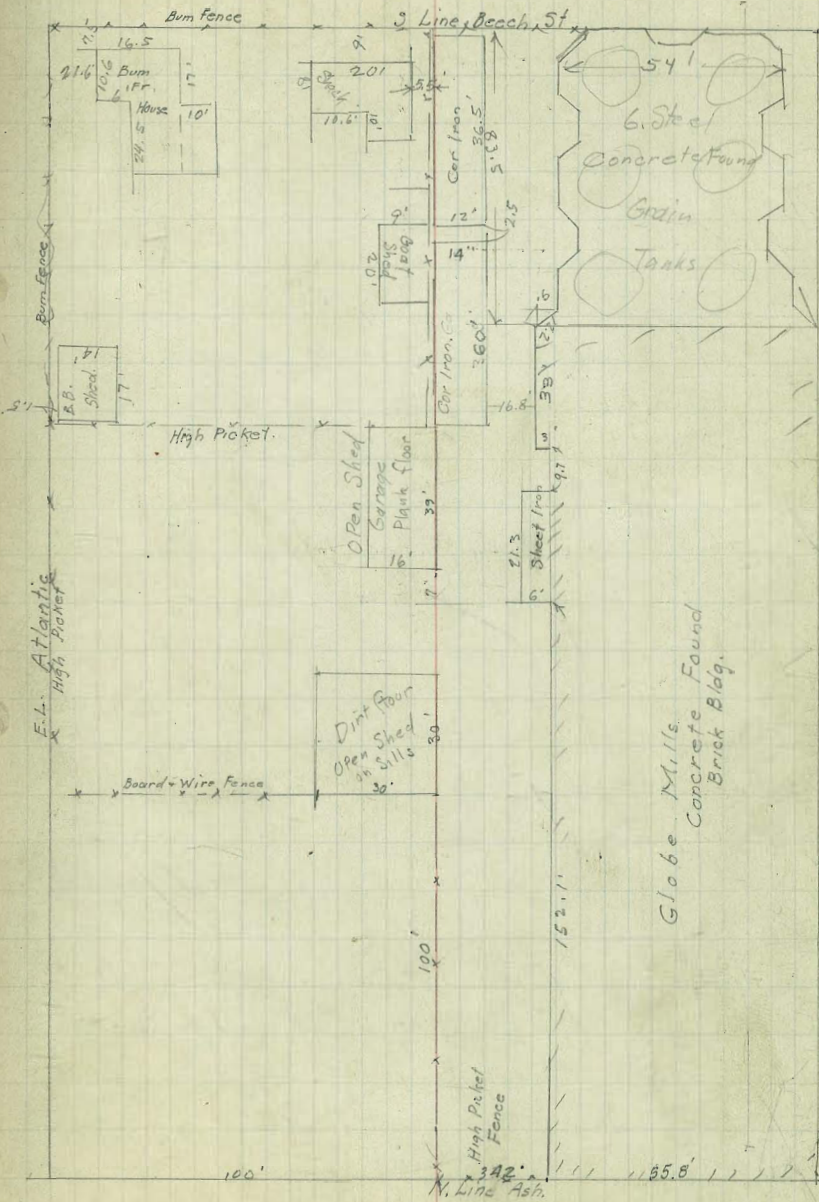


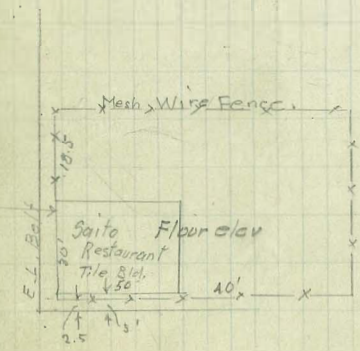
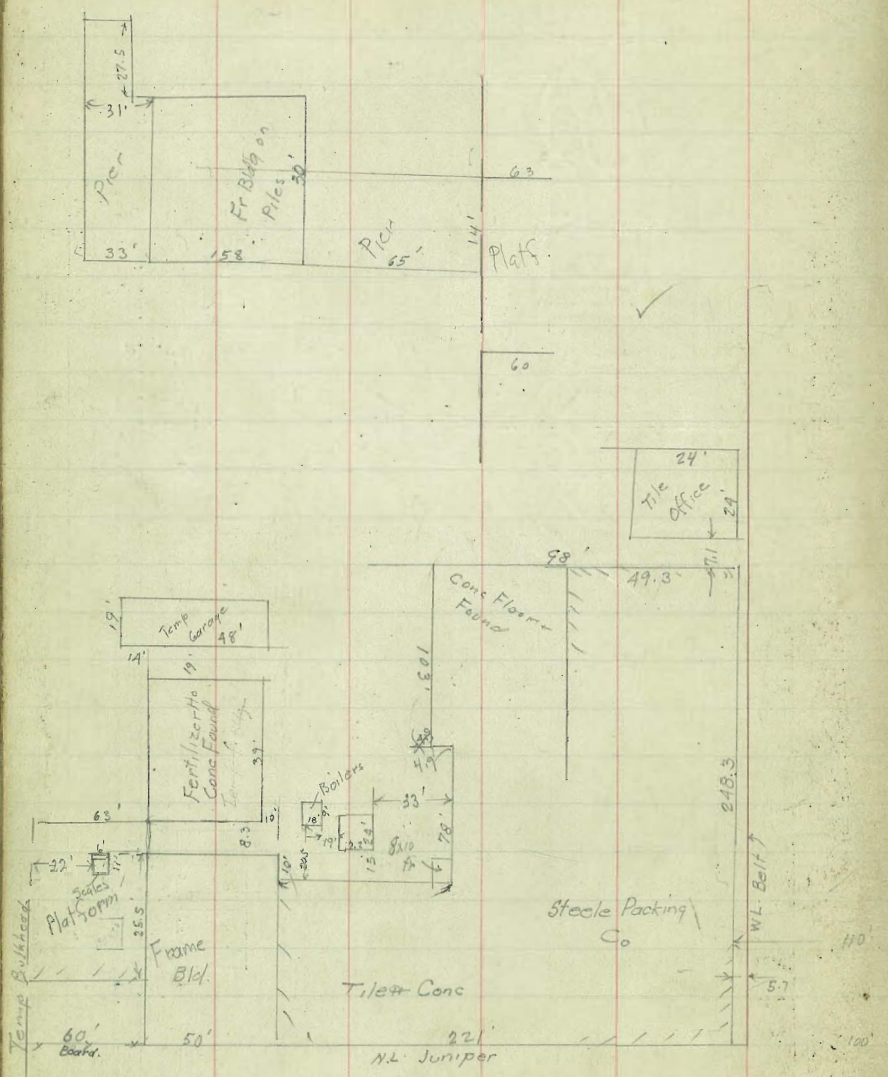
Atlantic

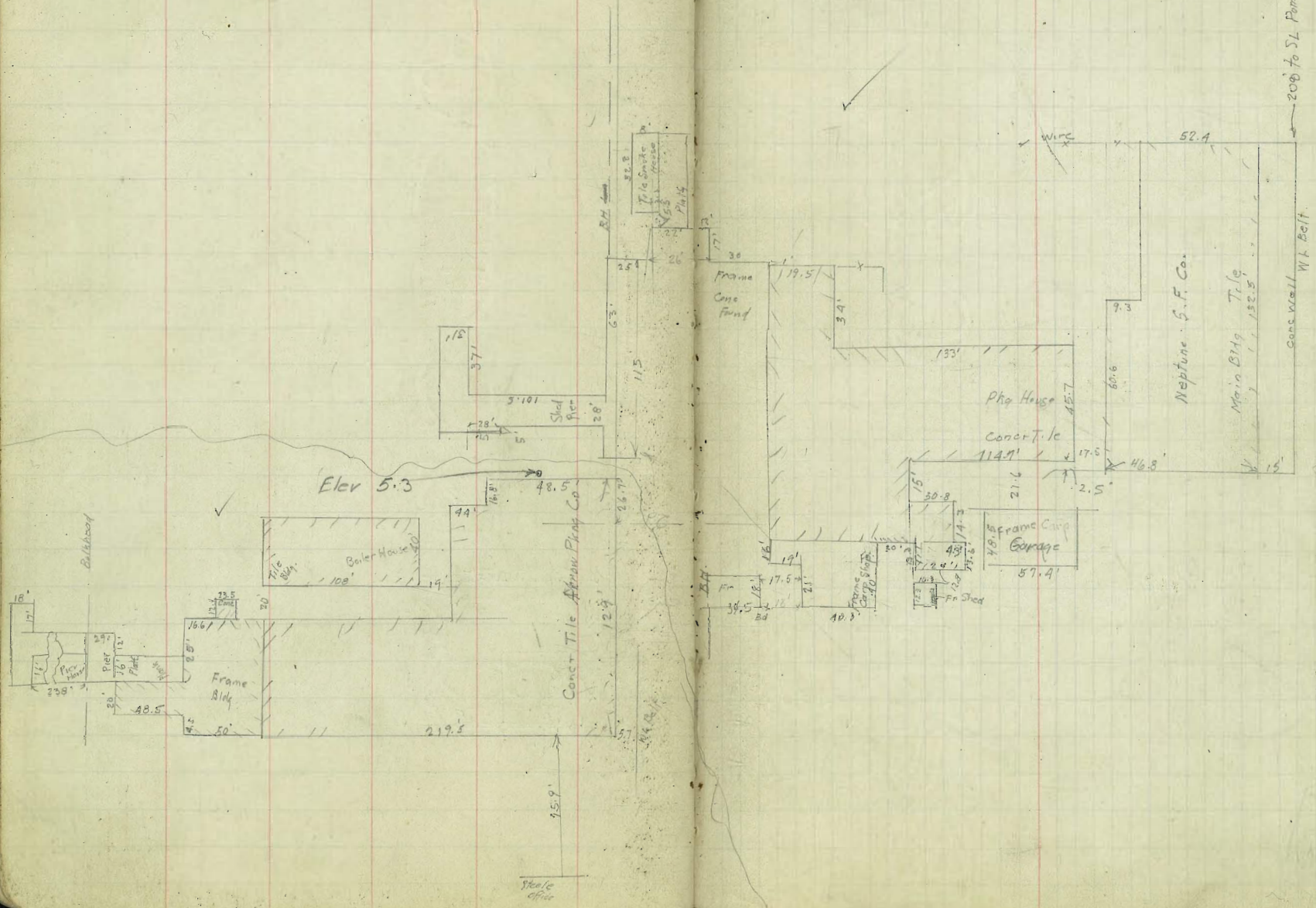
400' to L.H.

Atlantic

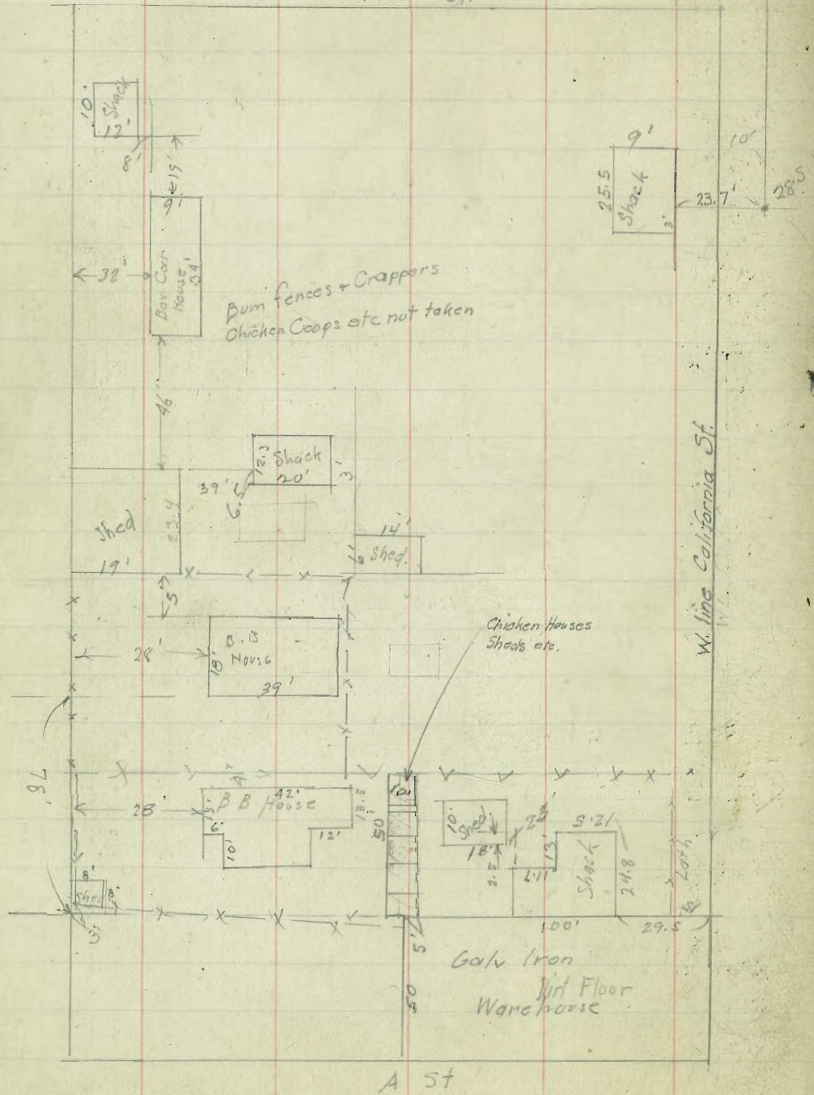
Pick Fence Bld St. on S.E. Cor.







Ash St



A St

T 8+00.7 F.S. + 6+667.5 Lt 90°08 to 0+00 shore line
 6+66.75 EC. 44°54' T B.S. on Sta 5+00 with 8.9 on ver
 6+50 43°53'00
 6+00 40°12'30
 5+50 36°27'30 EC. 7+43.0 to Bumper
 5+00 T 35°55' BS. 2+00 6+22.45 13°20'00
 Vernier 10°34' 5+00 6+00 11°27'00
 5+00 6°24'30
 4+74 PC. 4+74. 0°00'
 4+50 33°57'00
 4+00 32°06'30
 4+00 28°21'
 3+50 24°35'
 3+00 20°52'
 2+50 16°49'
 2+00 T 10°34' BS. on 0+00 Vernier 0°00'
 1+50 7°23'
 1+00 4°36'30
 0+53.45 2°05' Int Shuyler on Curve S.F. 22+73.82
 0+50 Def Rt 2045'
 Setup 207.75 (South of Mon^y Sta 25+35.07) E.S.F. at PC. Switch BS. E.S.F.
 0+00
 25+14.86 P.C. S.F.
 25+25.01 Int Schuyler & R S.F. 0°36'30" 14 to S.F.
 Setup 25+35.07

60
 ver turne 0°21'30" Rt to Tang. 8+00.72 Int with shore line at 9+30.81

E to E of two tracks at Bumper 18.40
 setup 6+22.45 B.S. on 4+74 Vernier set at 13°20' turned to Tang Vernier at
 2°21'30 less than Zero.
 Switch Point
 Setup 4+74. B.S. on Sta 2+00 Vernier set at 23°23' Rt Turned to
 Tangent

Setup Gov #49 Gov #63 = 0+00

Oil Tank #65 =

Setup Gov #49 Gov # 47 = 0° 0' 00"

" # 50 =

①	126°	47' 50"
	126	46, 50
②	253°	34' 40"
	126	47, 20
③	380°	22' 00"
	126	47, 30
④	407°	9' 30"
	126	47, 00
⑤	633°	56' 30"
	126	48, 20
⑥	760°	44' 50"
	126	46, 30
⑦	887°	31' 20"
	126	47, 20

Bergner #4924

Setup Gov #49 Gov # 50 = 0° 0' 00"

" # 51 =

①	6°	51' 45"
②	13°	43' 30"
③	20°	35'
④	27°	26' 45"
⑤	34°	18'
⑥	41°	10'
⑦	48°	1' 30"
⑧	54°	53' 15"

Bergner #4924

50 - 24° 08' 23" 48

51 - 31° 00' 30" 40

52 - 51° 00'

58 - 75.20

Lat Perry Tower 67

Powerv F. Staff 47

N. Cong. Ch. 51

Exp. 0

Finsworth # 2024 (Bessel)

①	126°	47' 15"
	126	47, 15
②	253°	34' 30"
	126	47, 20
③	380°	21' 50"
	126	47, 10
④	407°	9' 00"
	126	47, 00
⑤	633°	56' 00"
	126	47, 00
⑥	760°	43' 00"
	126	47, 00
⑦	887°	30' 00"
	126	47, 08

① 6° 52'

② 13° 43' 30"

③ 20° 35'

④ 27° 26' 40"

⑤ 34° 18' 15"

⑥ 41° 9' 50"

⑦ 48° 1' 20"

⑧ 54° 53'

⑨ 6° 51' 37"

6° 51' 20"

6° 51' 30"

6° 51' 40"

6° 51' 35"

6° 51' 35"

6° 51' 30"

6° 51' 40"

36
513
57

39
1131
57

1131
57

Setup Gov #49 Cor. #63 = 0°00

(Cal. Bldg) Expo. Spire	0	62°	26'	00"
	1	124°	51'	50"
	2	187°	17'	30"
	3	249°	42'	40"
	4	312°	08'	00"
	5	374°	33'	30"
	6	436°	59'	00"
				Ave

Setup Gov #49 Cor #63 = 0°00

Brewery T. Staff #47	0	57°	39'	30"
	1	115°	19'	00"
	2	172°	58'	15"
	3	230°	38'	00"
	4	288°	17'	00"
	5	345°	56'	30"
	6	403°	36'	00"
				Ave

Setup Mon. Sta 58+44° #47 = 0°00

Cor. #63	0	121°	32'	00"
	1	243°	03'	30"
	2	364°	34'	40"
	3	486°	06'	00"
	4	607°	37'	50"
	5	729°	09'	00"
	6	850°	40'	40"
				Ave

Setup Mon. #28, #33 = 0°00

#3 =	0	67°	35'	00"	RT
	1	135°	10'	00"	
	2	202°	45'	10"	
	3	270°	20'	15"	
	4	337°	55'	20"	
	5	405°	30'	00"	
	6	473°	05'	00"	

Setup Mon #28 #3 = 0°00

#5 =	0	11°	21'	00"	RT
	1	22°	41'	20"	
	2	34°	01'	30"	
	3	45°	22'	30"	
	4	56°	43'	10"	
	5	68°	03'	30"	
	6	79°	24'	00"	

Setup Mon. #28 #5 = 0°00

So. Tower Theos. #17 =	0	23°	29'	30"	RT
	1	46°	59'	10"	
	2	70°	29'	00"	
	3	93°	58'	30"	
	4	117°	28'	00"	
	5	140°	57'	30"	
	6	164°	27'	00"	

Setup Sta 58+44[±] Cor #63 = 0°00

13' hub 28 th + Colton #46	①	71° 46' 00"
		71 45 30
Hinsworth #2024	②	143° 31' 30"
		71 45 30
	③	215° 17' 00"
		71 45 00
	④	287° 02' 00"
		71 45 30
	⑤	358° 47' 30"
		71 45 30
	⑥	430° 33' 00"
		71 45 30" Ave

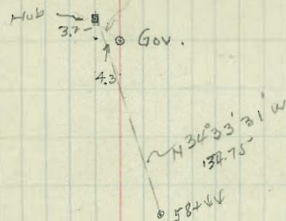
Setup 13' hub #46. Cor #63 = 0°00

Sta 58+44 [±]	①	107° 43' 00"
		107 43 00
#2024 Hinsworth	②	215° 27' 00"
		107 43 30
	③	323° 10' 30"
		107 43 30
134.75 from #46 to Mon 58+44	④	430° 57' 00"
		107 43 00
(46° 51) 93° 42	⑤	538° 38' 00"
		107 43 30" Ave

Angle of foreward tang from 58+44 to #46

Setup 58+44[±] Cor #63 = 0°00

Oil Tank #65	①	25° 07' 00"
	②	50° 14' 00"
	③	75° 21' 00"
	④	100° 27' 40"
	⑤	125° 35' 00"
	⑥	150° 42' 00"
	⑦	175° 49' 00"



Setup 270+90 Mon. #3 = 0°00

#5 =	①	11° 28' 00"	RT
	②	22° 56' 30"	
	③	34° 24' 50"	
	④	45° 52' 50"	
	⑤	57° 21' 00"	
	⑥	68° 49' 00"	
	⑦	80° 17' 00"	

Setup Mon. 270+90 #17 = 0°00

Mon. 301+99 [±]	①	66° 05' 00"	RT
	②	132° 10' 10"	
	③	198° 15' 30"	
	④	264° 21' 00"	
	⑤	330° 26' 10"	
	⑥	396° 31' 10"	
	⑦	462° 36' 30"	

Set up 225 Hub 81+99⁸⁶ Cor. #63=0°00

O/Tank #65 = 0 29° 50' 00"

Fix north #2024

① 59° 40' 30"

② 89° 30' 30"

③ 119° 21' 00"

④ 149° 11' 00"

⑤ 179 01' 00"

⑥ 208 51' 30"

Δv 290 50 13"

Set up 81+99⁸⁰ B.F.S. #47=0°00

Cor #63 131° 08' 50"

91° 01' 00"

Set up Mon. 121+30 Cor. #63=0°00

O/Tank #65 0 27° 02' 00"

① 54° 08' 00"

② 81° 03' 00"

③ 108° 11' 00"

④ 135° 02' 00"

⑤ 162° 18' 30"

⑥ 189° 03' 45"

⑦ 162° 22' 15"

⑧ 189° 03' 45"

⑨ 189° 26' 00"

Ave 27° 03' 43"

Set up Mon. 270+90 #5=0°00

To #17 Theosophical = 0 23° 40' 30" RT

① 47° 21' 00"

② 71° 01' 10"

③ 94° 41' 30"

④ 118° 21' 50"

⑤ 142° 02' 20"

⑥ 165° 42' 30"

Set up Mon. 319+99⁸² #33=0°00

#63 = 0 29° 31' 40" RT

① 59° 03' 30"

② 88° 35' 00"

③ 118° 06' 35"

④ 147° 38' 10"

⑤ 177° 10' 00"

⑥ 206° 41' 30"

Set up 319+99⁸² #63=0°00

To #3 = 0 40° 22' 10" RT

① 80° 44' 20"

② 121° 06' 40"

③ 161° 29' 00"

④ 201° 51' 30"

⑤ 242° 13' 50"

⑥ 282° 36' 00"

Setup Mon. 121+30 Cor. #63 = 0°00

#3 Old Light House =

0	19° 35' 00"	Rt
1	35' 00"	
2	39° 10' 00"	
3	35' 00"	
4	58° 45' 00"	
5	19' 34' 40"	
6	78° 19' 40"	
7	19' 33' 20"	
8	97° 53' 00"	
9	19' 35' 30"	
10	117° 28' 30"	
11	19' 35' 00"	
12	137° 03' 30"	
Ave	19° 34' 47"	

Setup 121+30 Cor. #63 = 0°00

#5 Bennington Mon.

0	32° 41' 30"	Rt
1	65° 22' 50"	
2	98° 03' 50"	
3	130° 44' 30"	
4	163° 26' 00"	
5	196° 06' 50"	
Ave	32° 41' 08"	

Setup Mon. Sta. 131+00. #63 = 0°00

Oil tank #65 =

0	20° 24' 50"	Rt
1	40° 49' 30"	
2	61° 13' 50"	
3	81° 38' 20"	
4	102° 03' 00"	
5	122° 27' 30"	
6	142° 52' 10"	
Ave	20° 24' 36"	

Setup 319+99⁵² #3 = 0°00

#5 =

0	10° 12' 50"	Rt
1	20° 26' 00"	
2	30° 38' 50"	
3	41° 51' 30"	
4	51° 04' 45"	
5	61° 17' 30"	
6	71° 30' 20"	

Setup 319+99⁸² #5 = 0°00

Sa. Tower Thros. #17 =

0	23° 44' 10"	Rt
1	47° 28' 20"	
2	71° 12' 00"	
3	94° 56' 20"	
4	118° 40' 00"	
5	142° 24' 10"	
6	166° 08' 10"	

Setup Mon. 336+40⁰⁷ 319+99⁸² = 0°00

#33 =

0	21° 06' 30"	Rt
1	42° 12' 40"	
2	63° 19' 00"	
3	84° 25' 10"	
4	105° 31' 30"	
5	126° 37' 40"	
6	147° 44' 00"	

Note: See page 51 for balance of sets for 131+00

Setup Mon 131+00 #63 = 0°00

Bennington Mon. #5 =

0	35° 50' 30"	RT
①	71° 40' 30"	
②	107° 30' 50"	
③	143° 21' 00"	
④	179° 11' 10"	
⑤	215° 01' 30"	
⑥	250° 52' 00"	
Ave	35° 50' 17"	

Setup Mon. 131+00 #5 = 0°00

Theosophical Hotel #17 (So. Danc) =

0	20° 25' 00"	RT
①	40° 49' 30"	
②	61° 14' 10"	
③	81° 38' 50"	
④	102° 03' 30"	
⑤	122° 28' 00"	
⑥	142° 52' 50"	

Setup Mon 131+00 Bennington Mon. = 0°00

Calif. Bldg. Spire =

0	99° 12' 30"	RT
①	198° 29' 50"	
②	297° 36' 00"	
③	396° 48' 30"	
④	496° 00' 10"	
⑤	595° 13' 00"	
⑥	694° 25' 00"	
Ave	99° 12' 09"	

Setup 336+40⁰¹ #33 = 0°00

#63 = 0

0	29° 22' 00"	RT
①	58° 43' 40"	
②	88° 05' 00"	
③	117° 26' 30"	
④	146° 48' 15"	
⑤	176° 09' 50"	
⑥	205° 31' 15"	

Setup 336+40⁰¹ #63 = 0°00

#3 =

0	40° 33' 40"	RT
①	81° 07' 00"	
②	121° 40' 30"	
③	162° 14' 30"	
④	202° 48' 00"	
⑤	243° 22' 00"	
⑥	283° 55' 20"	

Setup 336+40⁰¹ #3 = 0°00

To

#5 =

0	9° 45' 00"	RT
①	19° 30' 00"	
②	29° 15' 00"	
③	39° 00' 00"	
④	48° 45' 00"	
⑤	58° 30' 00"	
⑥	68° 15' 00"	

Setup Mon. 148+46² Sherman School = 0°00

Cor. #63 =

①	150°	55' 30"	Rt
②	301°	50' 00"	
③	452°	45' 00"	
④	603°	40' 15"	
⑤	754°	34' 50"	
⑥	905°	29' 50"	
⑦	1056°	25' 00"	

Setup Mon. 148+46² Cor. #63 = 0°00

Oil Tank #65

①	7°	42' 10"	Rt
②	15°	24' 15"	
③	23°	06' 20"	
④	30°	48' 30"	
⑤	38°	30' 30"	
⑥	46°	12' 40"	
⑦	53°	55' 30"	

Setup Mon. 148+46² Cor. #63 = 0°00

Old Light House #3 =

①	28°	12' 00"	Rt
②	56°	24' 10"	
③	84°	36' 00"	
④	112°	48' 10"	
⑤	141°	00' 15"	
⑥	169°	12' 30"	
⑦	197°	24' 50"	

Setup Mon. 217+35^e Cor #63 = 0°00

Large Dome Theosophical Hotel =	0	82°	00'	30"
Center Dome	0	164°	01'	00"
	0	246°	01'	00"
	0	328°	01'	00"
	0	410°	00'	30"
	0	492°	00'	30"
	0	574°	00'	50"

Setup Mon 217+35^e Theosophical Hotel = 0°00

"Standard" Old Town #0 =	0	67°	33'	00"
	0	135°	06'	00"
	0	202°	39'	00"
	0	270°	12'	00"
	0	337°	45'	00"
	0	405°	17'	40"
	0	472°	50'	50"

Setup #15. #11 = 0°00

Old Light House #3 =	0	0°	03'	10" Rt
	0		06'	20"
	0		09'	30"
	0		12'	45"
	0		16'	10"
	0		19'	30"
	0		23'	10"
	0		26'	30"
	0		30'	00"

Setup 217+35^e #0 = 0°00

Mon. Sta 232+00 =	0	21°	25'	00" Rt
	0	42°	49'	20"
	0	64°	14'	00"
	0	85°	38'	30"
	0	107°	03'	20"
	0	128°	27'	50"
	0	149°	52'	40"

Setup 217+35^e So. Tower Theos. = 0°00

Old Town #0 =	0	67°	41'	30" Rt checked #1
	0	135°	24'	00" 67° 42' 30"
	0	203°	06'	15"
	0	270°	48'	30"
	0	338°	30'	30"
	0	406°	12'	10"
	0	473°	54'	40"
	0	541°	36'	50"
	0	609°	19'	00"

Set 217+35 #5 Rt to #0

Setup #15

1
2
3
4
5
6
7

Setup #15 Cal. Bldg. Spire = 0°00

Cor #63

0	47°	45'	10"	RT
①	95°	30'	30"	
②	143°	15'	50"	
③	191°	01'	00"	
④	238°	46'	00"	
⑤	286°	31'	00"	
⑥	334°	16'	10"	
⑦	382°	01'	10"	
⑧	429°	46'	30"	
⑨	477°	31'	30"	

Setup #15 Cor #63 = 0°00

#3 =

0	63°	07'	10"	RT
①	441°	47'	10"	
②	504°	54'	15"	
③	568°	01'	10"	
④	126°	14'	10"	
⑤	189°	20'	50"	
⑥	252°	27'	15"	
⑦	315°	34'	10"	
⑧	378°	40'	50"	

Setup Mon. 232+00. 217+35 = 0°00

#3 =

0	49°	49'	40"	RT
①	99°	39'	10"	
②	149°	28'	30"	
③	199°	18'	00"	
④	249°	07'	20"	
⑤	298°	56'	10"	
⑥	348°	45'	30"	
⑦	398°	34'	40"	

Setup Mon. 232+00 #3 = 0°00

#5 =

0	12°	58'	30"	RT
①	25°	57'	10"	
②	38°	56'	00"	
③	51°	54'	40"	
④	64°	53'	30"	
⑤	77°	52'	00"	
⑥	90°	50'	40"	

Setup ^{Bennington} 232+00 #5 = 0°00 Right to #17 Theosophical S. Tower

0	24°	37'	40"	
①	24	37	50	
②	49°	15'	30"	
③	74	37	15	
④	73°	52'	45"	
⑤	24	37	45	
⑥	98°	30'	30"	
⑦	11	37	20	
⑧	123°	07'	50"	
⑨	14	37	40	
⑩	147°	45'	30"	
⑪	24	37	15	
⑫	172°	22'	45"	
⑬	24	31	30	

Setup #15 #3 = 0°00

#5 =

0	11° 36' 00"	Rt
1	23° 11' 50"	
2	34° 47' 30"	
3	46° 23' 50"	
4	57° 59' 10"	
5	69° 35' 00"	
6	81° 11' 00"	

Setup Mon. 532+01⁵¹ Cal. Bldg. Spire = 0°00

Cor. #63 =

0	49° 20' 00"	Rt.
1	98° 39' 40"	
2	147° 59' 30"	
3	197° 18' 40"	
4	246° 38' 10"	
5	295° 58' 00"	
6	345° 17' 10"	
7	394° 36' 50"	
8	443° 56' 50"	

Setup Mon 532+01⁵¹ Cor #63 = 0°00

Old Light House #3 =

0	58° 41' 30"	Rt
1	117° 22' 50"	
2	176° 03' 50"	
3	234° 45' 00"	
4	293° 26' 00"	
5	352° 06' 40"	
6	410° 47' 40"	

58° 41' 30"

Setup 232+00 Coronado #63 = 0°00 Rt to #3 Old Light House

0	41° 39' 30"	1	41° 39' 50"
1	83° 19' 00"	2	41° 39' 55"
2	124° 58' 30"	3	41° 38' 45"
3	166° 38' 10"	4	41° 39' 45"
4	208° 17' 30"	5	41° 39' 15"
5	249° 57' 00"	6	41° 39' 30"
6	291° 36' 00"	7	41° 39' 10"
		8	41° 39' 27"

Setup 232+00 #17 Sa. Tower Theor. = 0°00

#30

old	85° 40' 00"	Rt
0	171° 20' 30"	
1	257° 00' 30"	

226.59' from 232+00 to #30 Reset

Setup Min. 532+01st. 513+35st = 0°00

Expo. Cal. Bldg. Spire =

0	15°	16'	30"	RT
⊙	30°	33'	00"	
⊙	45°	49'	40"	
⊙	61°	06'	00"	
⊙	76°	22'	30"	
⊙	91°	39'	00"	
⊙	106°	55'	30"	

Setup Mon. 532+01st #3 = 0°00

#5

0	9°	56'	30"	RT
⊙	19°	52'	00"	
⊙	29°	47'	40"	
⊙	39°	43'	50"	
⊙	49°	39'	30"	
⊙	59°	35'	20"	
⊙	69°	31'	05"	

Setup Mon. 480+56th #5 = 0°00

Baseline 493+92nd

0	34°	08'	30"	RT
⊙	68°	17'	00"	
⊙	102°	25'	30"	
⊙	136°	33'	30"	
⊙	170°	41'	50"	
⊙	204°	50'	10"	
⊙	238°	58'	30"	

Setup 248+10th #3 = 0°00

#5

0	12°	19'	00"	RT
⊙	24°	37'	50"	
⊙	36°	56'	15"	
⊙	49°	15'	00"	
⊙	61°	33'	40"	
⊙	73°	52'	10"	
⊙				

Setup 248+10th #5 = 0°00

#17

0	24°	11'	30"	RT
⊙	48°	23'	00"	
⊙	72°	34'	00"	
⊙	96°	45'	00"	
⊙	120°	56'	10"	
⊙	145°	07'	30"	
⊙	169°	18'	40"	

Setup 248+10th #17 = 0°00

#0

0	69°	49'	40"	RT
⊙	139°	39'	15"	
⊙	209°	29'	10"	
⊙	279°	18'	50"	
⊙	349°	08'	30"	
⊙	418°	58'	10"	
⊙	488°	48'	00"	

Setup Mon. 480+56⁷⁵ #3 = 0°00

#5 =	0	10°	25' 50"	R+
⊙	20°	50' 40"		
⊙	31°	15' 20"		
⊙	41°	40' 40"		
⊙	52°	05' 40"		
⊙	62°	30' 40"		
⊙	72°	56' 00"		

Setup Mon. 480+56⁷⁵ #63 = 0°00

#3	0	54°	24' 30"	R+
⊙	108°	48' 00"		
⊙	163°	12' 00"		
⊙	217°	36' 00"		
⊙	271°	59' 30"		
⊙	326°	23' 30"		
⊙	380°	47' 00"		

Setup Mon. 480+56⁷⁵ Cal. Bldg Spire = 0°00

#63 =	0	54°	46' 50"	R+
⊙	109°	33' 20"		
⊙	164°	20' 10"		
⊙	219°	06' 40"		
⊙	273°	53' 10"		
⊙	328°	39' 30"		
⊙	383°	26' 00"		

Setup 248+10⁷⁵ - 232+00 = 0°00

#3 =	0	55°	07' 10"	R+
⊙	112°	14' 00"		
⊙	165°	21' 20"		
⊙	220°	28' 30"		
⊙	275°	35' 30"		
⊙	330°	42' 20"		
⊙	385°	49' 00"		

Setup 301+99⁸⁵ #33 = 0°00

#63 =	0	27°	32' 00"	R+
⊙	55°	04' 10"		
⊙	82°	36' 00"		
⊙	110°	08' 00"		
⊙	137°	40' 00"		
⊙	165°	12' 00"		
⊙	192°	44' 00"		

Setup 301+99⁸⁵ #63 = 0°00

#3 =	0	39°	11' 30"	R+
⊙	78°	23' 00"		
⊙	117°	34' 50"		
⊙	156°	46' 50"		
⊙	195°	58' 00"		
⊙	235°	10' 00"		
⊙	274°	21' 10"		

Setup Mon 480+56⁴⁶ #0 = 0°00

Cal. Bldg Spire =	0	32°	28' 50"	RT
	①	64°	57' 00"	
	②	97°	26' 00"	
	③	129°	54' 10"	
	④	162°	22' 30"	
	⑤	194°	51' 00"	
	⑥	227°	19' 00"	
		32°	28' 28"	

Setup #45 #47 = 0°00

#63

0	131°	07' 10"	RT
①	262°	14' 15"	
②	393°	21' 10"	
③	524°	28' 00"	

Setup #45 #47 = 0°00

81+99⁸⁶

0	165°	33' 30"	RT
①	331°	06' 30"	
②	496°	39' 50"	
③	662°	13' 00"	
④	827°	46' 00"	
⑤	993°	19' 00"	
⑥	1158°	52' 10"	

C.M. Setup 301+99⁸⁶ 270+90 = 0°00

0	32°	29' 00"	To #33 = 0	6°	31' 20"	RT
①	64°	58' 00"		②	12°	03' 00"
②	97°	26' 00"		③	19°	34' 40"
③	129°	54' 40"		④	26°	06' 10"
④	162°	23' 20"		⑤	32°	37' 40"
⑤	194°	51' 40"		⑥	39°	09' 10"
⑥	227°	20' 30"		⑦	45°	41' 00"
	32°	28' 24"				

Setup 301+99⁸⁶ #3 = 0°00 Light House Right

To Bennington #5 =	0	10°	30' 10"
	①	21°	00' 00"
	②	31°	30' 00"
	③	42°	00' 00"
	④	52°	30' 00"
	⑤	62°	59' 50"
	⑥	73°	30' 00"

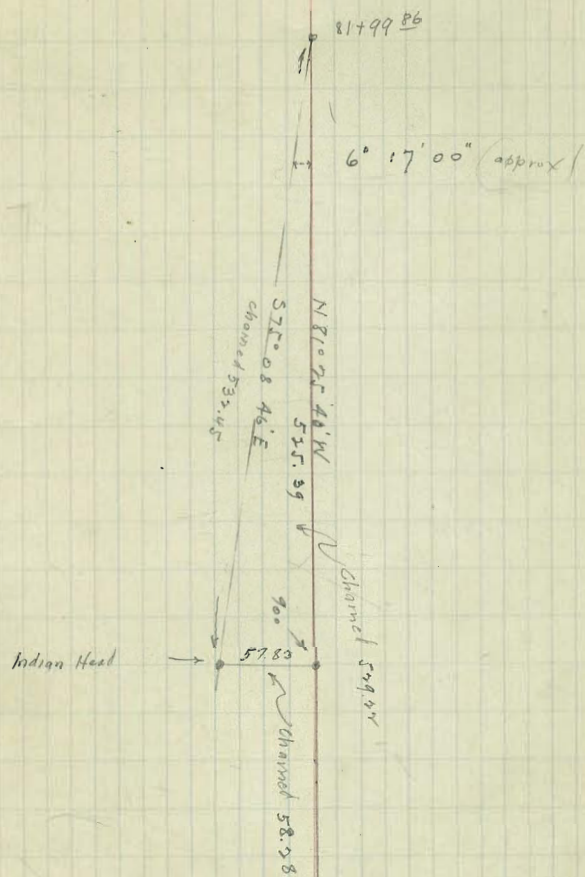
set 301+99⁸⁶ #5 = 0°00 Right to

#17 Theosophical	①	23°	12' 30"
	②	46°	25' 00"
	③	69°	37' 30"
	④	92°	50' 10"
	⑤	116°	02' 00"
	⑥	139°	14' 50"
	⑦	162°	27' 20"

Setup 81+99⁸⁶ # 45 - 0°00

47 =

0	13°	00'	00"	RT
⊙	26°	00'	50"	
⊙	39°	01'	00"	
⊙	52°	01'	40"	
⊙	65°	02'	00"	
⊙	78°	02'	20"	
⊙	91°	02'	50"	



15+44.04
11+40.57
383.45

760.74
379.83
380.91

14.

383.45

13

12

+82.61
+80.66
+40.59

117.55
Old original Hub "
New Hub N. near Atlantic + Estillo (from E Clayton + Atlantic)
Found 2"x2" CPTR E Estillo + Atlantic

11

10

9

8

+60.74

7

6

5

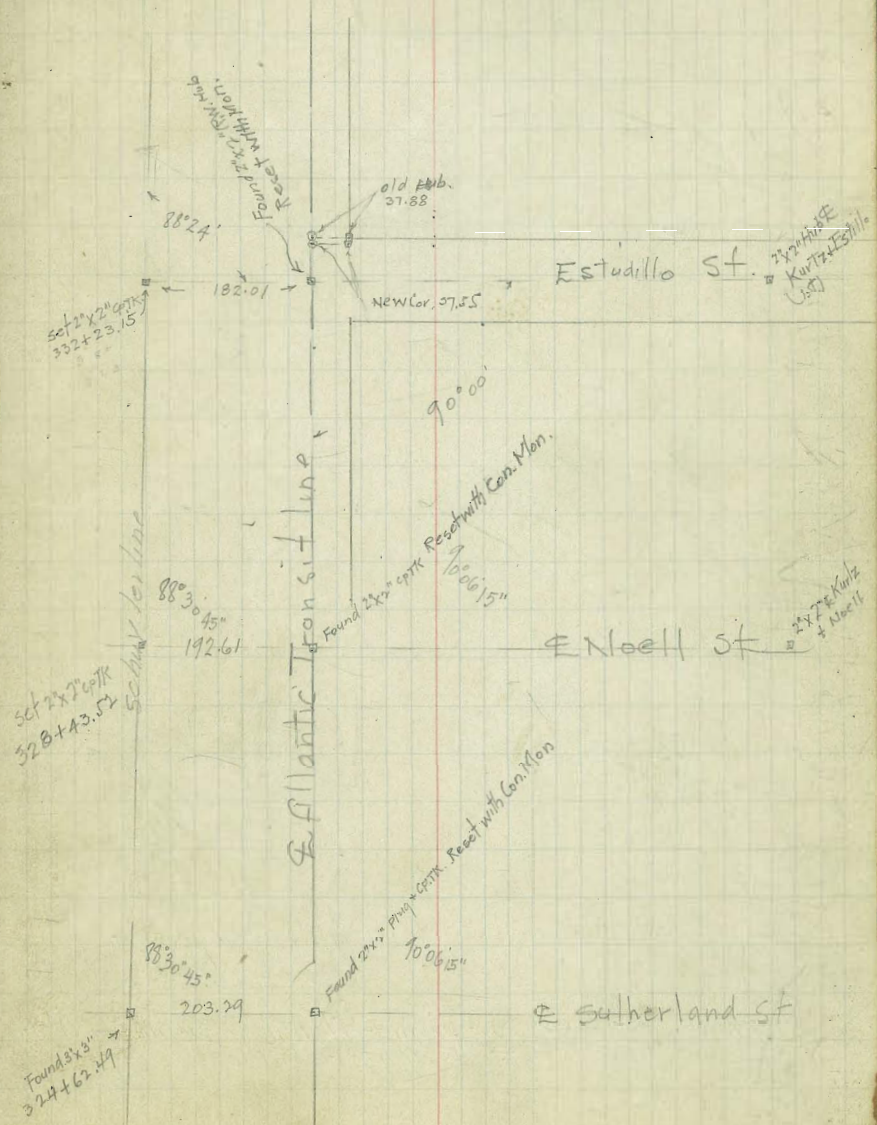
4

+79.83

3

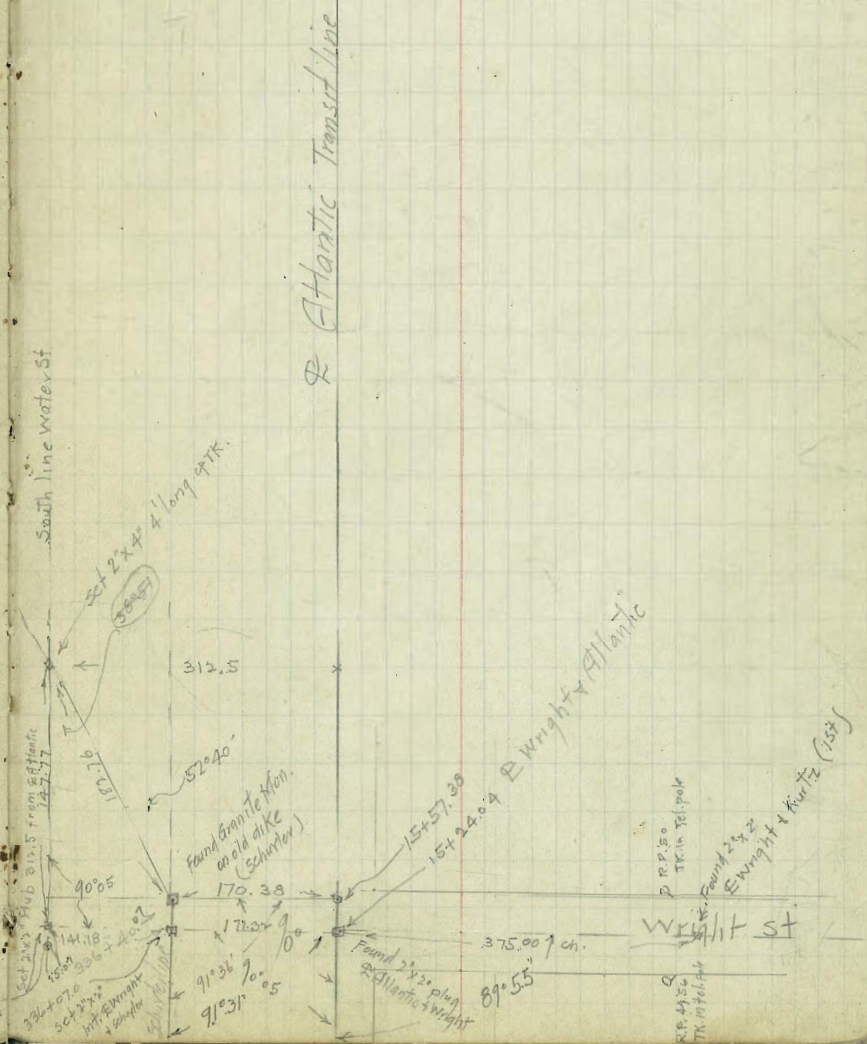
ch.
381.91
(12)

41-40.00
370
40.60



+57.38 set 2"x21 90° from Atlantic to Schuyler Mon
 +24.04 found 2"x21 E Wright + Atlantic

set common to
 Int. of water st + Int. of tide line



Williams
 Otter Sept 11 1918
 Noxon

90°00	90°05	99.76	98
52°40	71°31	2500	
37°40		182.76	
90°05			
	71°31	23.92	
	52°40	63.25	
	37°51	147.77	

Setup Mon. 403+00 #0 = 0°00

To Cal. Bldg (Exp)	=	0	36° 50' 00"	RT
		①	73° 40' 00"	
		②	110° 29' 30"	
		③	147° 19' 30"	
		④	184° 09' 10"	
		⑤	220° 59' 10"	
		⑥	257° 49' 00"	

Setup 403+00 Cal. Bldg = 0°00

To # 33 =	0	22° 44' 10"	RT
	①	45° 28' 40"	
	②	68° 13' 00"	
	③	90° 57' 10"	
	④	113° 41' 40"	
	⑤	136° 25' 50"	
	⑥	159° 10' 00"	

Setup 403+00 #33 = 0°00

To # 3 =	0	76° 09' 20"	RT
	①	152° 18' 10"	
	②	228° 27' 15"	
	③	304° 36' 10"	
	④	380° 45' 00"	
	⑤	456° 54' 30"	
	⑥	533° 03' 10"	

Setup Mon. 403+00 #3 (L.H.) Right to #5 Bennington

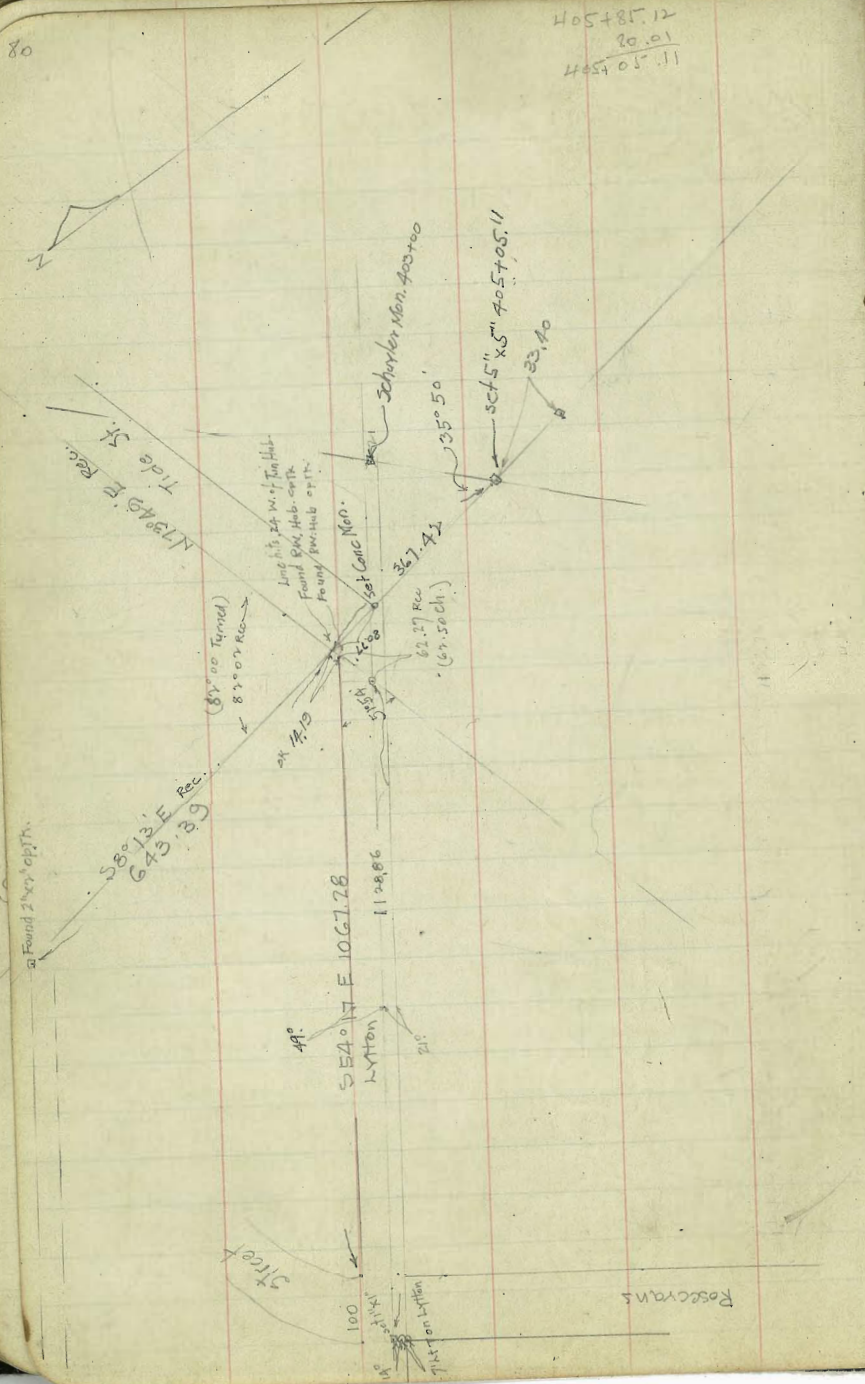
①	8° 47' 45"
②	17° 36' 00"
③	26° 24' 00"
④	35° 12' 00"
⑤	44° 00' 00"
⑥	52° 47' 50"
⑦	61° 35' 55"

Ave 8° 47' 59"

Setup Mon. 403+00 #5 = 0°00 Right to #17 Theo.

①	26° 11' 00"
②	52° 21' 50"
③	78° 32' 40"
④	104° 42' 30"
⑤	130° 53' 30"
⑥	157° 04' 00"
⑦	183° 14' 50"

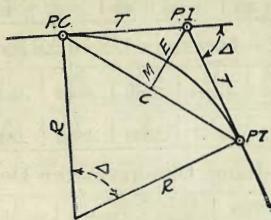
Ave 26° 10' 41"



405+85.12
20.01
405+05.11

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

Copyright, 1914, by Eugene Dietzgen Co., New York City



CURVE FORMULAS

Radius = $R = \frac{50}{\sin \frac{D}{2}}$ (1) Degree of Curve = D and $\sin \frac{D}{2} = \frac{50}{R}$ (2)

Tangent = $T = R \tan \frac{\Delta}{2}$ (3) Length of Curve = $L = 100 \frac{\Delta}{D}$ (4)

Middle ordinate = $M = R(1 - \cos \frac{\Delta}{2})$ (5) = $R \text{vers} \frac{\Delta}{2}$ (6)

External = $E = T \tan \frac{\Delta}{4}$ (7) = $R \cos \frac{\Delta}{2} (1 - \cos \frac{\Delta}{2})$ (8) = $R \text{exsec} \frac{\Delta}{2}$ (9)

Long Chord = $C = 2 R \sin \frac{\Delta}{2}$ (10) Δ = Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I. = Sta. 161 + 60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $\div 8\frac{1}{2} = 414.49$ ft. From Table V correction = .36 or $T = 414.85$ ft. P. C. = Sta. P. I. - $T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T. = Sta. P. C. + $L = 164 + 91.50$.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft. = 7.27 ft. Distance = $158 - \text{Sta. P. C.} = 54.50$, hence offset = $7.27 (54.50 \div 100)^2 = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

Deflections.—Deflection angle = $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft. = (in minutes) $.3 \times C \times D^2$ or = defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve = $.3 \times 54.5 \times 8\frac{1}{2} = 136.2'$ or $2^\circ 16.2'$, or = $2.50 \times 54.5 = 136.2'$ from Table III. For Sta. 159 deflection angle = $2^\circ 16.2' + 8^\circ 20' + 2 = 6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{2} = 91.27$ and from Table V correction = .10 or $E = 91.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

70 20
51 55
38 06
8 13
73 49
82 02
1067.98
58.42
1028.86
14.14
92.97
70.46
70
21
49

730.49
540.17
1480.6
510.54

1.27075
49
114367
508300
78410
49
70 5690
313648
3842070
622667

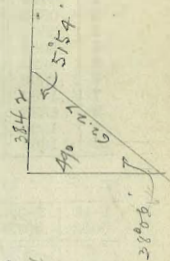


TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Angle	Sine.	Tan.	Cotg.	Cosin.		Angle	Sine.	Tan.	Cotg.	Cosin.	
0	0	0		1	90	8	.1392	.1405	7.115	.99027	82
10	.0029	.0029	343.8	I	50	10	.1421	.1435	6.968	.98986	50
20	.0058	.0058	171.9	.99998	40	20	.1449	.1465	6.827	.98944	40
30	.0087	.0087	114.6	.99996	30	30	.1478	.1495	6.691	.98902	30
40	.0116	.0116	85.94	.99993	20	40	.1507	.1524	6.561	.98858	20
50	.0145	.0145	68.75	.99989	10	50	.1536	.1554	6.435	.98814	10
1	.0175	.0175	57.29	.99985	89	9	.1564	.1584	6.314	.98769	81
10	.0204	.0204	49.10	.99979	50	10	.1593	.1614	6.197	.98723	50
20	.0233	.0233	42.96	.99973	40	20	.1622	.1644	6.084	.98676	40
30	.0262	.0262	38.19	.99966	30	30	.1650	.1673	5.976	.98629	30
40	.0291	.0291	34.37	.99958	20	40	.1679	.1703	5.871	.98580	20
50	.0320	.0320	31.24	.99949	10	50	.1708	.1733	5.769	.98531	10
2	.0349	.0349	28.64	.99939	88	10	.1736	.1763	5.671	.98481	80
10	.0378	.0378	26.43	.99929	50	10	.1765	.1793	5.576	.98430	50
20	.0407	.0407	24.54	.99917	40	20	.1794	.1823	5.485	.98378	40
30	.0436	.0437	22.90	.99905	30	30	.1822	.1853	5.396	.98325	30
40	.0465	.0466	21.47	.99892	20	40	.1851	.1883	5.309	.98272	20
50	.0494	.0495	20.21	.99878	10	50	.1880	.1914	5.226	.98218	10
3	.0523	.0524	19.08	.99863	87	11	.1908	.1944	5.145	.98163	79
10	.0552	.0553	18.07	.99847	50	10	.1937	.1974	5.066	.98107	50
20	.0581	.0582	17.17	.99831	40	20	.1965	.2004	4.989	.98050	40
30	.0610	.0612	16.35	.99813	30	30	.1994	.2035	4.915	.97992	30
40	.0640	.0641	15.60	.99795	20	40	.2022	.2065	4.843	.97934	20
50	.0669	.0670	14.92	.99776	10	50	.2051	.2095	4.773	.97875	10
4	.0698	.0699	14.30	.99756	86	12	.2079	.2126	4.705	.97815	78
10	.0727	.0729	13.73	.99736	50	10	.2108	.2156	4.638	.97754	50
20	.0756	.0758	13.20	.99714	40	20	.2136	.2186	4.574	.97692	40
30	.0785	.0787	12.71	.99692	30	30	.2164	.2217	4.511	.97630	30
40	.0814	.0816	12.25	.99668	20	40	.2193	.2247	4.449	.97566	20
50	.0843	.0846	11.83	.99644	10	50	.2221	.2278	4.390	.97502	10
5	.0872	.0875	11.43	.99619	85	13	.2250	.2309	4.331	.97437	77
10	.0901	.0904	11.06	.99594	50	10	.2278	.2339	4.275	.97371	50
20	.0929	.0934	10.71	.99567	40	20	.2306	.2370	4.219	.97304	40
30	.0958	.0963	10.39	.99540	30	30	.2334	.2401	4.165	.97237	30
40	.0987	.0992	10.08	.99511	20	40	.2363	.2432	4.113	.97169	20
50	.1016	.1022	9.788	.99482	10	50	.2391	.2462	4.061	.97100	10
6	.1045	.1051	9.514	.99452	84	14	.2419	.2493	4.011	.97030	76
10	.1074	.1080	9.255	.99421	50	10	.2447	.2524	3.962	.96959	50
20	.1103	.1110	9.010	.99390	40	20	.2476	.2555	3.914	.96887	40
30	.1132	.1139	8.777	.99357	30	30	.2504	.2586	3.867	.96815	30
40	.1161	.1169	8.556	.99324	20	40	.2532	.2617	3.821	.96742	20
50	.1190	.1198	8.345	.99290	10	50	.2560	.2648	3.776	.96667	10
7	.1219	.1228	8.144	.99255	83	15	.2588	.2679	3.732	.96593	75
10	.1248	.1257	7.953	.99219	50	10	.2616	.2711	3.689	.96517	50
20	.1276	.1287	7.770	.99182	40	20	.2644	.2742	3.647	.96440	40
30	.1305	.1317	7.596	.99144	30	30	.2672	.2773	3.606	.96363	30
40	.1334	.1346	7.429	.99106	20	40	.2700	.2805	3.566	.96285	20
50	.1363	.1376	7.269	.99067	10	50	.2728	.2836	3.526	.96206	10
					82						74
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

9674
58045
57.53
22

Angle	Sine.	Tan.	Cotg.	Cosin.		Angle	Sine.	Tan.	Cotg.	Cosin.	
16	.2756	.2867	3.487	.96126	74	66	.4067	.4452	2.246	.91355	66
10	.2784	.2899	3.450	.96046	50	10	.4094	.4487	2.229	.91236	50
20	.2812	.2931	3.412	.95964	40	20	.4120	.4522	2.211	.91116	40
30	.2840	.2962	3.376	.95882	30	30	.4147	.4557	2.194	.90996	30
40	.2868	.2994	3.340	.95799	20	40	.4173	.4592	2.177	.90875	20
50	.2896	.3026	3.305	.95715	10	50	.4200	.4628	2.161	.90753	10
17	.2924	.3057	3.271	.95615	73	25	.4226	.4663	2.145	.90631	65
10	.2952	.3089	3.237	.95545	50	10	.4253	.4699	2.128	.90507	50
20	.2979	.3121	3.204	.95459	40	20	.4279	.4734	2.112	.90383	40
30	.3007	.3153	3.172	.95372	30	30	.4305	.4770	2.097	.90259	30
40	.3035	.3185	3.140	.95284	20	40	.4331	.4806	2.081	.90133	20
50	.3062	.3217	3.108	.95195	10	50	.4358	.4841	2.066	.90007	10
18	.3090	.3249	3.078	.95106	72	26	.4384	.4877	2.050	.89879	64
10	.3118	.3281	3.048	.95015	50	10	.4410	.4913	2.035	.89752	50
20	.3145	.3314	3.018	.94924	40	20	.4436	.4950	2.020	.89623	40
30	.3173	.3346	2.989	.94832	30	30	.4462	.4986	2.006	.89493	30
40	.3201	.3378	2.960	.94740	20	40	.4488	.5022	1.991	.89363	20
50	.3228	.3411	2.932	.94646	10	50	.4514	.5059	1.977	.89232	10
19	.3256	.3443	2.904	.94552	71	27	.4540	.5095	1.963	.89101	63
10	.3283	.3476	2.877	.94457	50	10	.4566	.5132	1.949	.88968	50
20	.3311	.3508	2.850	.94361	40	20	.4592	.5169	1.935	.88835	40
30	.3338	.3541	2.824	.94264	30	30	.4617	.5206	1.921	.88701	30
40	.3365	.3574	2.798	.94167	20	40	.4643	.5243	1.907	.88566	20
50	.3393	.3607	2.773	.94068	10	50	.4669	.5280	1.894	.88431	10
20	.3420	.3640	2.747	.93969	70	28	.4695	.5317	1.881	.88295	62
10	.3448	.3673	2.723	.93869	50	10	.4720	.5354	1.868	.88158	50
20	.3475	.3706	2.699	.93769	40	20	.4746	.5392	1.855	.88020	40
30	.3502	.3739	2.675	.93667	30	30	.4772	.5430	1.842	.87882	30
40	.3529	.3772	2.651	.93565	20	40	.4797	.5467	1.829	.87743	20
50	.3557	.3805	2.628	.93462	10	50	.4823	.5505	1.816	.87603	10
21	.3584	.3839	2.605	.93358	69	29	.4848	.5543	1.804	.87462	61
10	.3611	.3872	2.583	.93253	50	10	.4874	.5581	1.792	.87321	50
20	.3638	.3906	2.560	.93148	40	20	.4899	.5619	1.780	.87178	40
30	.3665	.3939	2.539	.93042	30	30	.4924	.5658	1.767	.87036	30
40	.3692	.3973	2.517	.92935	20	40	.4950	.5696	1.756	.86892	20
50	.3719	.4006	2.496	.92827	10	50	.4975	.5735	1.744	.86748	10
22	.3746	.4040	2.475	.92718	68	30	.5000	.5774	1.732	.86603	60
10	.3773	.4074	2.455	.92609	50	10	.5025	.5812	1.720	.86457	50
20	.3800	.4108	2.434	.92499	40	20	.5050	.5851	1.709	.86310	40
30	.3827	.4142	2.414	.92388	30	30	.5075	.5890	1.698	.86163	30
40	.3854	.4176	2.394	.92276	20	40	.5100	.5930	1.686	.86015	20
50	.3881	.4210	2.375	.92164	10	50	.5125	.5969	1.675	.85866	10
23	.3907	.4245	2.356	.92050	67	31	.5150	.6009	1.664	.85717	59
10	.3934	.4279	2.337	.91936	50	10	.5175	.6048	1.653	.85567	50
20	.3961	.4314	2.318	.91822	40	20	.5200	.6088	1.643	.85416	40
30	.3987	.4348	2.300	.91706	30	30	.5225	.6128	1.632	.85264	30
40	.4014	.4383	2.282	.91590	20	40	.5250	.6168	1.621	.85112	20
50	.4041	.4417	2.264	.91472	10	50	.5275	.6208	1.611	.84959	10
					66						58
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

137° 12' south 154° 12' L
 42 48
 343° 00 15"

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Angle	Sine.	Tan.	Cotg.	Cosin.		Angle	Sine.	Tan.	Cotg.	Cosin.	
32	.5299	.6249	1.600	.84805	58	30	.6225	.7954	1.257	.78261	30
10	.5324	.6289	1.590	.84650	50	40	.6248	.8002	1.250	.78079	20
20	.5348	.6330	1.580	.84495	40	50	.6271	.8050	1.242	.77897	10
30	.5373	.6371	1.570	.84339	30	39	.6293	.8098	1.235	.77715	51
40	.5398	.6412	1.560	.84182	20	10	.6316	.8146	1.228	.77531	50
50	.5422	.6453	1.550	.84025	10	20	.6338	.8195	1.220	.77347	40
33	.5446	.6494	1.540	.83867	57	30	.6361	.8243	1.213	.77162	30
10	.5471	.6536	1.530	.83708	50	40	.6383	.8292	1.206	.76977	20
20	.5495	.6577	1.520	.83549	40	50	.6406	.8342	1.199	.76791	10
30	.5519	.6619	1.511	.83389	30	40	.6428	.8391	1.192	.76604	50
40	.5544	.6661	1.501	.83228	20	10	.6450	.8441	1.185	.76417	50
50	.5568	.6703	1.492	.83066	10	20	.6472	.8491	1.178	.76229	40
34	.5592	.6745	1.483	.82904	56	30	.6494	.8541	1.171	.76041	30
10	.5616	.6787	1.473	.82741	50	40	.6517	.8591	1.164	.75851	20
20	.5640	.6830	1.464	.82577	40	50	.6539	.8642	1.157	.75661	10
30	.5664	.6873	1.455	.82413	30	41	.6561	.8693	1.150	.75471	49
40	.5688	.6916	1.446	.82248	20	10	.6583	.8744	1.144	.75280	50
50	.5712	.6959	1.437	.82082	10	20	.6604	.8796	1.137	.75088	40
35	.5736	.7002	1.428	.81915	55	30	.6626	.8847	1.130	.74896	30
10	.5760	.7046	1.419	.81748	50	40	.6648	.8899	1.124	.74703	20
20	.5783	.7089	1.411	.81580	40	50	.6670	.8952	1.117	.74509	10
30	.5807	.7133	1.402	.81412	30	42	.6691	.9004	1.111	.74314	48
40	.5831	.7177	1.393	.81242	20	10	.6713	.9057	1.104	.74120	50
50	.5854	.7221	1.385	.81072	10	20	.6734	.9110	1.098	.73924	40
36	.5878	.7265	1.376	.80902	54	30	.6756	.9163	1.091	.73728	30
10	.5901	.7310	1.368	.80730	50	40	.6777	.9217	1.085	.73531	20
20	.5925	.7355	1.360	.80558	40	50	.6799	.9271	1.079	.73333	10
30	.5948	.7400	1.351	.80386	30	43	.6820	.9325	1.072	.73135	47
40	.5972	.7445	1.343	.80212	20	10	.6841	.9380	1.066	.72937	50
50	.5995	.7490	1.335	.80038	10	20	.6862	.9435	1.060	.72737	40
37	.6018	.7536	1.327	.79864	53	30	.6884	.9490	1.054	.72537	30
10	.6041	.7581	1.319	.79688	50	40	.6905	.9545	1.048	.72337	20
20	.6065	.7627	1.311	.79512	40	50	.6926	.9601	1.042	.72136	10
30	.6088	.7673	1.303	.79335	30	44	.6947	.9657	1.036	.71934	46
40	.6111	.7720	1.295	.79158	20	10	.6967	.9713	1.030	.71732	50
50	.6134	.7766	1.288	.78980	10	20	.6988	.9770	1.024	.71529	40
38	.6157	.7813	1.280	.78801	52	30	.7009	.9827	1.018	.71325	30
10	.6180	.7860	1.272	.78622	50	40	.7030	.9884	1.012	.71121	20
20	.6202	.7907	1.265	.78442	40	50	.7050	.9942	1.006	.70916	10
							.7071	1.	1.	.70711	45
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

TABLE IX.—CALCULATION OF EARTHWORK.

Width	HEIGHT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.02	.04	.06	.07	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	.28
2	.04	.07	.11	.15	.18	.22	.26	.30	.33	.37	.41	.44	.48	.52	.56
3	.06	.11	.17	.22	.28	.33	.39	.44	.50	.56	.61	.67	.72	.78	.83
4	.07	.15	.22	.30	.37	.44	.52	.59	.67	.74	.81	.89	.96	1.04	1.11
5	.09	.19	.28	.37	.46	.56	.65	.74	.83	.93	1.02	1.11	1.20	1.30	1.39
6	.11	.22	.33	.44	.56	.67	.78	.89	1.00	1.11	1.22	1.33	1.44	1.55	1.67
7	.13	.26	.39	.52	.65	.78	.91	1.04	1.16	1.30	1.42	1.55	1.68	1.81	1.94
8	.15	.30	.44	.59	.74	.89	1.04	1.19	1.33	1.48	1.63	1.78	1.92	2.08	2.22
9	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50
10	.18	.37	.56	.74	.93	1.11	1.30	1.48	1.67	1.85	2.04	2.22	2.41	2.59	2.78
11	.20	.41	.61	.82	1.02	1.22	1.43	1.63	1.83	2.04	2.24	2.44	2.65	2.85	3.06
12	.22	.44	.67	.89	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.33
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.41	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.08	2.33	2.59	2.85	3.11	3.37	3.63	3.89
15	.28	.56	.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	3.06	3.33	3.61	3.89	4.17
16	.30	.59	.89	1.18	1.48	1.78	2.07	2.37	2.67	2.96	3.26	3.56	3.85	4.15	4.44
17	.31	.63	.94	1.26	1.57	1.89	2.20	2.52	2.83	3.15	3.46	3.78	4.09	4.41	4.72
18	.33	.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00
19	.35	.70	1.06	1.41	1.76	2.11	2.46	2.82	3.17	3.52	3.87	4.22	4.57	4.92	5.28
20	.37	.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.56
21	.39	.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.44	5.83
22	.41	.81	1.22	1.63	2.04	2.44	2.85	3.26	3.67	4.07	4.48	4.89	5.30	5.70	6.11
23	.43	.85	1.28	1.70	2.13	2.56	2.98	3.41	3.83	4.26	4.68	5.11	5.54	5.96	6.39
24	.44	.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	4.89	5.33	5.78	6.22	6.67
25	.46	.92	1.39	1.85	2.31	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	6.94
26	.48	.96	1.44	1.92	2.41	2.89	3.37	3.85	4.33	4.82	5.30	5.78	6.26	6.74	7.24
27	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
28	.52	1.04	1.55	2.07	2.59	3.11	3.63	4.15	4.67	5.18	5.70	6.22	6.74	7.26	7.78
29	.54	1.07	1.61	2.15	2.68	3.22	3.76	4.30	4.83	5.37	5.91	6.44	6.98	7.52	8.06
30	.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.55	6.11	6.67	7.22	7.78	8.33
31	.57	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74	6.32	6.89	7.46	8.04	8.61
32	.59	1.18	1.78	2.37	2.96	3.56	4.15	4.74	5.33	5.92	6.52	7.11	7.70	8.30	8.89
33	.61	1.22	1.83	2.44	3.05	3.67	4.28	4.89	5.50	6.11	6.72	7.33	7.94	8.55	9.17
34	.63	1.26	1.89	2.52	3.15	3.78	4.40	5.04	5.67	6.29	6.93	7.56	8.18	8.81	9.44
35	.65	1.30	1.94	2.59	3.24	3.89	4.53	5.18	5.83	6.48	7.13	7.78	8.42	9.08	9.72
36	.67	1.33	2.00	2.67	3.33	4.00	4.66	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.00
37	.68	1.37	2.06	2.74	3.42	4.11	4.79	5.48	6.17	6.85	7.54	8.22	8.91	9.59	10.28
38	.70	1.41	2.11	2.82	3.52	4.22	4.92	5.63	6.33	7.03	7.74	8.44	9.15	9.85	10.56
39	.72	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	7.22	7.95	8.67	9.39	10.11	10.83
40	.74	1.48	2.22	2.96	3.70	4.44	5.18	5.92	6.67	7.41	8.15	8.89	9.63	10.37	11.11

Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth; the values found under each height considering the widths from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if w = 16.2 and h = 5.3, cu. yds. = 1.48 + .028 + .089 = 1.597 cu. yds. or practically 160 cu. yds. per 100 ft. If w exceeds 40 ft., use one half and multiply result by 2, if both w and h are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills) = h, and ½ the roadbed = w, add the triangles formed by taking the distance out to each break in turn (= w's) by the difference between the cuts (or fills) on each side of it (= h's) always subtracting the outer from the inner.

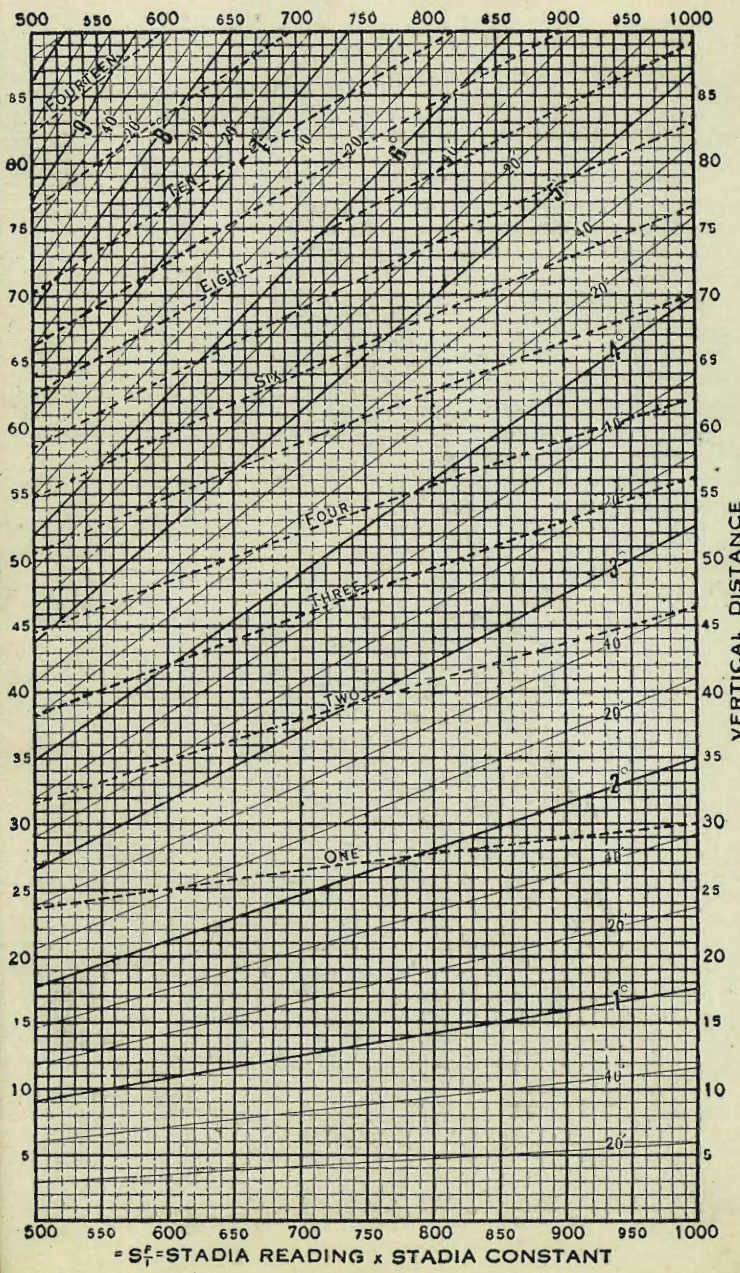
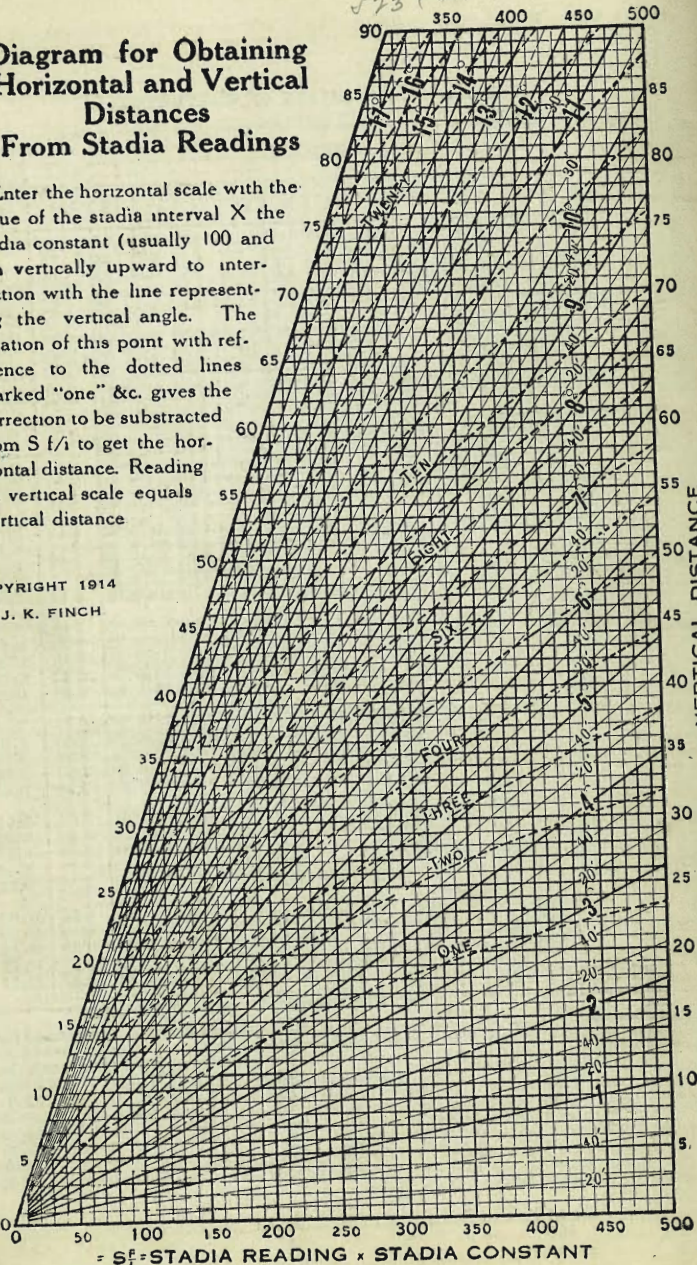
7+76.77

524 + 00.6
58.6
573 + 4.14

Diagram for Obtaining Horizontal and Vertical Distances From Stadia Readings

Enter the horizontal scale with the value of the stadia interval X the stadia constant (usually 100) and run vertically upward to intersection with the line representing the vertical angle. The location of this point with reference to the dotted lines marked "one" &c. gives the correction to be subtracted from $S f/i$ to get the horizontal distance. Reading on vertical scale equals vertical distance

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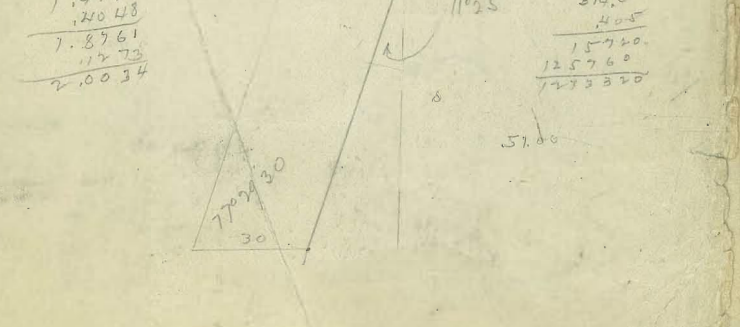




Sutherland - Karlsruhe Beachline 578.26

63+14.38
20+59.37
42 55.04
6 84.88
493 9.09

684.88
000 405
342440
2737520
27737640
38437760
66177405
40 48
1.0665
4048
1.4713
2048
1.8761
1272
2.0034



NFL on AH
+ 1/2
0.66 N
37.8 E
37.7 E
From 11+30

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1 1/2.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	25.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct distances are given by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20 - 16) ÷ 2 or 2 ft. added to 41.9 = 3.9. For slopes of 1 on 1 see inside of front cover.