

W 650

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	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0	
1	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	2	
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	3	
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	4	
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	5	
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	6	
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	7	
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	8	
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	9	
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	10	
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	11	
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	12	
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	13	
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	14	
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	15	
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	16	
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	17	
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	18	
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	19	
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	20	
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	21	
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	22	
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	23	
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	24	
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	25	
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	26	
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	27	
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	28	
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	29	
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	30	
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	31	
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	32	
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	33	
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	34	
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	35	
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	36	
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	37	
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	38	
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	39	
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	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 1½ see inside of back cover.

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El Monte Pipe Line Extension

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X	ELEVATIONS OF TEST HOLES - EL MONTE PL	

El Monte
 Pipeline location from Sheltons location at Santee, along
 old R.R. R/W, to Tunnel Site, West of Main St, El Cajon.

$\Delta = 15^{\circ}18' Lt$	+89.56 - 7 ^{39.0}
$R = 1000'$	+50 - 6 ^{31.0}
$T = 134.32$	279 - 5 ^{05.1}
$L = 267.03$	+50 - 3 ^{39.2}
	278 - 2 ^{13.2}
	277450 - 0 ^{47.3}

277+22.53 B.C.

277+16.71 E.C.

$\Delta = 15^{\circ}18' Rt$	+16.71 - 7 ^{39'}
$R = 1000'$	277 - 7 ^{16.2}
$T = 134.32$	+50 - 5 ^{04.3}
$L = 267.03$	276 - 4 ^{18.3}
$def. 1' = 1.719$	+50 - 2 ^{52.4}
$def. 50' = 1^{\circ}25.944$	275+00 - 1 ^{26.4}

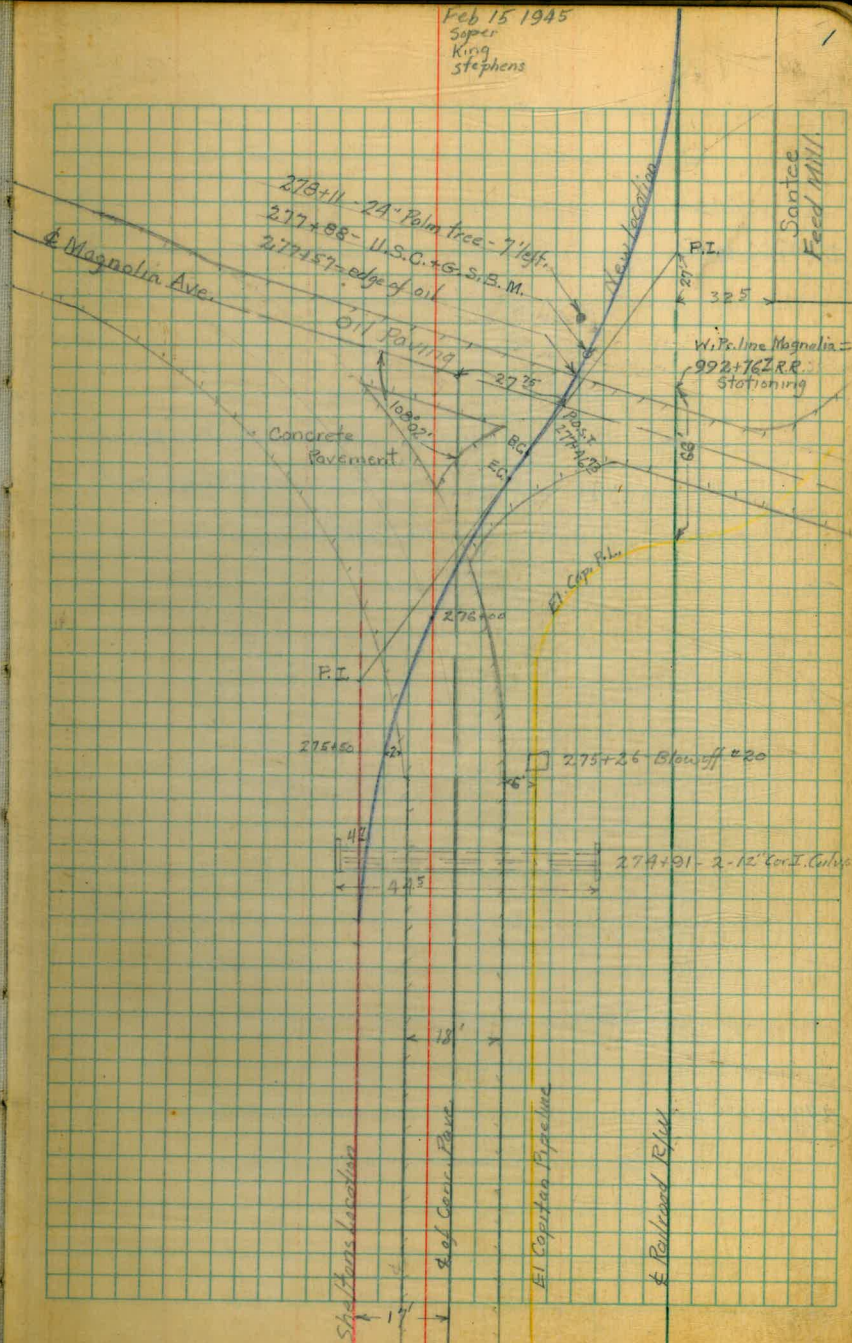
274+49⁶⁸ B.C.

274+49⁶⁸ P.O.T. Sheltons location - Book 627-24

S 29°30' W. - Declination not set off

Feb 15 1945

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 King
 Stephens

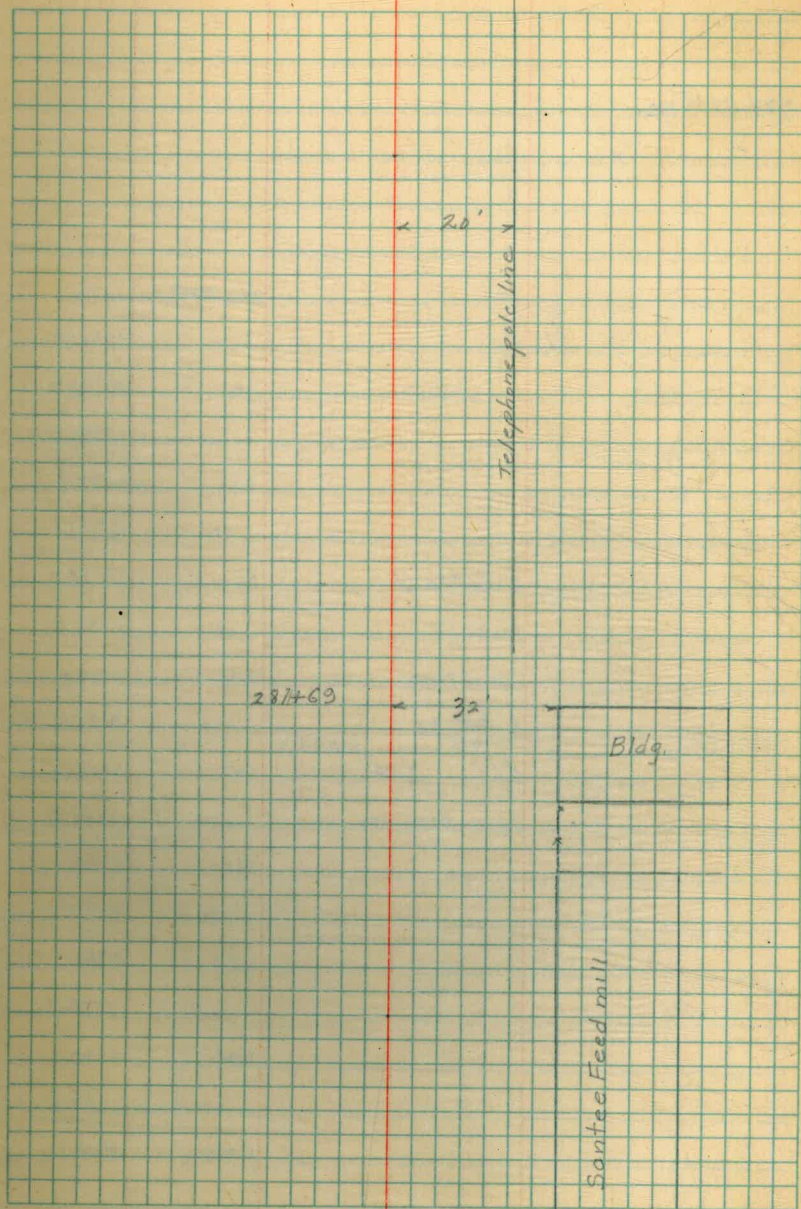


284+66.10B.C.

Note: This location follows the $\frac{1}{2}$ of the IA \pm railway
roadbed from sta. 279+90 to 312+45 and
from sta. 355+00 to 414+63.

S 29° 30' W

279+89.56 E.C.



293+8243 E.C.

$\Delta = 36^{\circ} 20' 17''$

$R = 1445$

$ST = 474.16$

$L = 916.33$

$df. 1' = 1.1894$

$df. 50' = 0^{\circ} 59.470$

293+8242 - $18^{\circ} 10.0$

+50 - $17^{\circ} 31.3$

293 - $16^{\circ} 31.8$

+50 - $15^{\circ} 32.3$

292 - $14^{\circ} 32.9$

+50 - $13^{\circ} 33.4$

291 - $12^{\circ} 33.9$

+50 - $11^{\circ} 34.5$

290 - $10^{\circ} 35.0$

+50 - $9^{\circ} 35.5$

289 - $8^{\circ} 36.1$

+50 - $7^{\circ} 36.6$

288 - $6^{\circ} 37.1$

+50 - $5^{\circ} 37.6$

287 - $4^{\circ} 38.2$

+50 - $3^{\circ} 38.7$

286 - $2^{\circ} 39.2$

+50 - $1^{\circ} 39.8$

285+00 - $0^{\circ} 40.3$

Feb 16, 1945

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3

Telephone pole line

Fence

20'

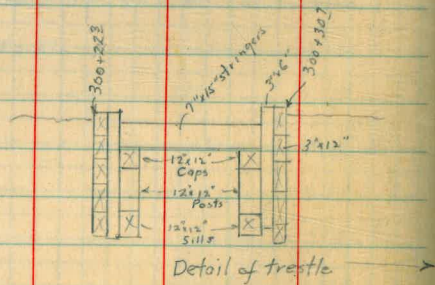
289+00

34'

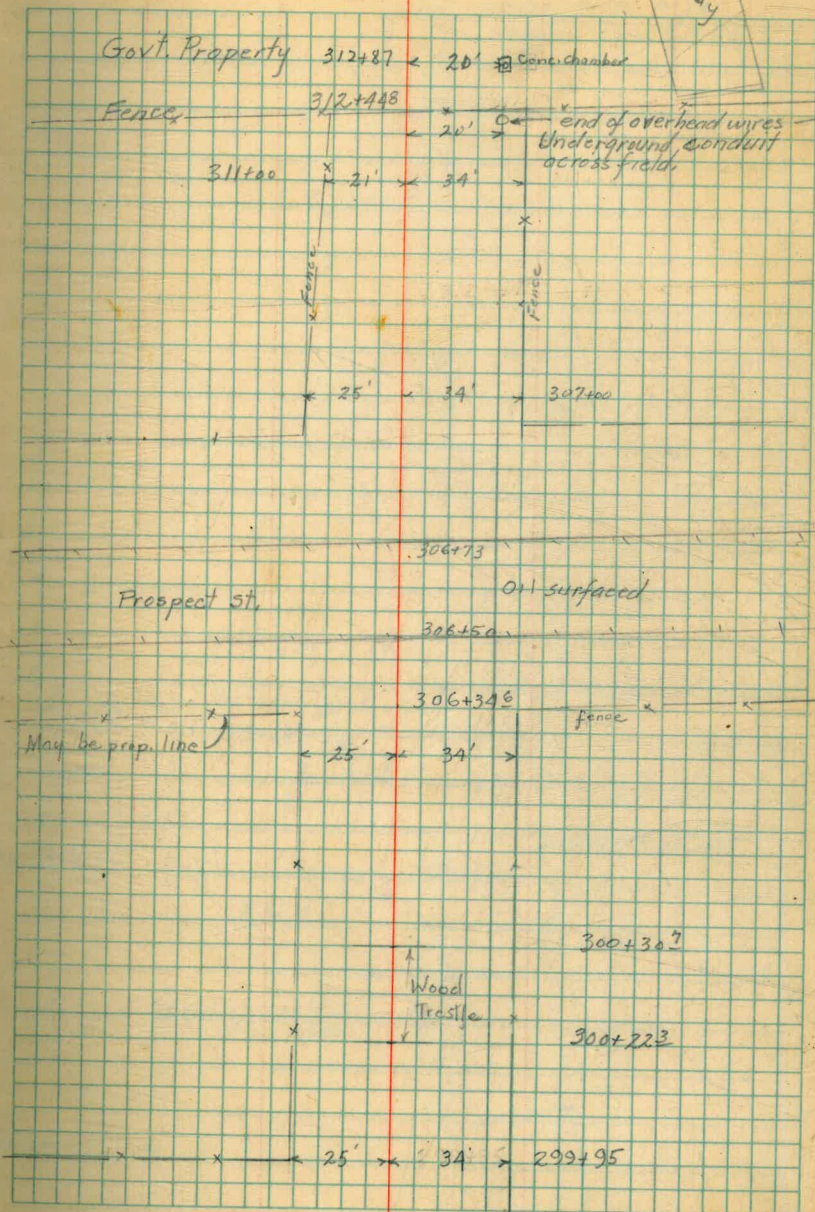
y

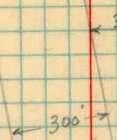
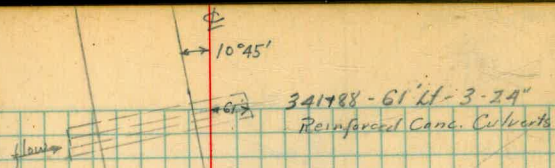
x

307+00 P.O.T.



S 5° 36' E





324+468

322+25 - 62' dia catch basin for 18" conc. storm drain
 322+144



321+832



300'

2355'

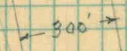
Asphalt Runways

318+76

318+836

318+32 - catch basin for 18" conc. storm drain, 12" RT

12"



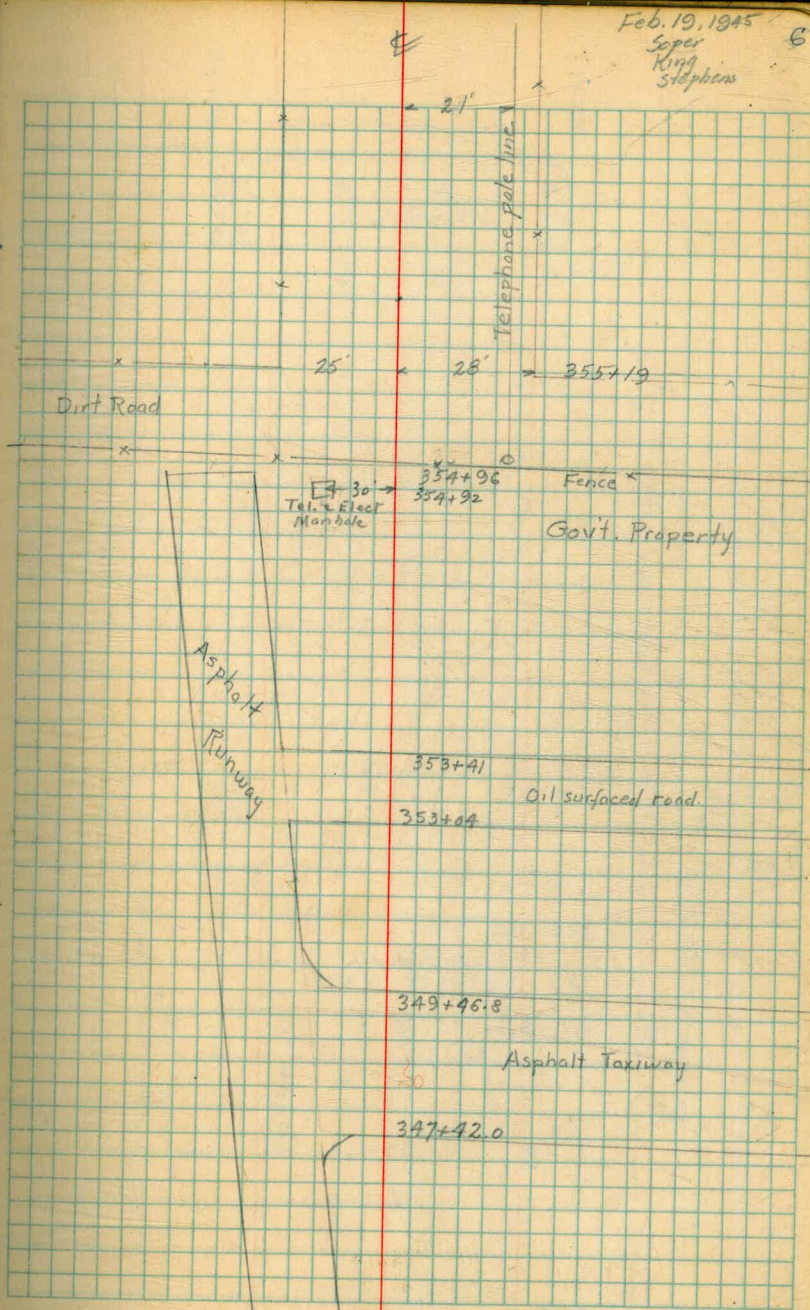
1572'

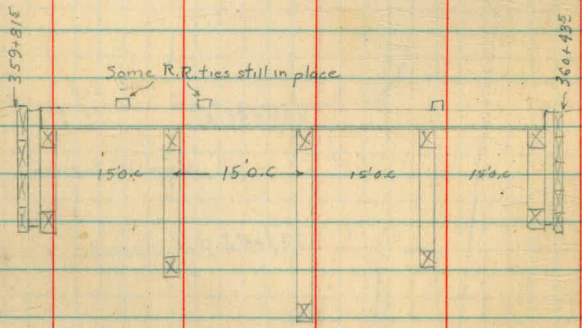
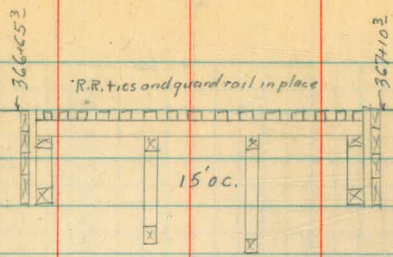
S5°30'E

355+39.60 P.O.T.

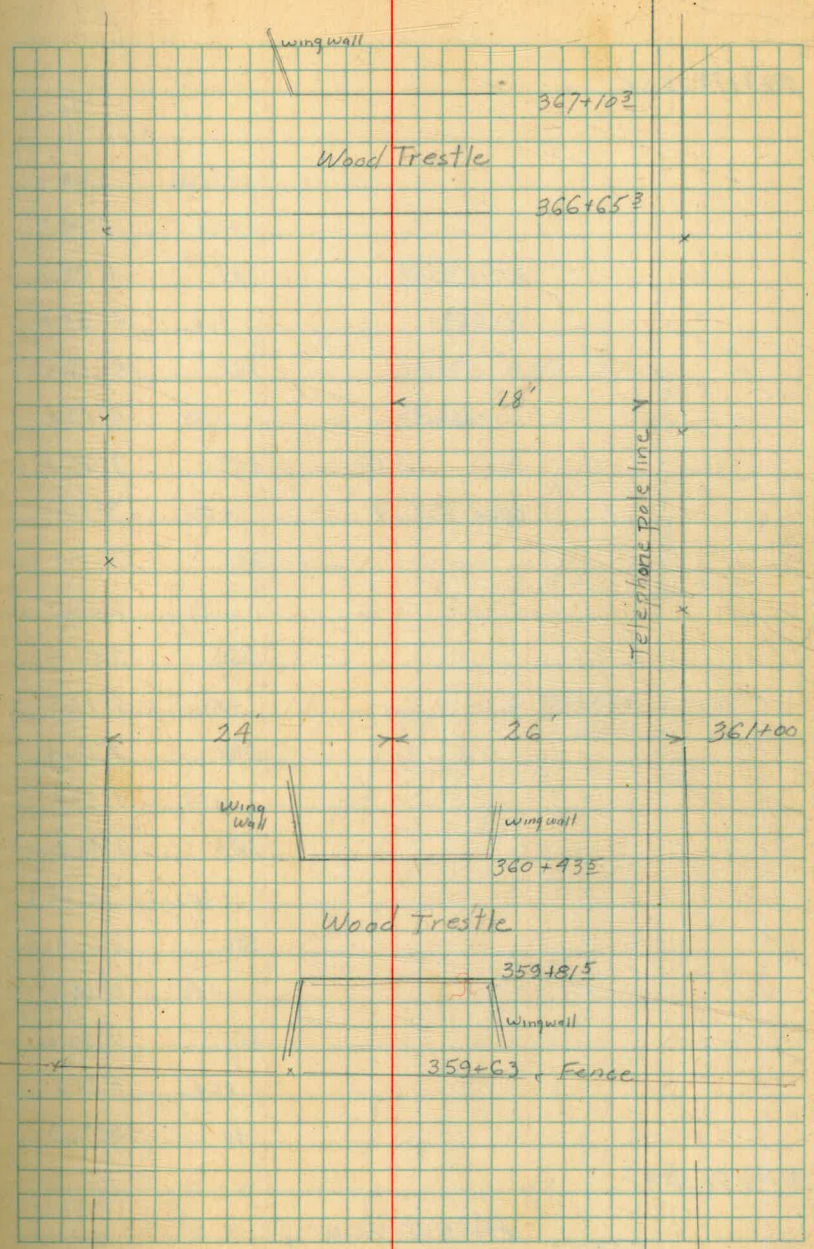
55°30'E

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S5°30'E



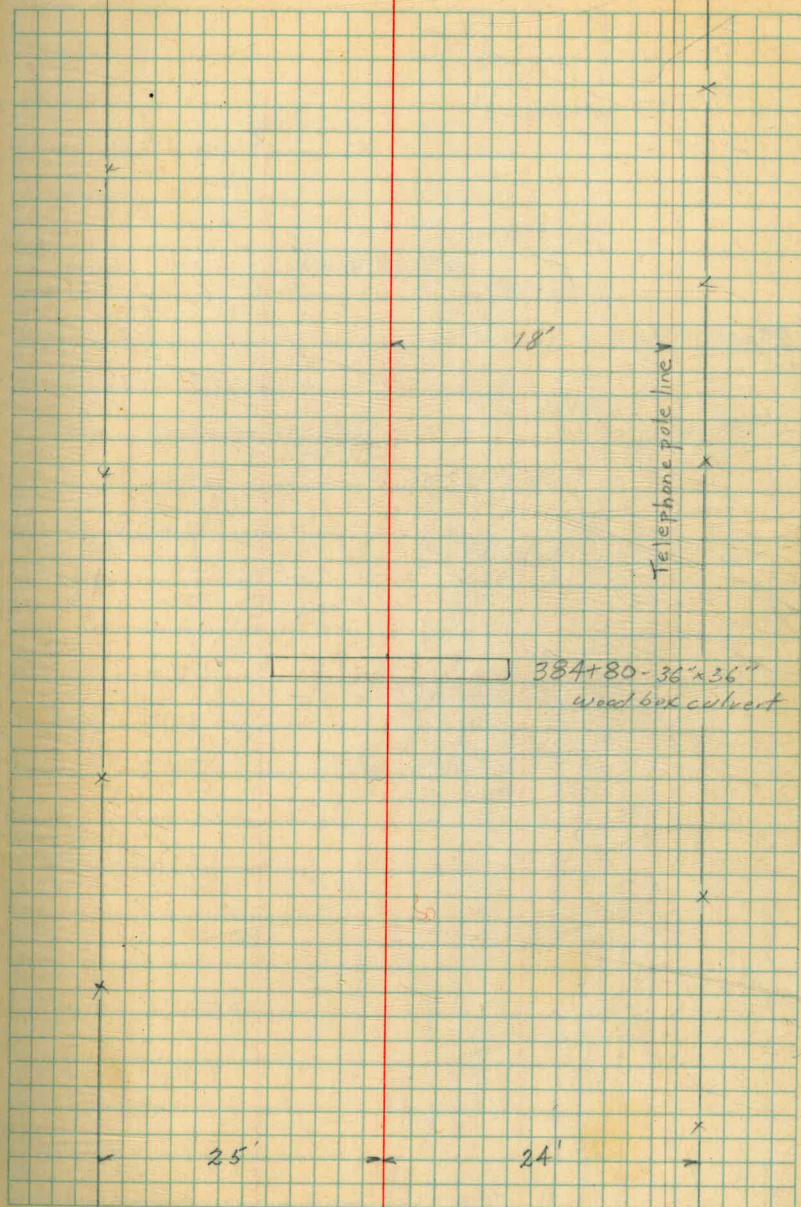
379+78.23 E.C.

	+78.23	5°13.0
	+50	5°04.2
A = 10°26.4	389	4°48.7
R = 5530'	+50	4°33.1
st. = 504.89	388	4°17.6
L = 1006.99	+50	4°02.0
def. i = 31082	387	3°46.5
def. 50 = 0°15.541	+50	3°30.1
	386	3°15.4
	+50	2°59.9
	385	2°44.3
	+50	2°28.8
	384	2°13.3
	+50	1°57.7
	383	1°42.2
	+50	1°26.6
	382	1°11.1
	+50	0°55.6
	381	0°40.0
	+50	0°24.5
	380	0°08.9

379+71.24 B.C.

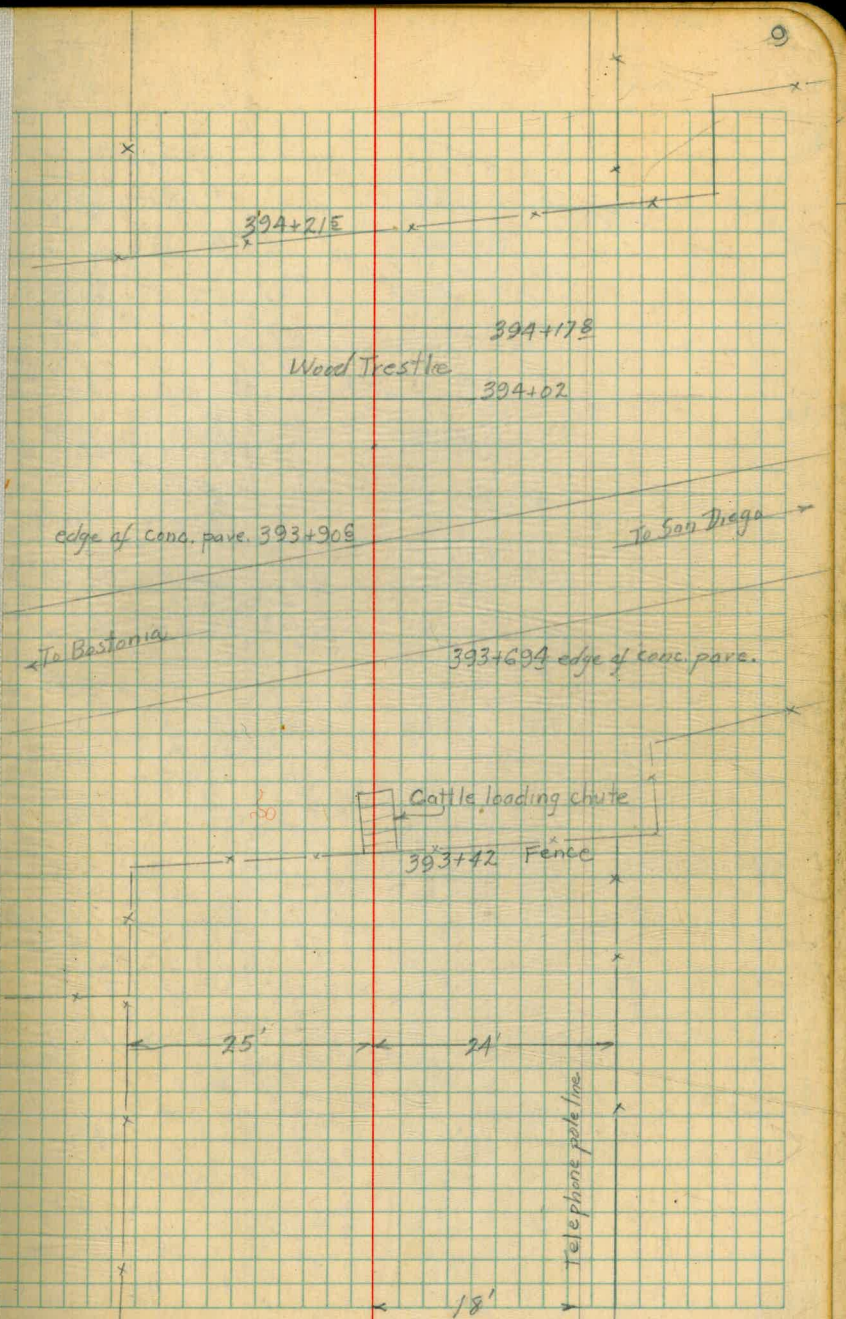
S 5°30' E

Alternate on page 14



393+98.50 P.O.T.

S16°E

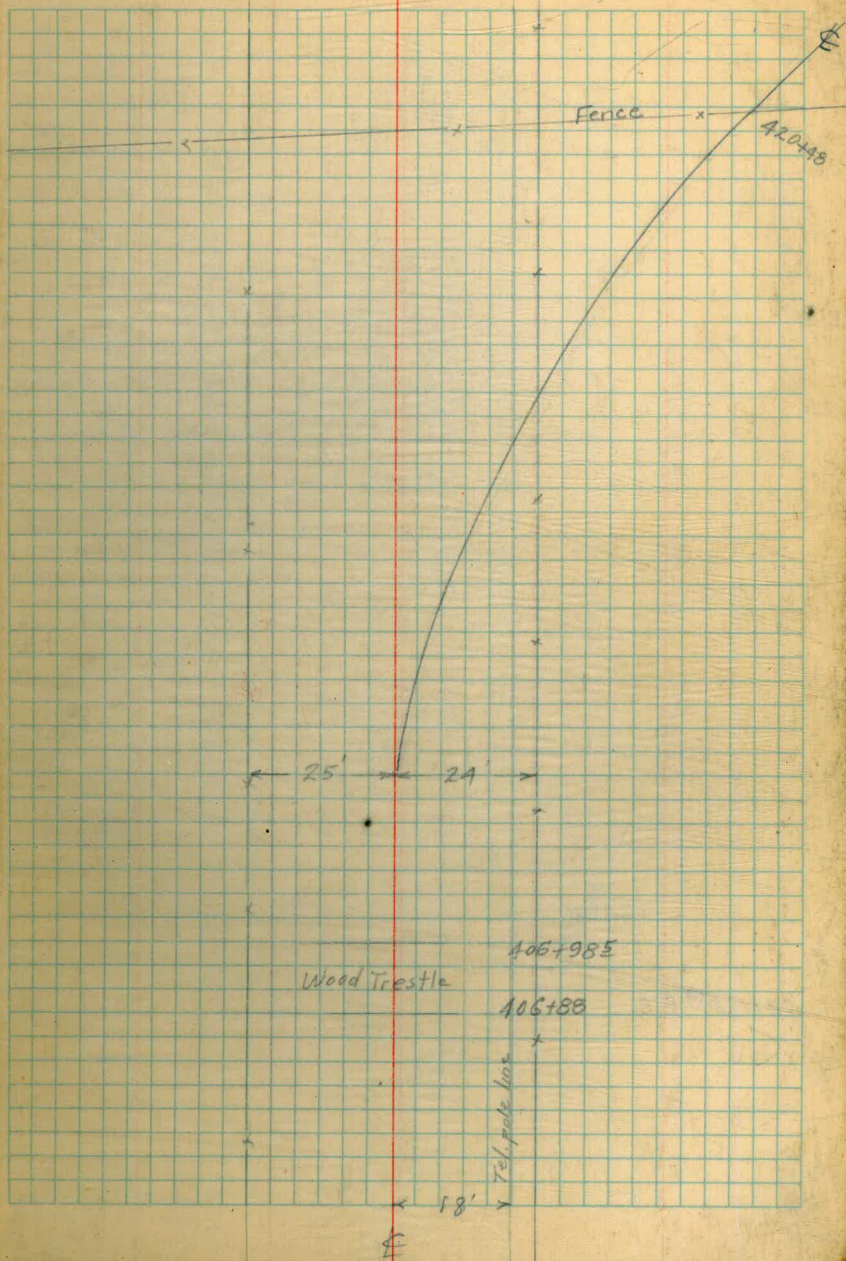


$\Delta = 38^{\circ}42.74$	+38 ⁵⁴	19°21.0
$R = 1000'$	421	18°14.8
$St. = 351.17$	+50	16°48.8
$L = 675.44$	420	15°22.9
defl: 1.719	+50	13°56.9
defst: 1°25.944	419	12°30.9
	+50	11°05.0
	418	9°39.1
	+50	8°13.1
	417	6°47.2
	+50	5°21.3
	416	3°55.3
	+50	2°29.4
	415	1°03.4

414+63.10 BC.

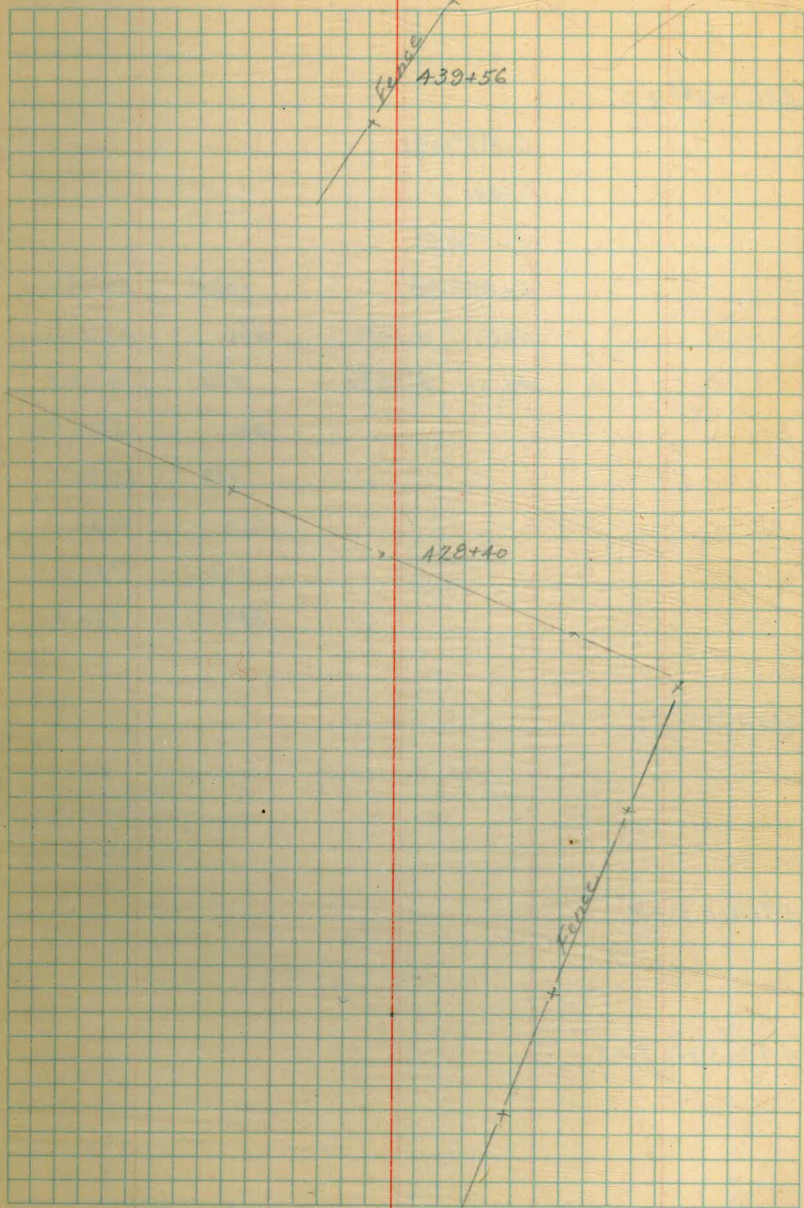
S16°E

Feb. 20, 1945 10
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King
Stephens



S 24° W

42438⁵⁴ E.C.



Feb. 21, 1945 12

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446+02⁶⁶ E.C.

A = 47°10' R+

R = 400'

st = 174.62

L = 329.28

dg1 = 4.2972

dg50 = 3°34.860

+02⁶⁶ 23°35.0

446 23°23.5

+50 19°48.7

445 16°13.8

+50 12°39.0

444 9°04.1

+50 5°29.2

443 1°54.4

442+73³⁸ B.C.

442+00 P.O.T.

440+5970 P.O.T.

524°W

Continued on page 18

P.O.T.
448+32.06 = Pt. #1 Stadia line "A" - this book page 39

448+21.51 E.C.

$$\Delta = 24^{\circ}58.14'$$

$$R = 500'$$

$$St = 110.69 \quad 12151 \quad 12^{\circ}29.0'$$

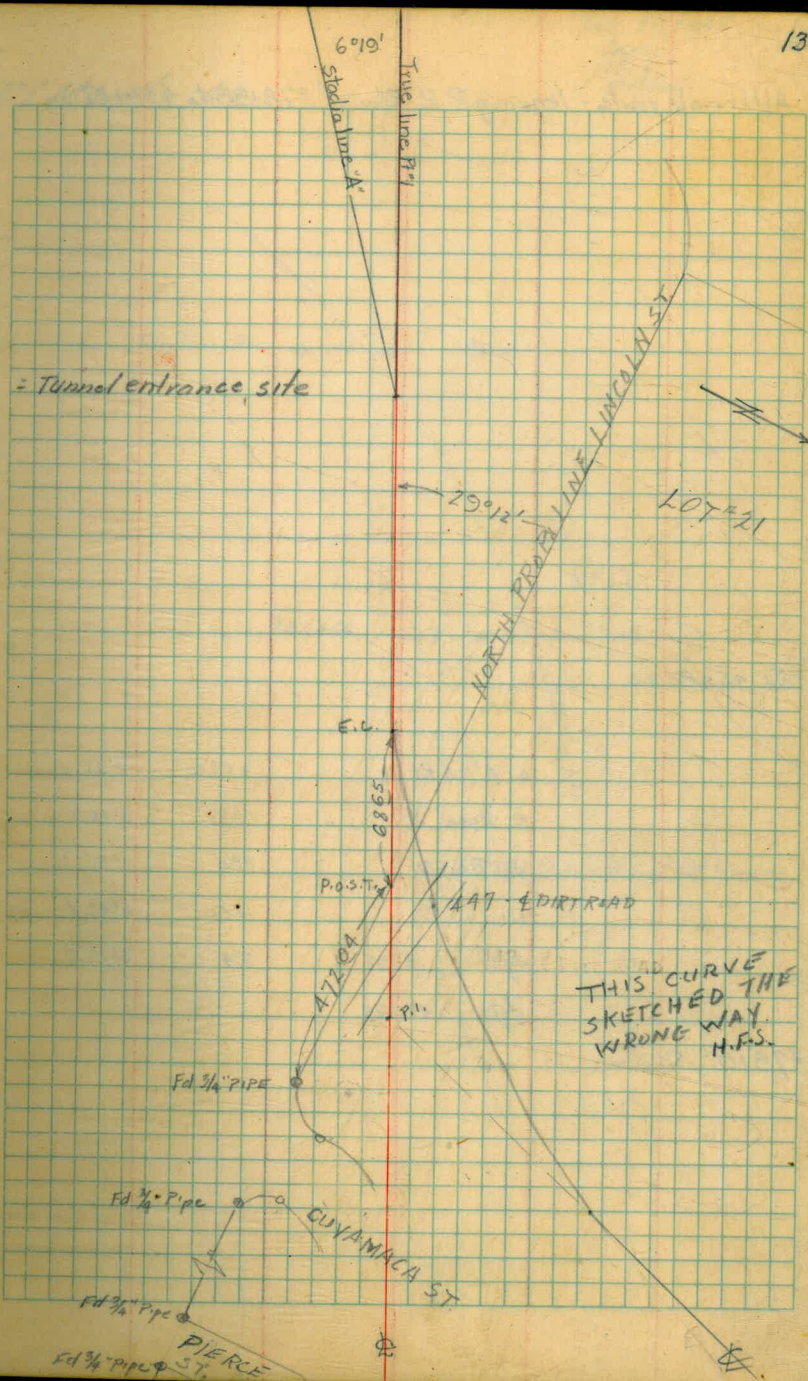
$$L = 217.87 \quad 448 \quad 11^{\circ}15.0'$$

$$defl = 3.938 \quad +50 \quad 8^{\circ}23.1'$$

$$def 50' = 2051.887 \quad 447 \quad 5^{\circ}31.3'$$

$$446+50 \quad 2^{\circ}39.4'$$

446+03.64 B.C.



Alternate route - leaving R.R. R/W at 378+88 to 439+87 -

S 1° E

380+53.80 E.C.

A: 4° 44' RT	+53.80	2° 23.0
R 2000'	+50	2° 16.7
St: 82.66	380	1° 35.7
L: 165.22	+50	0° 52.8
Adj. I: .8595	379	0° 09.8
def. so: 0° 42.975		

378+88.58 B.C.

Feb. 23, 1945

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King

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14

El Monfo PL.

Telephone pole 11' → 382+40

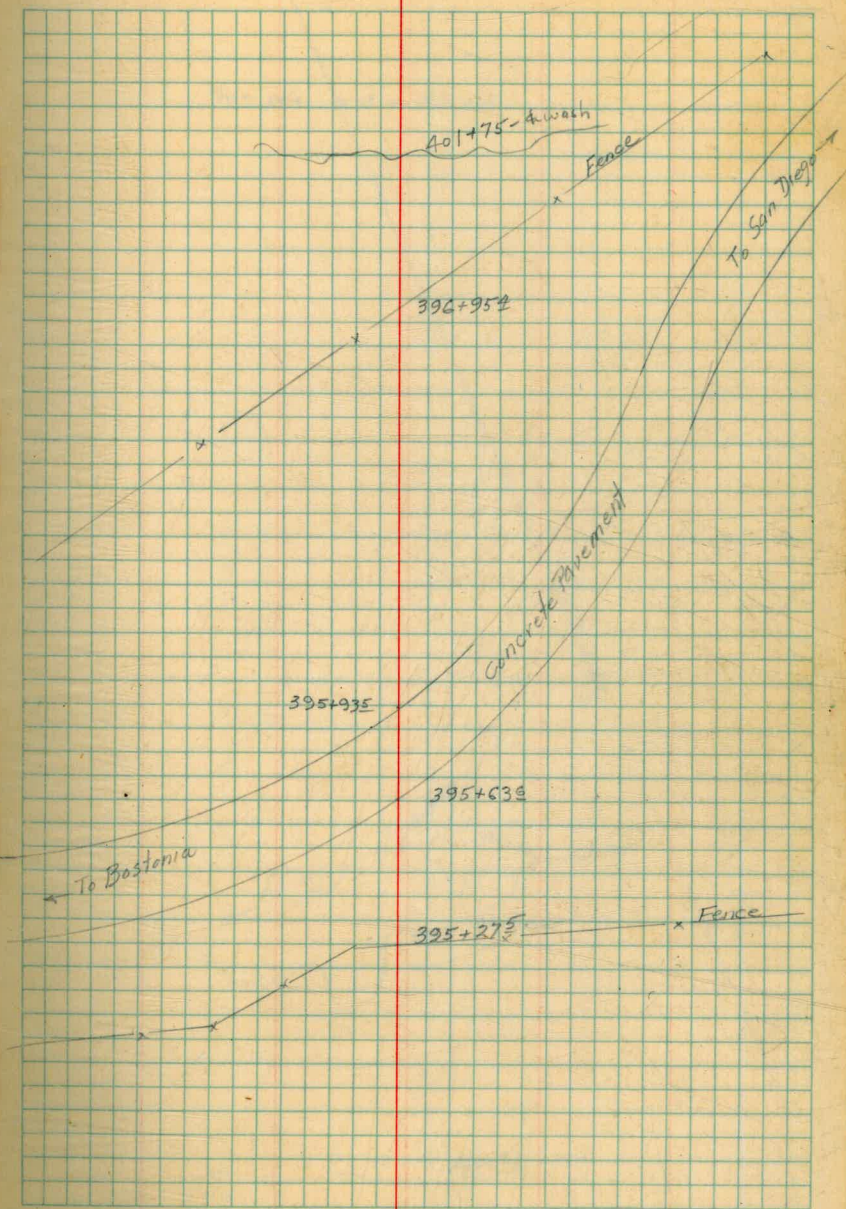
380+60 ← 9' Telephone pole

FENCE

P.I. = 379+71.24 = B.C. of 1st location

396+1176 P.O.T.

S 10 E



Power pole $\approx 15'$ \rightarrow 431+12

Power line

429+50
main wash
wash 429+15

420+92 wash

S1°E

Cont'd on page 12

442+69.49 ahead
439+87.94 E.C. back

A = 23°33.21

R 916

st 189.69

+87.94 11°46.5

L 374.03

+50 10°34.9

dg.1 = 1889

439 9°00.4

def⁵⁰ = 1°34.444

+50 7°26.0

438 5°51.5

+50 4°17.1

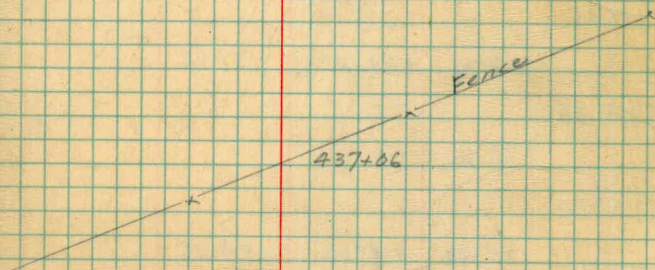
437 2°42.6

436+50 1°08.2

436+13.91 B.C.

51° E

442+73³⁸ B.C. - 1st location



El Monte Pt.

Stationing over proposed tunnel site, from 550 contour
in El Cajon Valley to 590 contour in Alvarado Canyon.

466+26.35	200.00	-8°11'	197.96
464+28.39	188.05	Horiz	
462+40.34	53.88	Horiz	
461+86.46	200.00	+11°30'	195.98
459+90.48	200.00	+8°43'	197.69
457+92.79	79.00	+17°31'	75.34
457+17.45	200.00	+20°21'	187.52
455+29.93	376.00	Horiz.	
451+53.93	125.58	+8°00'	124.36
450+29.57	200.00	+9°03'	197.51
448+32.06			

Continued from page 13

Cold-windy.

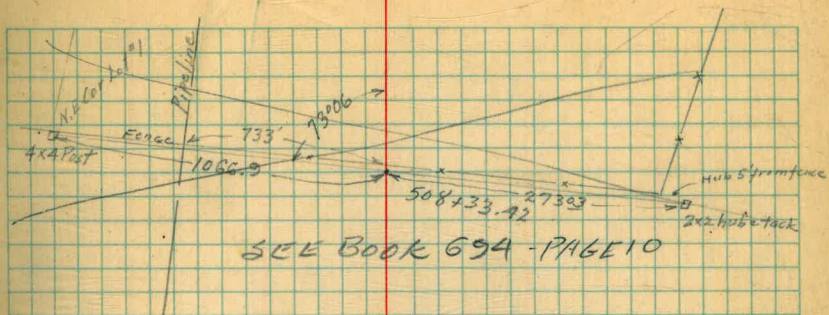
March 1, 1945 18
Soper K
King H. chain
Stephens R "

Hub on hill

Hub on top of hill

Hub on 550 Contour U.S.G.S. Datum. Also Pt. #1 - Stadia
line "A" - page 39 - this book

509+37.34	384.80	Horiz.	
505+52.54	876.15	Horiz.	
496+76.39	200.00	- 6°50'	198.58
494+77.81	494.19	Horiz.	
489+83.62	277.19	Horiz.	
487+06.43	200.00	+4°56'	199.26
485+07.17	790.00	Horiz.	
477+17.17	200.00	+1°14'	199.95
475+17.22	200.00	+4°40'	199.34
473+17.88	295.00	Horiz.	
470+22.88	200.00	-6°33'	198.69
468+24.19	200.00	-8°26'	197.84



Hub on ridge

Cont'd on next page

511+76.76 ✓

40.40 Horiz

511+36.36 ✓

200.00 5°40' 199.02 ✓

Hub on 590 Contour U.S.G.S. Datum Site of tunnel exit

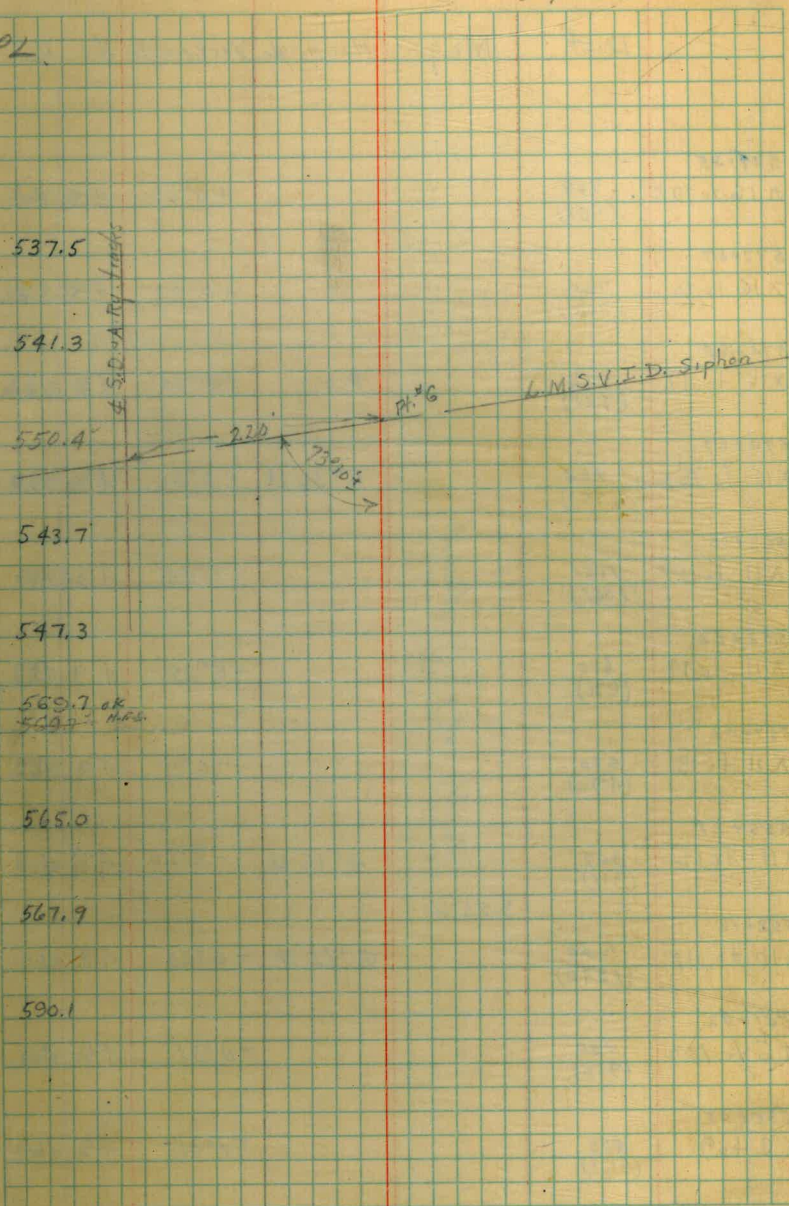
Stadia Pipeline Location - West Portal in Alvarado
Canyon to Vicinity of Murray Reservoir - El Monte PL

Dist	Mag	Hor. angle	Vert. angle	H.I.	Red
537+84 76 to 8	542 (542)		-1°09'	4.9	6.9
537+62 76 to 7	520 (520)	0°30' Lt	-1°00'	4.9	4.9
532+42 73 to 67	1332 (1332) OK		-0°50'	4.9	4.9
530+54 73 to 5	1144 (1145)		-1°18'	4.9	4.9
527+39 73 to 4	829 (830)	556°W	10°43' Rt	-1°37'	4.9 4.9
519+10 70 to 37	733 (733) OK HFS		-1°36'	4.8	4.8
516+80 0 to 2	503 (504)		-2°52'	4.8	4.6
514+92 70 to 1	315 (316)	548°W	P.O.T	-4°03'	4.8 4.8
511+76.76 = P4.70					Hub - Elev. 590.1 U.S.G.S.

March 13, 1945

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Soper
King
Stephens



	Dist	Mag	Hor angle	Vert angle	H.I	Red	
579+75							
X 16 to 19 X	908 (908)		"	+0°29'	4.8	4.8	546.0
577+87							
X 16 to 18	720 (720)		"	+0°22'	4.8	4.8	542.9
574+85							
X 16 to 17	418 (420)		P.O.T.	-4°20'	4.8	13.8	497.7
570+67							
X 15 to 16 X	854 (854)		6°30' Lt	-0°20'	4.9	6.9	538.3
562+13							
X 11 to 15 X	1001 (1001)		"	+0°44'	4.9	4.9	545.3
558+82							
X 11 to 14	670 (670)		"	-0°25'	4.9	9.9	522.6
557+02							
X 11 to 13	490 (490)		"	-0°11'	4.9	4.9	530.9
555+21							
X 11 to 12	309 (310)		4°16' Lt	-3°20'	4.9	4.9	514.5
552+12							
X 10 to 11 X	1040 (1040)		6°22' Lt	-0°25'	4.8	4.8	532.5
541+72							
X 6 to 10 X	930 (930)		"	-0°38'	4.9	4.9	540.1
538+05							
X 6 to 9	563 (563)		"	-1°06'	4.9	4.9	540.6

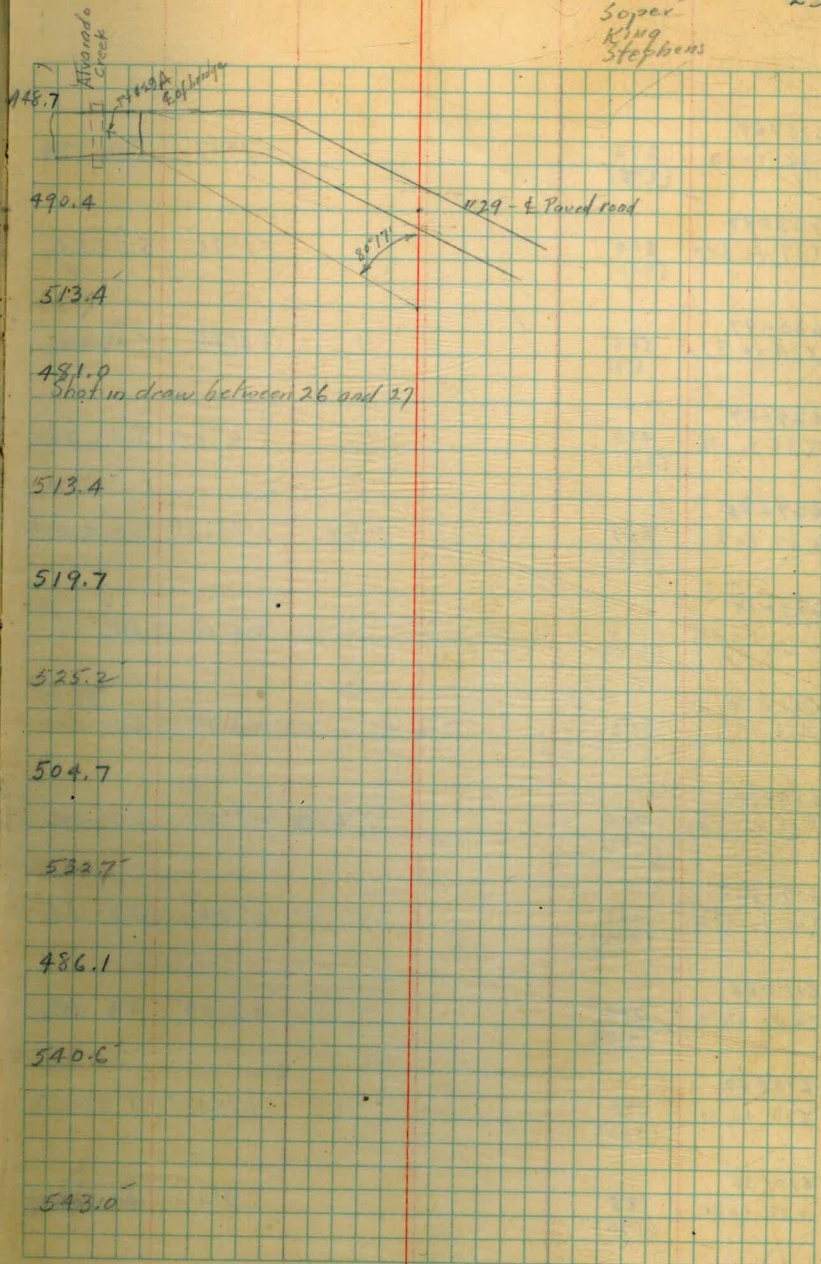
Needle out of adjustment

S 55° W

March 14, 1945 23

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Stephens

617+45 X 28 to 29A	895 (900)		-4°08'	4.9	4.9
609+84 X 28 to 29	134 (138)	2°40' H	-9°42'	4.9	4.9
608+50 X 27 to 28A	132 (132)	"	0°00'	4.9	4.9
609+28 X 27 to 26A	210 (215)		-8°46'	4.9	4.9
607+18 X 25 to 27A	826 (826)	"	-0°49'	5.0	5.0
602+70 X 25 to 26	378 (378)	0°16' RT	-0°50'	5.0	5.0
598+92 X 23 to 25A	478 (478)	"	-0°54'	4.9	4.9
596+51 X 23 to 24	237 (240)	"	-6°00'	4.9	7.9
594+14 X 21 to 23A	632 (632)	"	-0°43'	4.9	4.9
590+74 X 21 to 22	292 (300)	P.O.T.	-9°26'	4.9	10.9
587+82 X 20 to 21A	244 (244)	15°30' RT	-0°35'	4.9	4.9
585+38 X 19 to 20A	563 (563)	7°59' RT	Level	4.8	7.8



636+69
 X38 to 39 272
 (276) " -7°17' 5.0 5.0

633+97
 X37 to 38 300
 (300) " -1°48' 5.0 5.0

630+97
 X34 to 37 563
 (563) " +0°44' 5.0 5.0

629+47
 X34 to 36 413
 (413) " -0°20' 5.0 5.0

627+85
 X34 to 35 251
 (256) POT -8°10' 5.0 9.0

623+18
 X34 to 33B 216
 (216) " -1°00' 5.0 11.0

621+50
 X39 to 33A 384
 (385) " +2°15' 5.0 5.0

625+34
 X33 to 34 748
 (750) 16°43' RT -2°53' 4.6 4.6

617+86
 X32 to 33 222
 (222) 20°15' RT 0°00' 4.6 4.6

615+64
 X28 to 32 714
 (715) " +2°09' 4.9 4.9

612+42
 X28 to 31 392
 (392) " +1°00' 4.9 4.9

610+35
 X28 to 30 185
 (190) " -9°11' 4.9 7.0

465.6

500.3

509.7

500.1

462.5

492.7

33B is on the tangent between 33A and 34

517.6

33A is on the tangent between 33 and 34

502.5

540.2

540.2

520.2

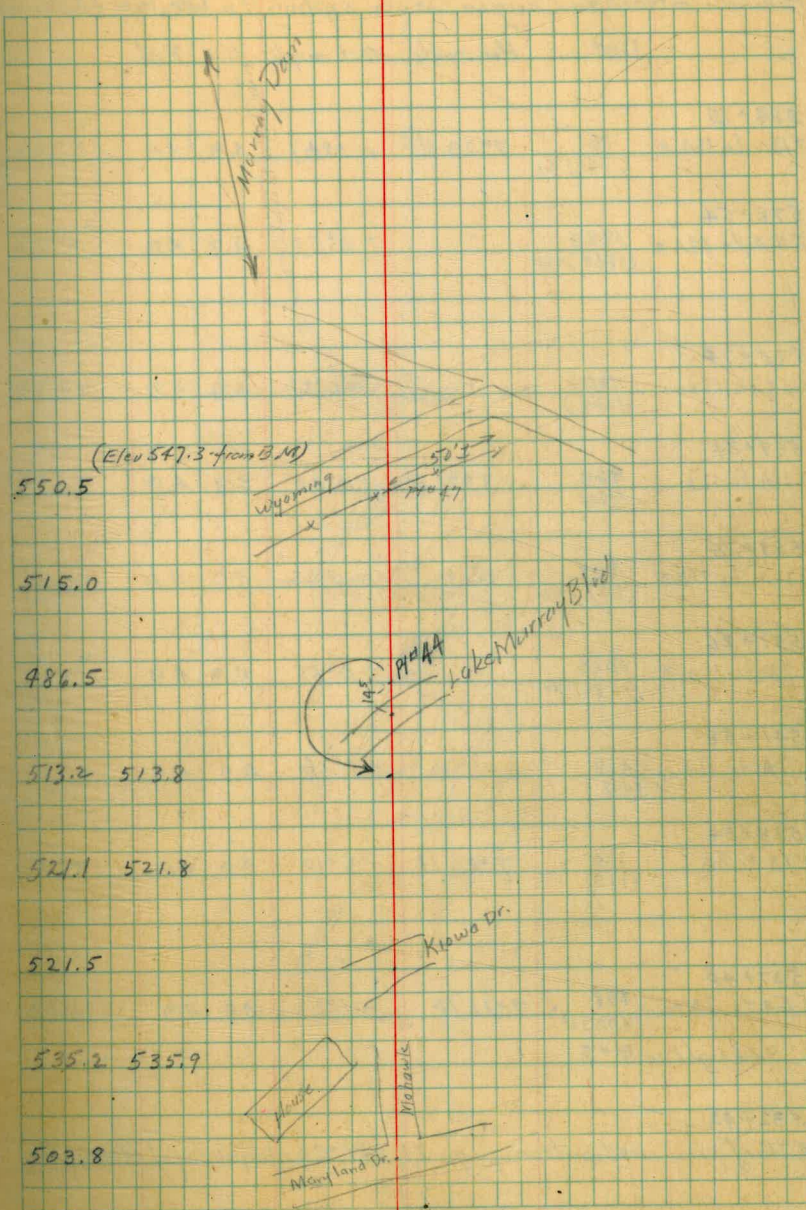
480.5

550.5
 + 5.0

 555.5
 - 10.3

 545.2

659+08					
X44 to 47	873 (875)		+2°24'	5.0	5.0
652+97					
X44 to 46	262 (262)		+0°15'	5.0	5.0
651+80					
X44 to 45	145 (150)		-10°40'	5.0	5.0
650+35					
X43 to 44	162 (162)	9°48' RT	-2°49'	4.9	4.9
648+73					
X41 to 43	457 (457)		-1°46'	5.0	5.0
647+53					
X41 to 42	337 (338)	14°15' RT	-2°27'	5.0	5.0
644+16					
X38 to 41	1019 (1020)		+2°00'	5.0	5.0
639+12					
X38 to 40	515 (515)		+0°23'	5.0	5.0



Alt. loc. Alvarado Canyon - from siphon to West of Baltimore El Monte PL.

	Dist	Hor. angle	Vert. angle	H.I	Red
586+15 T11A to 15A T	761 [✓] (761) ^{ms}	7°09' RT	-0°47'	4.9	4.9
578+54 [✓] T11A to 14A T	1880 (1880) ^{ms}	"	-0°33'	4.9	4.9
575+74 T11A to 13A	1600 (1600)	"	-0°37'	4.9	4.9
569+34 T11A to 12A	960 (960)	5°38' LT	-0°43'	4.9	4.9
559+74 T10A to 11A T	848 (848) ^{ms}	P.O.T	-0°46'	4.9	4.9
551+26 T7A to 10A T	1386 (1386) ^{ms}	"	-0°55'	4.9	4.9
541+58 T7A to 9A	418 (418)	"	-1°26'	4.9	4.9
538+54 T7A to 8A	114 (115)	7°20' LT	-5°19'	4.9	4.9
537+40 T6A to 7A T	498 (498) ^{ms}	7°18' LT	-1°23'	4.9	4.9

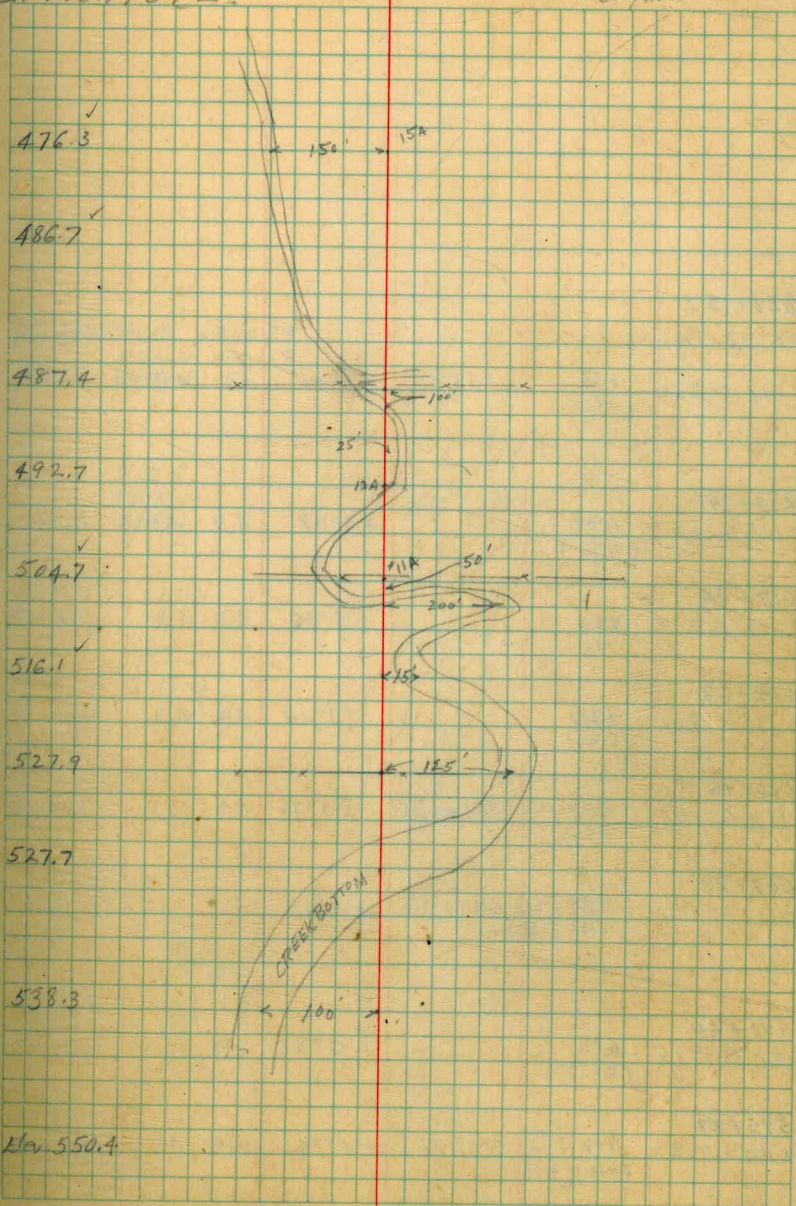
Backsight on 7°3

532+42

T[#] 6 of previous location, page 21, = T[#] 6A = beginning of alternate

March 27, 1945 26

Hill
Soper
King
Stephens



Mar. 550.4

621+57

PI# 33 - Page 24

π 22A to 23A 238 0°55' RT +2°00' 4.9 4.9
 (238)

619+19

π 18A to 22A π 1131 " +3°48' 4.9 4.9
 (1136)

617+84

π 18A to 22A π 996 " +3°46' 4.9 4.9
 (1000)

614+08

π 18A to 20A π 620 " +1°20' 4.9 4.9
 (620)

612+16

π 18A to 19A π 428 38°05' RT +0°26' 4.9 4.9
 (428)

607+88

π 17A to 18A π 748 10°56' RT -0°19' 4.9 4.9
 (748) (798) H³

601+40

π 16A to 17A π 613 " -0°32' 4.9 4.9
 (613) H⁶

595+27

π 15A to 16A π 712 7°32' RT -0°34' 4.9 4.9
 (712) (912) H⁵

PI# 33 - 540.2 page 24

541.4 540.9
 543.7 543.4

532.6
 533.1
 535.4 535.1

523.6 523.1
 525.6

472.4 471.9
 474.4

461.3 460.8
 463.3

458.0 457.5
 460.0

467.6
 463.6

467.3
 469.3

20°38' PI# 32 - Page 24

MA APPROX. B.C.
 ASPHALT BALTIMORE ROAD

100' 121

Alt. Loc. Alvarado Canyon, West of Baltimore Ave

645+12
 77B + 9B 545
 (545) -0°30' 4.9 4.9

643+65
 77B 10 8B 398
 (400) -3°40' 4.9 4.9

639+67
 76B to 77B 230
 (230) -1°06' 4.9 4.9

637+37
 72B to 6B 821
 (821) -0°18' 4.9 4.9

633+66
 72B to 5B 450
 (450) -1°50' 4.9 4.9

632+19
 72B to 4B 303
 (310) -8°32' 4.9 4.9

629+84
 72B to 3B 68
 (69) -6°30' 4.9 4.9

629+16
 70B to 2B 759
 (760) P.D.T -1°56' 4.9 4.9

625+96
 70B to 1B 439
 (440) 0°51 RT -2°08' 4.9 10.9

621+57
 (440)
 Tot Pt 0 = Pt 33 page 29 = Pt 23A page 27 - Backsight on 22A

to Vicinity of Murray Res ~~El Monte Pl.~~

501.2

Infrared Maryland drive

480.4

505.9

510.3

502.2

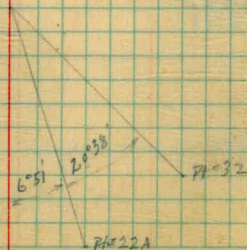
469.2

506.8

514.6

517.8

540.2



657+64
 π 12B to 13B 321 (322) 43°30' RT +3°08' 4.9 4.9

654+43
 π 11B to 12B π 239 (239) 12°47' RT -1°48' 4.9 4.9

652+04
 π 7B to 11B π 1237 (1238) " +1°23' 4.9 4.9

648+57
 π 7B to 10B 890 (890) " +1°00' 4.9 4.9

Elev 542.7
 545.8

Wyoming
 Ave

4' of roads

Kraus Dr.

528.2

535.7

521.4

100' E Lake Murray Blvd.

El Monte PL.
 Stadia Alternate - Baltimore Road

H.I. Rod

π 22C to 23C 530
 (530) +1°44' 5.0 5.0

π 21C to 22C 605
 (605) 18°14'14" +2°20' 5.1 15.1

π 20C to 21C 449
 (450) 36°24'RT +3°31' 5.1 5.1

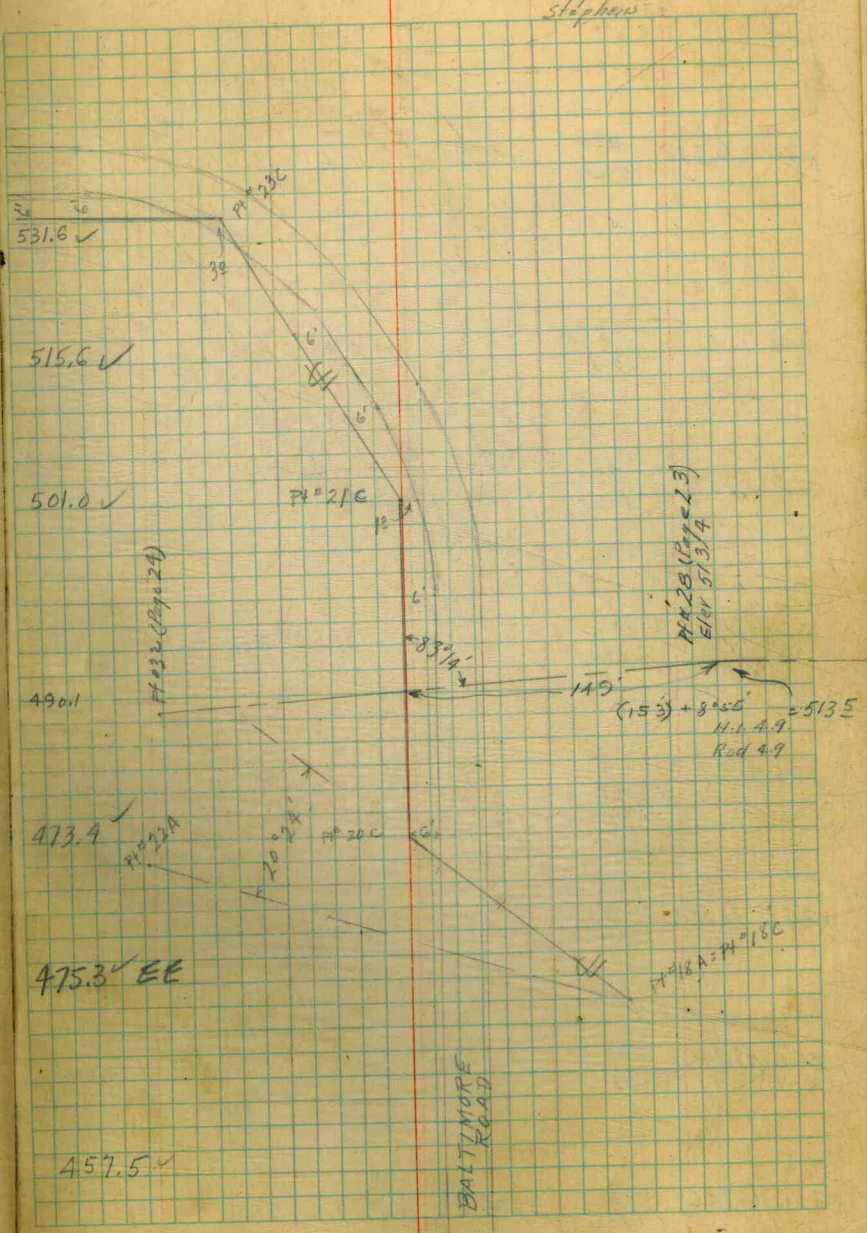
π 20c to 20c' 273
 (273) +3°32' 5.2 5.2
 (Intersection with previous location Page 23-24)

π 18C to 20C 614
 (614) +2°08' 5.1 12.1

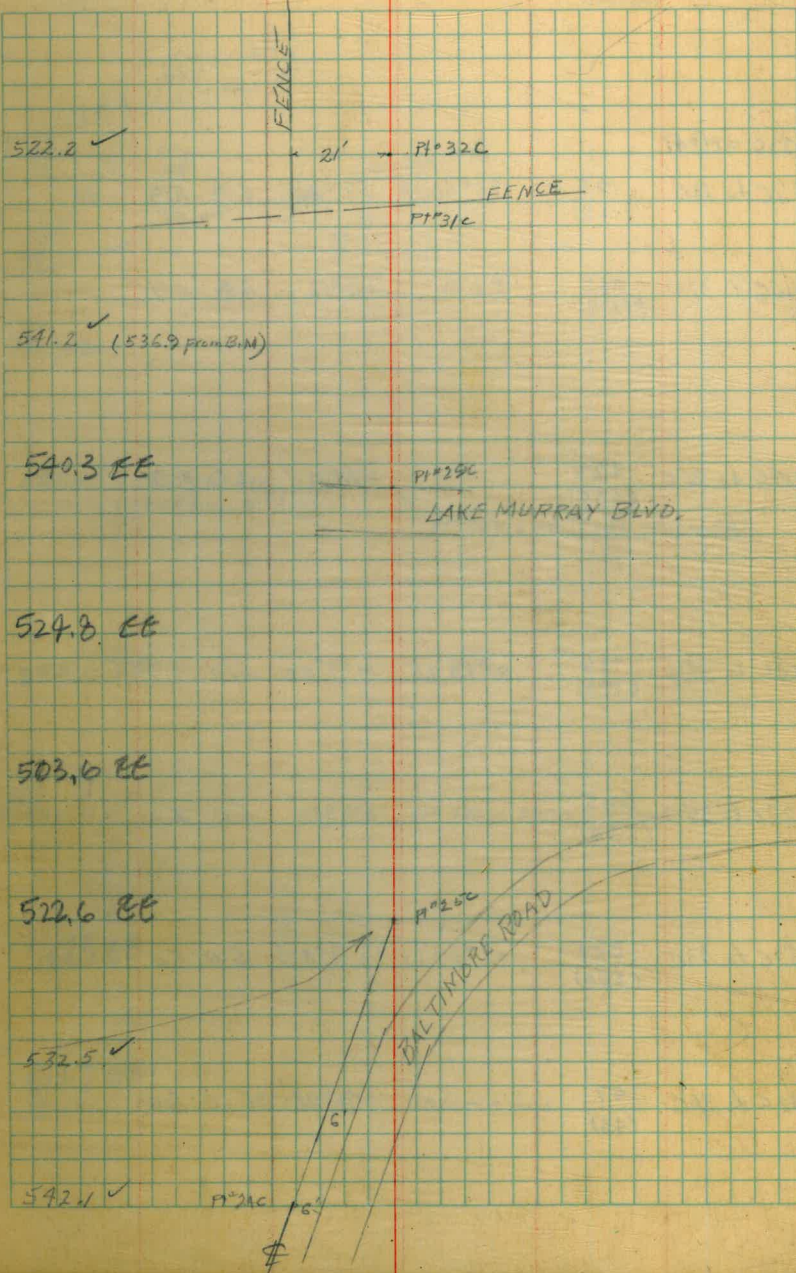
π 18c to 19c 445
 (445) 20°24'RT +2°18' 5.1 5.1

Foresight on PI #22A

PI #18A (Page 27) = 18c



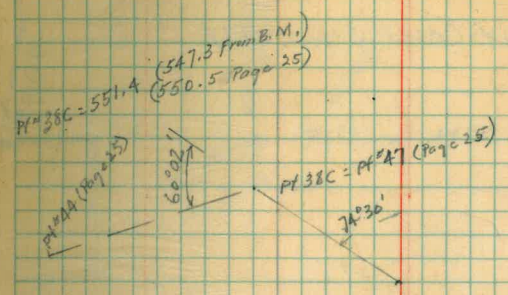
				H.I	Red
x 30c to 32c	590 (590)	10° 51' L	-1° 51'	5.0	5.0
25c to 30c	855 (855)	"	+0° 35'	5.1	5.1
25c to 29c	785 (785)	"	+0° 34'	5.1	5.1
25c to 28c	388 (388)	"	-1° 08'	5.1	5.1
25c to 27c	248 (250)	"	-5° 59'	5.1	8.1
x 25c to 26c	132 (132)	7° 29' L	-4° 21'	5.1	5.1
x 24c to 25c	265 (265)	"	-2° 05'	5.0	5.0
x 23c to 24c	383 (383)	32° 04' L	+1° 34'	5.0	5.0



July 24 1945 30

Hill
Soper
King
Stephens

38C = 71047				
* 37C to 38C	125 (125)	73° 30' LT	+ 0° 46'	4.9 4.9
* 36C to 37C	765 (765)	P.O.T	+ 0° 12'	4.9 4.9
* 34C to 36C	433 (435)	"	- 4° 40'	4.9 4.9
* 34C to 35C	186 (190)	0° 13' LT	- 9° 00'	4.9 4.9
* 32C to 34C	625 (630)	"	+ 5° 30'	5.0 5.0
* 32C to 33C	389 (390)	12° 53' LT	+ 3° 42'	5.0 5.0
* 32C to 31C	47 (48)		- 9° 08'	5.0 5.0



37C = 549.7

547.0 ✓ (542.7 from B.M.)
(545.8 from "B" line)

PT 36C = PT 13B (Page 29)

553.0 EE

582.3 ✓

20' PT 34C - TOP OF RIDGE

FENCE

547.3 EE

514.7 EE

In draw, between 30C & 32C on fence line

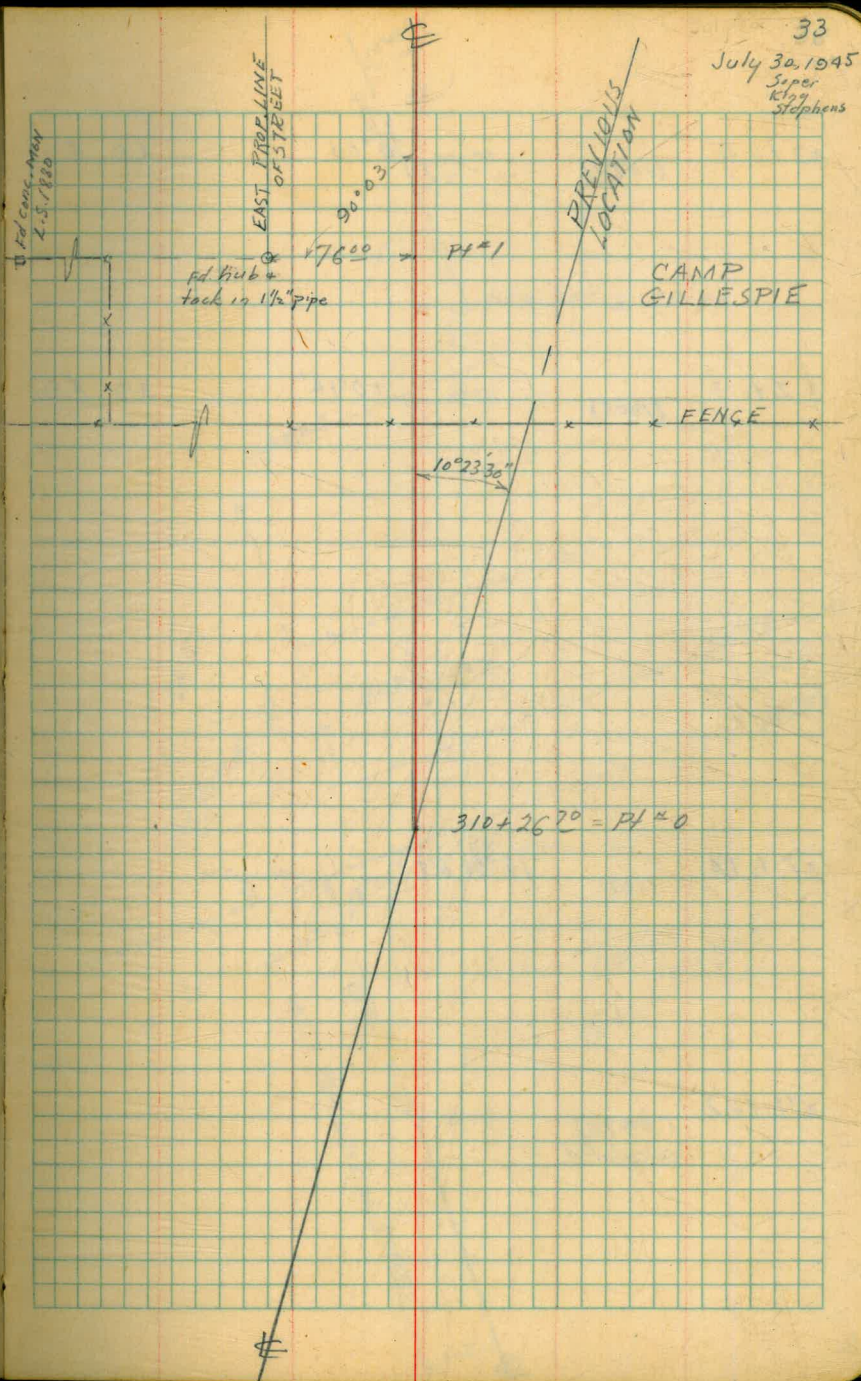
EIMONTE PL.

STADIA ALTERNATE - PARALLELING THE NORTH
and SOUTH RUNWAY - CAMP GILLESPIE

xotol

(245)

PI#0 $\Delta 10^{\circ}23'30''$
= $310 + 267^{\circ}$ - PAGE 4

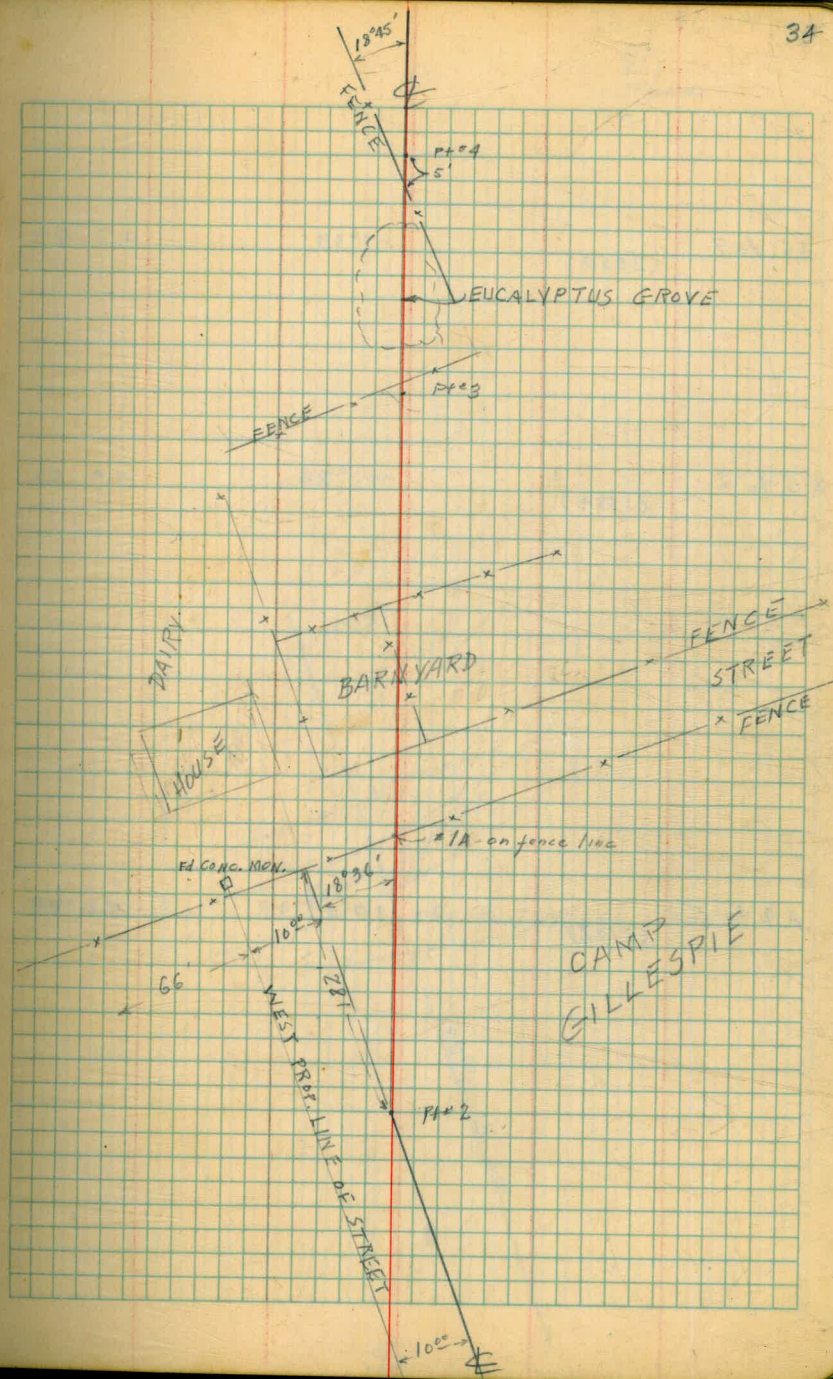


$\pi 3$ to 4 (1080) $0^{\circ}00'$ 4.9 4.9

$\pi 2$ to 3 (1005) $+0^{\circ}14'$ 4.9 4.9

$\pi 1$ to 1A (191) $18^{\circ}36'RT$

$\pi 1$ to 2 (3970)
calculated

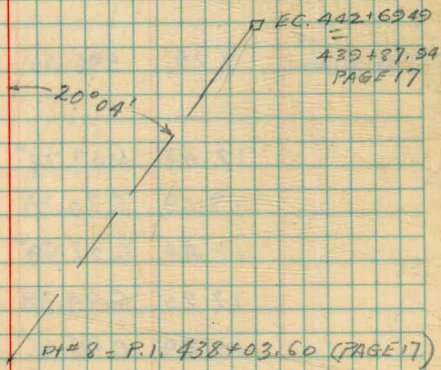


A 7 to 8

(1052)

+2°47'

49 4.9



FENCE

⊕

Jan. 18, 1945

37

Soper
King
Stephens

Rough levels from Eucalyptus Res. to establish 590
and 550 contours in Alvarado and 550 in El Cajon Valley
El Monte Pk.

	6.15	648.77		642.62
	0.31	638.13	10.95	637.82
	0.40	626.07	12.46	625.67
	0.49	614.07	12.49	613.58
	0.66	601.68	13.05	601.02
T.B.M.	0.73	589.44	12.97	588.71
	1.24	578.29	12.39	577.05
	0.76	566.75	12.30	565.99
	1.03	556.58	11.20	555.55
			6.6	550.0
T.B.M. (above)	7.29	596.00		588.71
			6.0	590.0
	12.04	607.74	0.30	595.76
	13.09	626.39	0.44	607.30
	12.44	632.69	0.14	620.25
	12.20	644.38	0.51	632.18
	12.89	656.81	0.46	643.92
	12.63	667.55	1.89	654.92
	12.91	675.57	4.89	662.66
	11.39	686.48	0.48	675.09
	0.48	673.91	13.05	673.43
	0.31	661.27	12.95	660.96

Top of conc. flume hdwall - Eucalyptus Res. Book 669 -
U.S.G.S. DATUM.

Contour flags on 550

" " " 590

	661.27		
1.06	649.96	12.37	648.90
0.48	637.57	12.87	637.09
0.75	625.33	12.99	624.58
0.04	612.84	12.53	612.80
0.23	600.43	12.64	600.20
0.49	588.06	12.86	587.57
0.75	575.80	13.01	575.05
0.27	563.09	12.98	562.82
3.25	553.27	13.07	550.02
5.86	555.87	3.26	550.01
6.96	559.60	3.23	552.64
		7.15	552.45
3.50	553.30	9.80	549.80
6.01	553.90	5.41	547.89
4.11	553.09	4.92	548.98
		10.27	542.82

Set T.B.M. in Eucalyptus tree - N.W. Corner of grove.

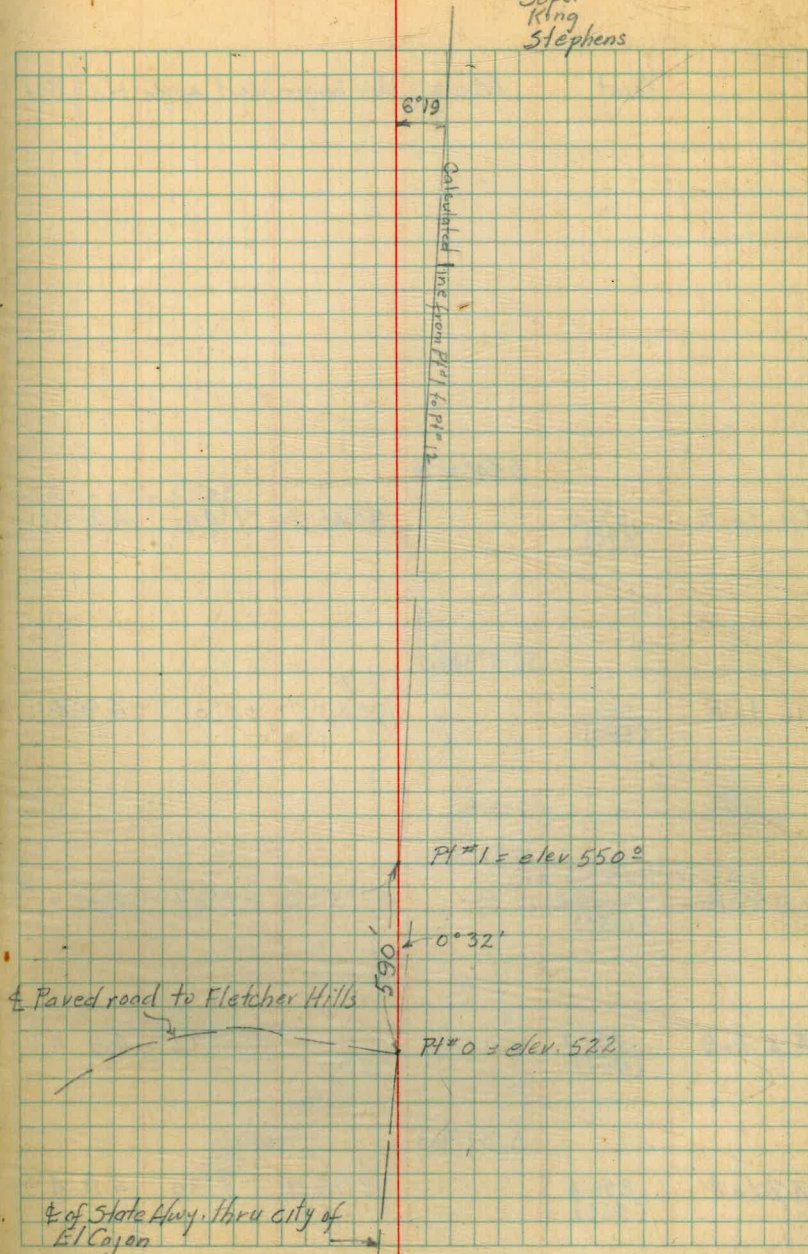
" " " " " " " "

Set nail in pole at start of Stadia line "A"

Soper
Kling
Stephens

"A" Line El Monte P.L.
Stadia location from 550 contour in El Cajon Valley
to 590 and 550 contours in Alvarado-North of Grossmont

	Dist.	Mag.	Hor. angle	Vert. angle	H.I	Red
π 6 to 7	1197.7 (1198)			+0°50'	4.9	4.9
π 5 to 6	1332.9 (1340)	"		-4°40'	4.9	4.9
π 4 to 5	202 (202)	"		-0°50'	4.9	4.9
π 2 to 4	1238.4 (1266)	"		+8°33'	4.9	4.9
π 2 to 3	(302)	"		-0°33'	4.9	4.9
		S 39° W				
π #1 to #2	321 (327)		35°00'lt	+7°53'	4.9	4.9
		S 74° W				
		S 74°15' W				



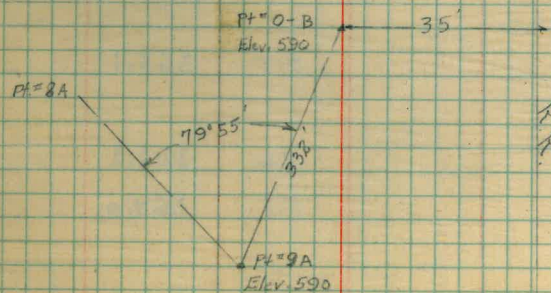
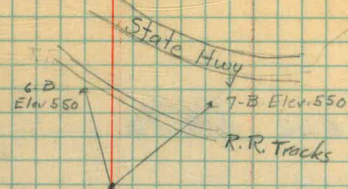
Jan. 22, 1945
Soper
Stephens

41

*B' line
Alternate location - 590 Contour in Alvarado Canyon to 550'

	Dist.	Mag	Hor. angle	Vert. angle	H.I.	Red
N 5 B to 7 B	652.9 (610)		37° 38' Rt	-12° 16'	4.9	4.9
		N 77° E				
Elev. 550 X 5 B to 6 B	(1000')		2° 19' Lt	-7° 20'	4.9	4.9
X 4 B to 5 B	344.8 (345)			-1° 20'	4.9	4.9
X 3 B to 4 B	457 (451)			+0° 13'	4.9	4.9
		N 79° E				
X 2 B to 3 B	1233.6 (1234)		12° 47' Lt	+1° 13'	4.9	4.9
X 0 B to 2 B	1693.6 (1696)			+2° 18'	4.9	4.9
		588° 30' E				
X 0 to 1 B	547.9 (948)		17° 20' Lt	+0° 41'	4.9	4.9
		570° E				
R of O-B line backsight on 9A					4.9	

Contour in El Cajon Valley, El Monte Pl.



± profile of location from Santee to tunnel site El Monte PL.

B.M	4.16	372.81 369.92	368.65 365.76
274+49.68 B.C.	9.35		363.46 360.57
	11.2		361.6 358.7
	11.1		361.7
	12.5		360.3
275+00	9.5		363.3
+50	9.4		363.4
+62	9.3		363.5
276	8.55		364.26
+26	7.90		364.91
+50	7.7		365.1
277	6.6		366.2
+16.71 E.C.	5.8		367.0
+22.53 B.C.	5.5		367.3

Feb 23, 1945 A2

Soper notes
King
Stephens rod

U.S.C.+G.S.B.M.-R-61 on 4 sta 277+88 Elev. 368.648
1927

U.S.G.S. datum 365.758

274+50 Stephens rod = elev 358.3

U.S.G.S. datum and U.S.C.+G.S.
datum are the same 2-22-95

Top of El Capitan Pipeline in G.V. Chamber, between air valves 22+33

Flow line of 2-12" Con. I. Culverts A² at 274+91

" " " 2-15" " " " 40' at 274+91

Conc. Pav.

" "

" "

		372.81		
		369.92		
277+50			5.1	367.7
TP	6.65	375.30 ✓ 372.41	4.16	368.65 ✓ 365.76
278			6.8	68.5
+50			6.4	68.9
279			6.3	69.0
+50			6.0	69.3
+89.56 F.C.			5.58	369.72
280			5.6	69.7
+50			5.3	70.0
281			5.1	70.2
+50			5.0	70.3
282			4.9	70.4
TP	5.29	375.75 ✓ 372.86	4.84	370.46 ✓ 367.57
282+50			5.1	70.7
283			5.1	70.7
+50			4.8	71.0
284			4.7	71.1
+50			4.7	71.1
+66"			4.6	71.2
285			4.6	71.2

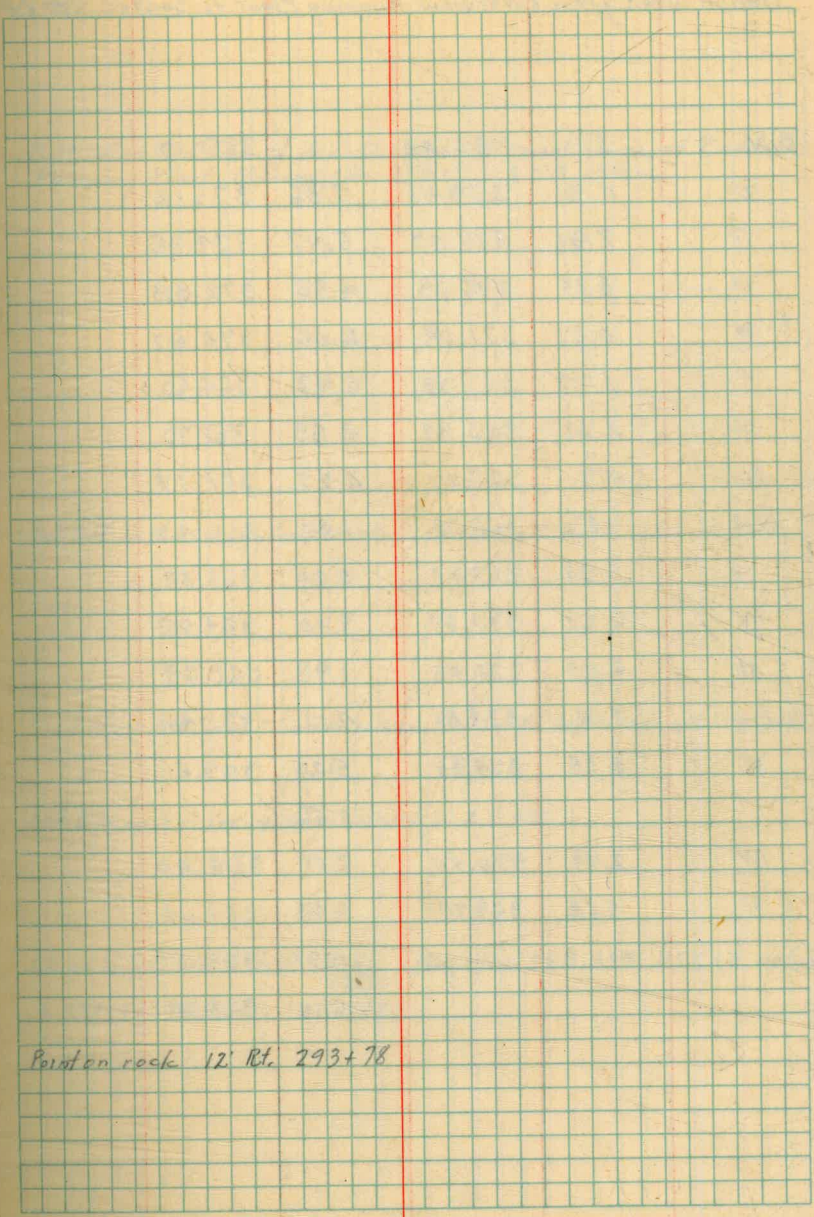
on hub

Note: From sta. 279 to sta. 306 the railroad ties have been removed and the ground surface is very irregular. The profile was taken as an average, and not necessarily taken on the rail.

375.75
372.86

285+50		4.5	371.3
286		4.5	71.3
+50		4.7	71.1
287		4.6	71.2
+50		4.7	71.1
TP	4.02	375.74 ✓ 372.85	4.03 371.72 ✓ 368.83
288		4.9	70.8
+50		4.7	71.0
289		4.8	70.9
+50		4.8	70.9
290		4.6	71.1
+50		4.8	70.9
291		4.7	71.0
+50		4.9	70.8
292		5.2	70.5
+50		5.1	70.6
293		5.5	70.2
+50		5.8	69.9
+8243		6.0	69.7
Set B.M.		4.39	371.35 ✓ 368.46

Cont'd. on page 47



Point on rock 12. Rt. 293+78

cold-windy Feb 24, 1945
 Super - notes
 King - X
 Stephens - red
 45

Bench levels from Riverview Pumping Plant to Santee El Monte Pl.

B.M.	3.31	382.48		379.17
TP	4.31	379.43	7.36	375.12
TP	2.91	377.27	5.07	374.36
TP	3.85	376.73	4.39	372.88
TP	0.42	371.09	6.06	370.57
TP	2.79	367.39	6.49	364.60
TP	4.14	366.84	4.69	362.70
TP	4.71	367.28	4.27	362.57
B.M.	1.33	366.76	1.85	365.43
TP	5.93	367.45	5.24	361.52
TP	6.62	370.67	3.40	364.05
TP	6.83	375.52	1.98	368.69
B.M.	3.41	374.81	4.12	371.40
TP	5.34	374.95	5.20	369.61
			2.56	
TP	2.14	370.54	6.55	368.40
TP	5.68	369.74	6.48	364.06
			0.97	368.77
			6.15	363.59

Bolt set in N.E. Cor. of G.V. Chamber by pump house, of Riverview Pumping Plant. Marked elev. 379.17 U.S.G.S. datum.

Set B.M. on N.E. Cor. of Conc. Chamber for A.V. #28, Mile 10 1/2, El Capitan Pl.

Set B.M. on N.E. Cor. of Iron rim of conc. chamber for main gate & A.V. #29+30

Set B.M. on N.E. Cor. of Conc. chamber for A.V. #31

On U.S.C. & G.S. B.M. - R-61 Rec. elev. 368.648 - U.S.C. & G. datum
 1927

& 274+50 - Shelter loc. elev. 358.3

Bench levels from Riverview Pumping Plant to Lakeside.

B.M.	4.38	383.55		379.17
TP	7.80	388.19	3.16	380.39
TP	4.74	388.46	4.47	383.72
TP	9.53	397.35	0.64	387.82
TP	5.54	400.33 401.33	2.56	394.79 395.79
TP	8.27	405.02 406.02	3.58	396.75 397.75
			4.70	400.32 401.32

B.M.	4.67	404.80		400.13
TP	6.96	409.17	2.59	402.21
			0.22	408.95
TP	9.56	418.51	6.08	412.43
TP	1.66	414.09	6.38	407.71
	4.11	411.82	5.82	406.00

Feb 24, 1945 - cold-windy. 46
Soper - notes
King - X
Stephens - red

Bolt in N.E. Cor of G.V. Chamber, at Pumping Plant - U.S.G.S. datum.

ck on Co. B.M. # 21 - Book 505 page 26 - Rec elev 400.13
All data for El Capitan and San Vicente based on this B.M.
H.F.S.

Ch. on B.M. Nail in pole # 72615 N.W. Cor. of River st at Lakeside
Book 505 page 26

ck on U.S.G. & G.S. B.M. in side of bank building, Lakeside.
Stamped T 61-1927 Elev. 405.987

Feb. 26, 1945 47
 Super notes chain
 King
 Stephens red

± profile - continued from page 44

B.M.	1.21	372.56		371.35
294			2.9	69.7
+50			3.2	69.4
295			3.7	68.9
+50			3.9	68.7
296			4.3	68.3
+50			4.8	67.8
297			5.0	67.6
+50			5.1	67.5
298			5.1	67.5
+50			5.4	67.2
299			5.3	67.3
+50			5.4	67.2
TP	4.02	371.07	5.51	367.05
300			4.0	67.1
300+22			4.3	66.8
300+23			9.5	61.6

Point on rock 12' RT 293+78

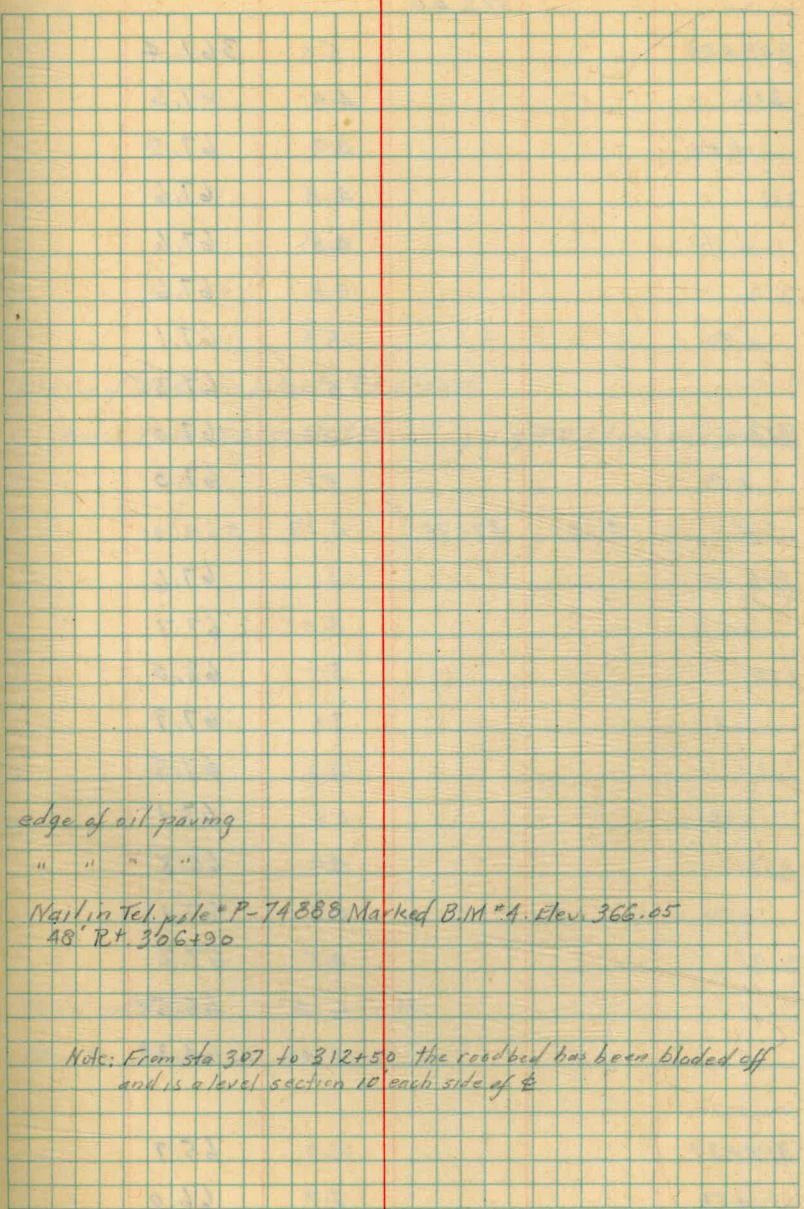
	L+			R+		
297+00	5.7	5.4	5.0	5.0	5.3	5.5
	2.5	3.9	2.9	2.0	3.0	6.3

Typical section from Sta 279 to sta 306



371.07

300+30		2.7	361.4
300+31		4.4	66.7
+50		4.0	67.1
301		4.0	67.1
+50		4.0	67.1
302		4.2	66.9
+50		4.2	66.9
303		4.2	66.9
+50		4.1	67.0
304		4.2	66.9
+50		4.2	66.9
305		4.0	67.1
+50		3.9	67.2
306		3.8	67.3
+50		3.3	67.8
+73		3.3	67.8
IP	6.43	372.40	5.10 365.97
307		5.6	66.8
+50		5.5	66.9
308		5.3	67.1
+50		5.1	67.3
309		5.1	67.3



edge of oil paving

" " " "

Nail in Tel. pole *P-74888 Marked B.M *4. Elev. 366.05
48' RT. 366+90

Note: From sta 307 to 312+50 the roadbed has been bladed off
and is a level section 10' each side of $\frac{1}{2}$

		372.40	
309+50		5.0	367.4
310		4.9	67.5
+50		4.9	67.5
311		4.8	67.6
+50		4.8	67.6
312		4.8	67.6
+50		5.3	67.1
		5.05	67.35
313		5.4	67.0
+50		5.1	67.3
TP	3.72	371.73	4.39
			368.01
314		4.1	67.6
+50		4.0	67.7
315		3.7	68.0
+50		3.8	67.9
316		4.2	67.5
+50		4.6	67.1
317		4.9	66.8
+50		4.6	67.1
318		4.5	67.2
		6.15	65.58
		8.44	63.29
318+37		6.0	65.7
+50		5.7	66.0

S.W. Cor of Fleet manhole 20' RT 312+87

Note: From 312+50 to 355 all signs of R.R. fill have been removed.

Top of catch basin 12° RT 118+32

Flow line 24" Conc drain 12° RT 118+32

371.73

318+76		4.94	366.79
319		4.89	66.84
320		4.45	67.28
321		4.05	67.68
322		3.50	68.23
+144		3.47	68.26
TP	7.33	374.64	4.42 367.31
		7.45	67.19
		9.65	64.99
322+50		6.6	68.0
323		6.7	67.9
+50		6.4	68.2
324		5.9	68.7
+468		5.43	69.21
325		5.11	69.53
326		4.72	69.92
327		4.41	70.23
328		3.96	70.68
329		3.62	71.02
330		3.28	371.36
R	4.44	376.36	2.72 371.92
331		4.59	71.77
332		4.28	72.08

edge of runway

"

"

"

"

edge of runway

Top of catch basin 62' at 322+25

F.l. line 18" conc. drain " " "

edge of runway

"

376.36

333			3.94	372.42
334			3.67	72.69
335			3.51	72.85
336			3.41	72.95
337			3.26	73.10
TP	5.85	378.71	3.50	372.86
338			5.50	73.21
339			5.36	73.35
340			5.23	73.48
+576			5.38	73.33
341			5.1	73.6
+50			5.0	73.7
			10.6	68.1
342			4.9	73.8
+50			5.1	73.6
+70			5.0	73.7
343			5.9	72.8
+50			6.0	72.7
344			6.2	72.5
+50			6.0	72.7
345			5.3	73.4
+50			4.7	74.0
346			4.3	74.4

runway

"

"

"

"

"

"

"

"

edge of runway

Fl. line of 3-24" reinf. conc. drains 61' RT - 341+88

378.71

346 +50		3.9	74.8
TP	7.52	382.65	3.58 375.13
+88		6.9	75.8
347		7.3	75.4
+05		7.6	75.1
+42		6.69	75.96
348		6.37	76.28
349		5.89	76.76
+46.8		5.72	76.93
+83		6.7	76.0
350		6.0	76.7
+50		5.2	77.5
351		5.0	77.7
+50		4.4	78.3
352		3.8	78.9
+50		3.4	79.3
353		2.7	80.0
+04		2.6	80.1
+41		2.4	80.3
+50		2.6	80.1
354		2.8	79.9
+50		2.4	80.3
+80		2.8	79.9
355		1.6	81.1

edge of taxiway

edge of taxiway

edge of oil

Feb. 27, 1945
 Soper - notes chain
 King X
 Stephens-red 53

		382.65		
TP	6.00	386.70	1.95	380.70
355+50			6.1	80.6
356			5.7	81.0
+50			5.5	81.2
357			5.3	81.4
+50			5.0	81.7
358			5.0	81.7
+50			4.9	81.8
359			4.8	81.9
+50			4.8	81.9
+81			5.0	81.7
+82			8.3	78.4
+92			10.0	76.7
360			9.6	77.1
+16			10.6	76.1
+27			10.6	76.1
+43			8.3	78.4
+44			5.2	81.5
361			5.0	81.7
+50			5.0	81.7
362			5.2	81.5
+50			5.3	81.4
363			5.3	81.4
TP	5.67	388.97	3.90	382.80
+50			7.1	81.4

Set B.M. nail in pole 28' RT 355+00

388.47

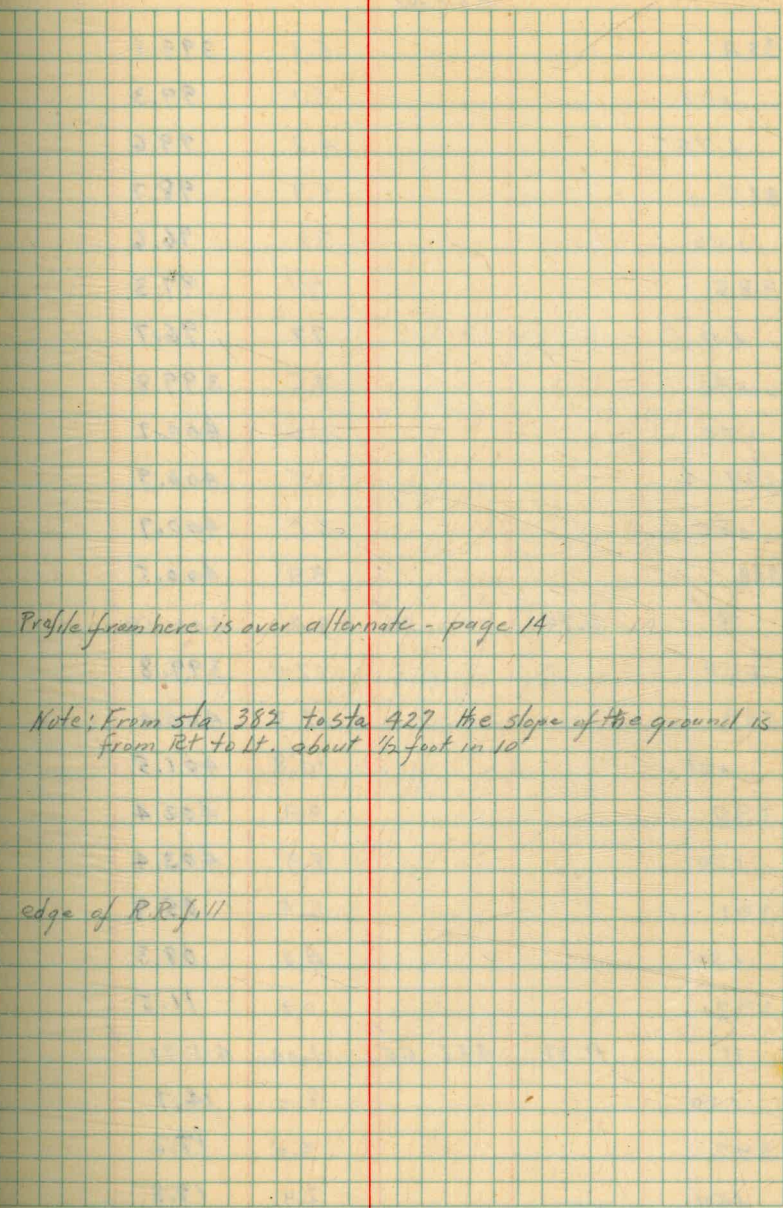
364			7.2	381.3
+50			7.2	81.3
365			6.8	81.7
+50			6.4	82.1
366			5.8	82.7
+50			5.3	83.2
+65			5.3	83.2
+66			12.2	76.3
+80			14.9	73.6
+86			15.7	72.8
+97			13.2	75.3
367+09			9.9	78.6
+10			4.9	83.6
+50			4.7	83.8
368			4.2	84.3
+50			3.6	84.9
369			3.1	85.4
+50			2.4	86.1
370			1.6	86.9
+50			0.9	87.6
TP	12.95	399.47	1.95	386.52
371			11.0	88.5
+50			10.2	89.3
372			9.3	90.2
+50			8.5	91.0

Water from sta 366+72 to 366+97

Paint on rock 15' at 371+06

399.47

373			7.6	391.9
+50			6.9	92.6
374			6.2	93.3
+50			5.5	94.0
375			4.8	94.7
+50			4.0	95.5
376			3.5	96.0
+50			2.8	96.7
377			2.4	97.1
+50			2.1	97.4
378			1.8	97.7
+50			1.4	98.1
+88 ⁵⁸ B.C.			1.2	98.3
379			1.2	98.3
TP	9.22	404.40	4.29	395.18
+50			5.9	98.5
380			6.0	98.4
+538 ⁰ E.C.			6.0	98.4
+70			6.1	98.3
381			7.2	97.2
+50			7.7	96.7
382			6.6	97.8
+50			5.9	98.5
383			5.5	98.9
+50			5.4	99.0



404.40

384			5.3	399.1
+50			5.1	99.3
+75			4.8	99.6
385			5.7	98.7
+50			7.8	96.6
386			7.1	97.3
+11			7.7	96.7
+40			4.6	399.8
+50			4.2	400.2
387			3.5	400.9
+50			3.5	400.9
388			3.9	400.5
π	11.73	412.32	3.81	400.59
+50			12.5	399.8
389			12.3	400.0
+50			10.8	401.5
390			9.9	402.4
+50			8.9	403.4
391			6.4	05.9
+50			4.0	08.3
392			0.8	11.5
π	11.37	422.65	1.04	411.28
+50			8.0	14.7
393			5.5	17.2
+50			2.9	19.8

		422.65		
TP	10.72	432.81	0.56	422.09
393+86			9.5	23.3
+90			8.1	24.7
394			7.5	25.3
+50			5.3	27.5
395			2.0	30.8
TP	11.05	441.89	1.97	430.84
395+50			9.8	32.1
+53			11.9	30.0
+63 ⁸			10.43	31.5
+93 ⁵			9.60	32.3
396			9.7	32.2
+08			7.2	34.7
+50			6.7	35.2
397			6.5	35.4
+50			5.7	36.2
398			6.3	35.6
+50			5.7	36.2
399			3.9	38.0
+50			3.3	38.6
400			3.2	38.7
+50			4.5	37.4
401			4.0	37.9

Set B.M. Nail in 8x8 fence post 26 ft 39A+86

Top of cut

Gutter

edge of pavement

edge of pavement

Gutter

Top of bank

441.89

401+50			3.7	438.2
+70			4.1	37.8
+71			7.0	34.9
+77			7.0	34.9
+78			4.0	37.9
402			2.9	39.0
TP	5.59	446.93	0.55	441.34
402+50			7.2	39.7
403			8.3	38.6
+50			8.4	38.5
404			7.2	39.7
+50			8.3	38.6
405			7.2	39.7
+50			6.2	40.7
406			5.8	41.1
+50			4.8	42.1
407			3.2	43.7
+50			1.8	45.1
408			0.0	46.9
TP	12.69	459.34	0.28	446.65
408+50			10.4	48.9
409			8.8	50.5
+50			7.5	51.8
410			6.4	52.9
+50			5.3	54.0

bottom of wash

" " "

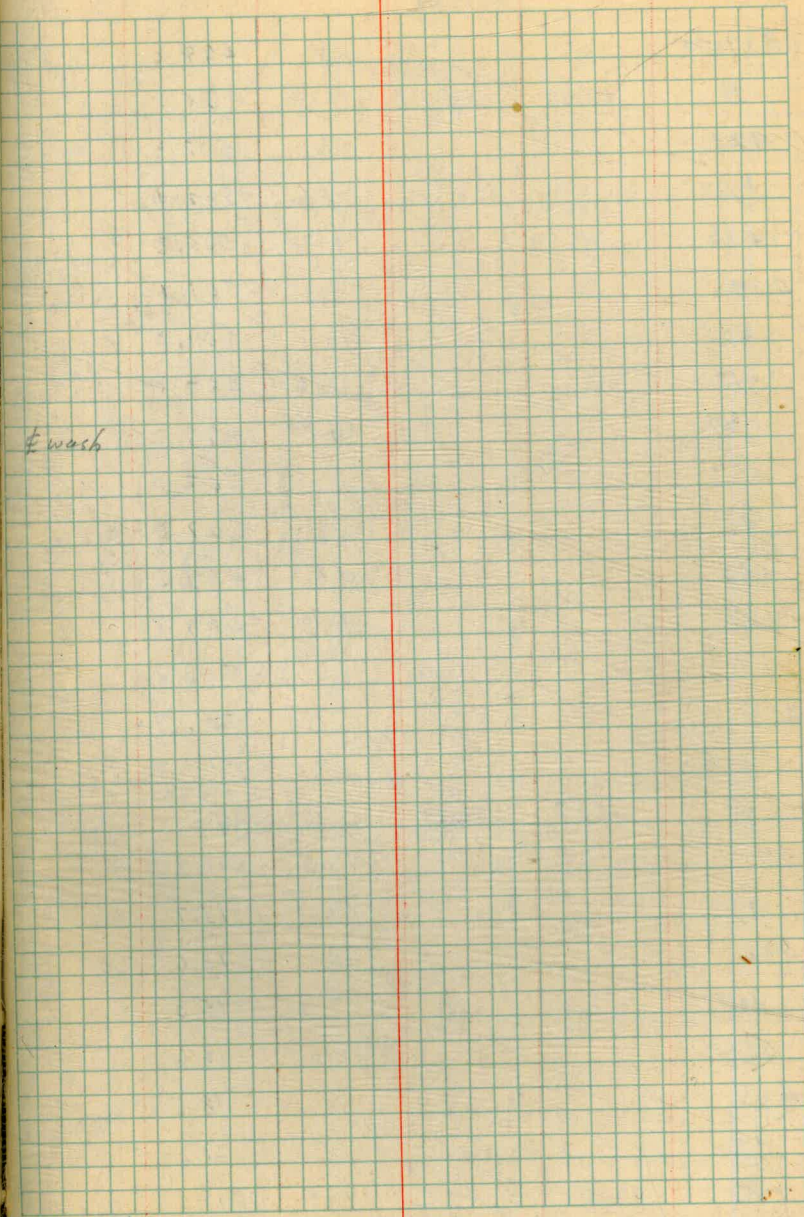
459.34

411		4.1	455.2
+50		2.7	56.6
412		1.1	58.2
TP	12.37	471.02	0.69 458.65
+30		11.5	59.5
+50		12.3	58.7
+80		10.6	60.4
413		10.3	60.7
+10		9.8	61.2
+25		10.4	60.6
+50		9.3	61.7
+70		7.1	63.9
+90		7.9	63.1
414		7.1	63.9
+50		6.5	64.5
+70		4.9	66.1
415		4.7	66.3
+50		3.8	67.2
416		3.5	67.5
+25		2.2	68.8
+50		3.6	67.4
417		3.0	68.0
+50		3.6	67.4
TP	11.87	479.52	3.37 467.65
418		11.1	68.4

479.52

418+25			10.3	469.2
+50			11.3	68.2
+80			14.2	65.3
419			10.6	68.9
+50			11.3	68.2
420			10.1	69.4
+50			9.8	69.7
+78			10.2	69.3
+92			12.8	66.7
421			12.2	67.3
+17			10.1	69.4
+50			9.3	70.2
422			8.8	70.7
+50			7.7	71.8
423			6.8	72.7
+50			5.9	73.6
424			6.4	73.1
TP	11.76	487.02	4.26	475.26
+50			11.8	75.2
425			10.2	76.8
+50			8.7	78.3
426			6.4	80.6
+50			2.7	84.3
TP	12.81	499.08	0.75	486.27
427			7.8	91.3

EWASH



		499.08		
427.50			1.1	498.0
TP	12.09	510.98 511.98	0.19	498.89
428			8.1	502.9
+50			8.6	502.4
+85			10.7	500.3
429			9.9	501.1
+05			10.0	501.0
+12			13.6	497.4
+27			11.8	499.2
+33			9.0	502.0
+43			8.3	502.7
+45			11.8	499.2
+55			11.9	499.1
+58			8.2	502.8
430			4.1	506.9
+50			1.3	509.7
TP	12.87	522.89	0.96	510.02 511.02
431			11.6	11.3
+50			9.2	13.7
432			7.3	15.6
+10			7.9	15.0
+50			6.3	16.6
433			4.3	18.6
+50			1.9	21.2
TP	12.86	534.71	1.04	521.85

bottom of wash

" " "

bottom of wash

" " "

Set B.M. nail in pole = 171557 - 63' 21" 428+00

534.71

434			10.0	524.7
+50			5.6	29.1
435			1.4	33.3
TP	11.19	543.61	2.29	532.12
+50			7.2	36.4
436			3.3	40.3
+13.91 B.C.			2.6	41.0
+50			0.9	42.7
TP	12.59	554.84	1.36	542.25
437			10.9	43.9
+50			8.6	46.2
438			6.2	48.6
+50			6.3	48.5
439			6.1	48.7
+50			5.7	49.1
439+87.54 back 442+69.49 ahead			5.1	49.7
442+73.38 B.C.			5.1	49.7
443			5.0	49.8
+50			5.0	49.8
444			5.3	49.5
TP	7.86	557.38	5.32	549.52
444+50			4.9	52.5

557.38

A45			5.0	552.4
-150			6.4	51.0
446+02.66 EC			7.6	49.8
446+03.64 BC			7.6	49.8
-150			7.2	50.2
+69			8.2	49.2
+79			9.7	47.7
447			8.3	49.1
+12			7.6	49.8
+25			8.9	48.5
-150			9.5	47.9
448			8.2	49.2
+05			8.2	49.2
+14			10.2	47.2
+21.5 ¹ EC			8.2	49.2
448+32.06			7.2	50.2
ok on B.M.			14.45	542.93
B.M.	12.85	555.78		542.93
IP	12.37	567.50	0.65	555.13
448+80			11.7	55.8
+94			12.6	54.9
IP	11.98	579.26	0.22	567.28

Nail in pole. Page 38 this book. Rec. elev. 542.82 U.S.G.S
(Rough Levels)

579.26

449+62

9.9 569.4

+94

7.7 71.6

450+15

1.0 78.3

TP

13.03 591.55

0.74 578.52

13.4 604.6

0.36 591.19

451

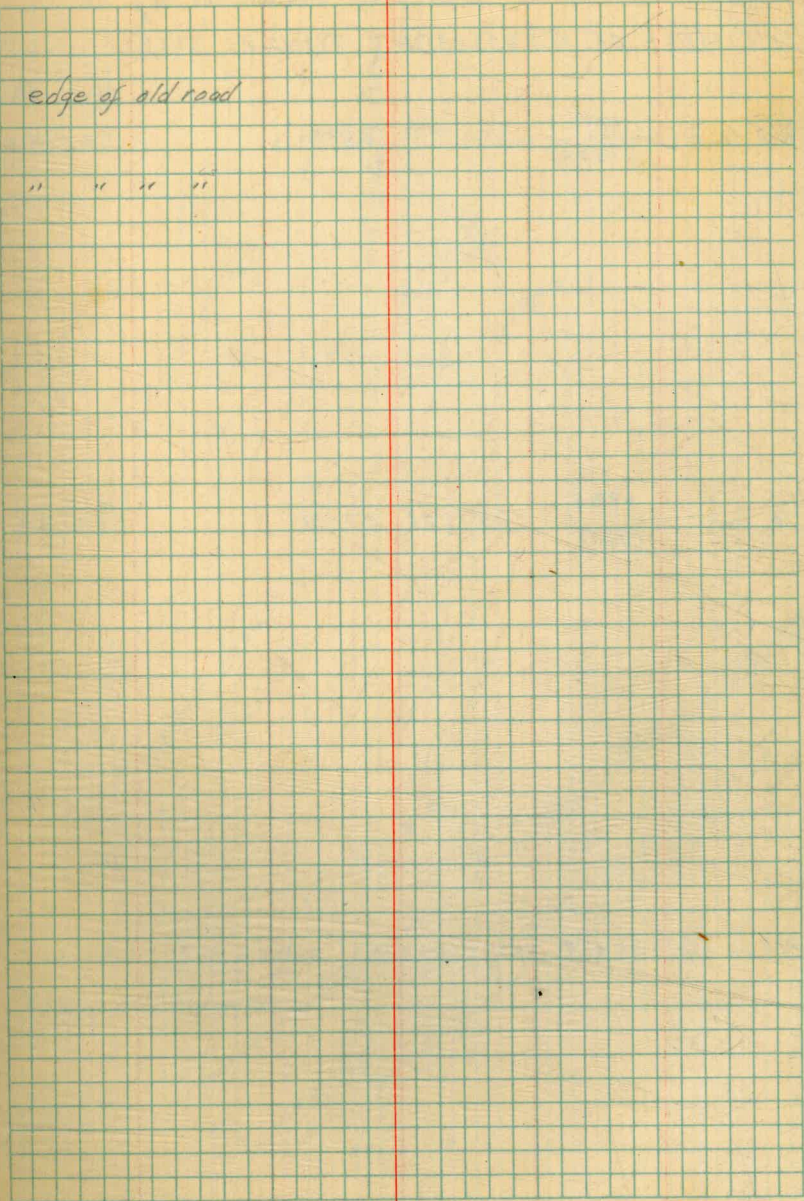
11.1 93.5

451+53.93

4.5 600.1

edge of old road

" " " "



STADIA LOCATION - STA. 245+85 (Sheltons loc.) TO
VICINITY OF GROSSMONT TUNNEL SITE

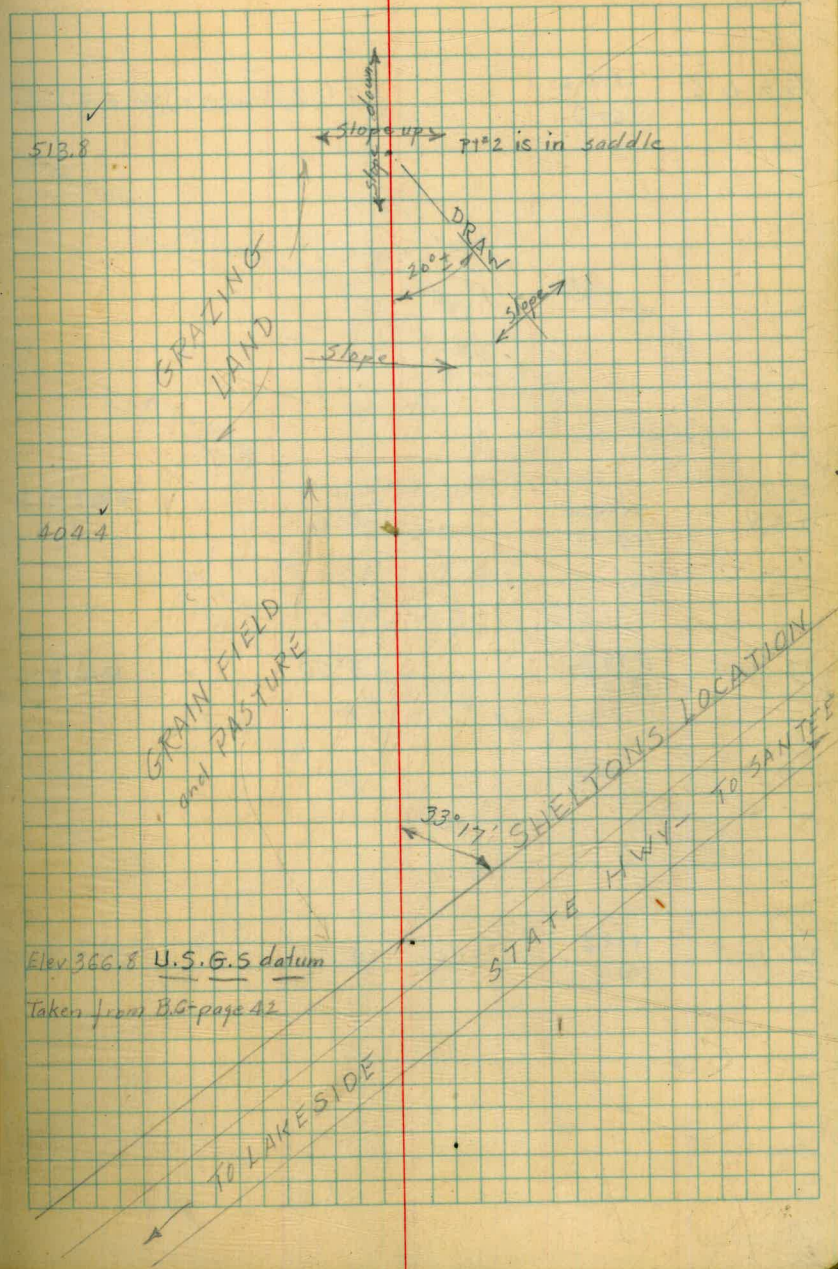
21 Monte PL.

			H.I	Red
71 to 2	1210.1 (1220)	+5°10'	5.0	5.0

70 to 1	978.5 (980)	33°17'21" +2°12'	5.0	5.0
---------	----------------	------------------	-----	-----

PI#0 = sta 245+85 SHELTONS loc.

Aug. 1, 1945 G5
Super King Phillips Heat waves very bad ☉

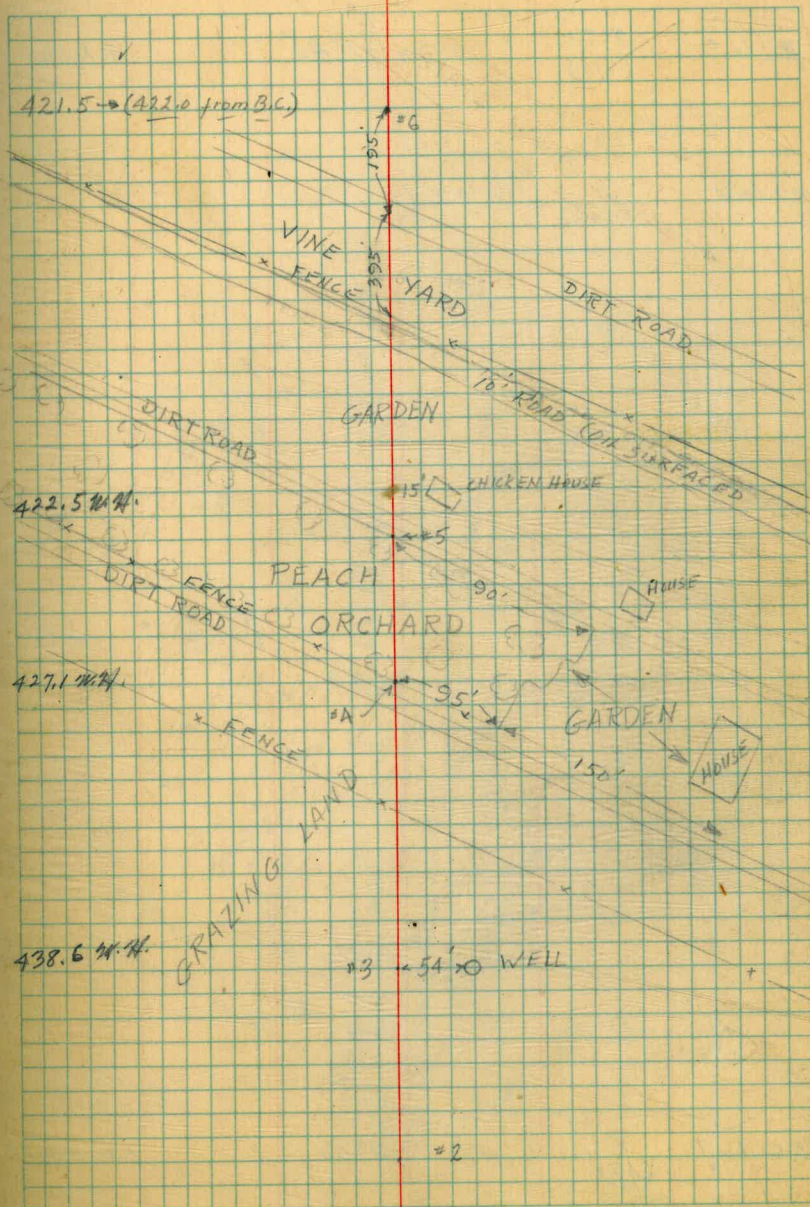


X2 to 6 2596.6
 (2600) -2°02' 5.0 5.0

X2 to 5 1994.4
 (1500) -3°30'

X2 to 4 1299.3
 (1300) -3°50' 5.0 5.0

X2 to 3 908.8
 (915) -4°44' 5.0 5.0



$\pi 13$ to 14 ✓ $24^{\circ}07'$ Rt $-0^{\circ}25'$ 5.1 5.1
(230)

$\pi 10$ to 13 629.4 $-0^{\circ}46'$ 5.1 7.1
(630)

$\pi 10$ to 12 $-0^{\circ}52'$ 5.1 .81
(555)

$\pi 10$ to 11 $-0^{\circ}43'$ 5.1 5.1
(245)

$\pi 9$ to 10 ✓ $20^{\circ}35'$ Lt $+0^{\circ}26'$ 5.1 5.1
(385)

Note: Alignment is tangent from Pt #13 to P.I. near Crossment tunnel site

387.3

FENCE

RUNWAY

CAMP GILLESPIE

Row of 5 standpipes
Alignment should be moved
5' Lt or 10' Rt

397.7

ORCHARD

CORN FIELD

Abandoned well filled with rubbish

$\pi 19$ to 20 ✓
(1080) $0^{\circ}00'$ 5.1 5.1

$\pi 18$ to 19 ✓
(900) $+0^{\circ}10'$ 5.1 5.1

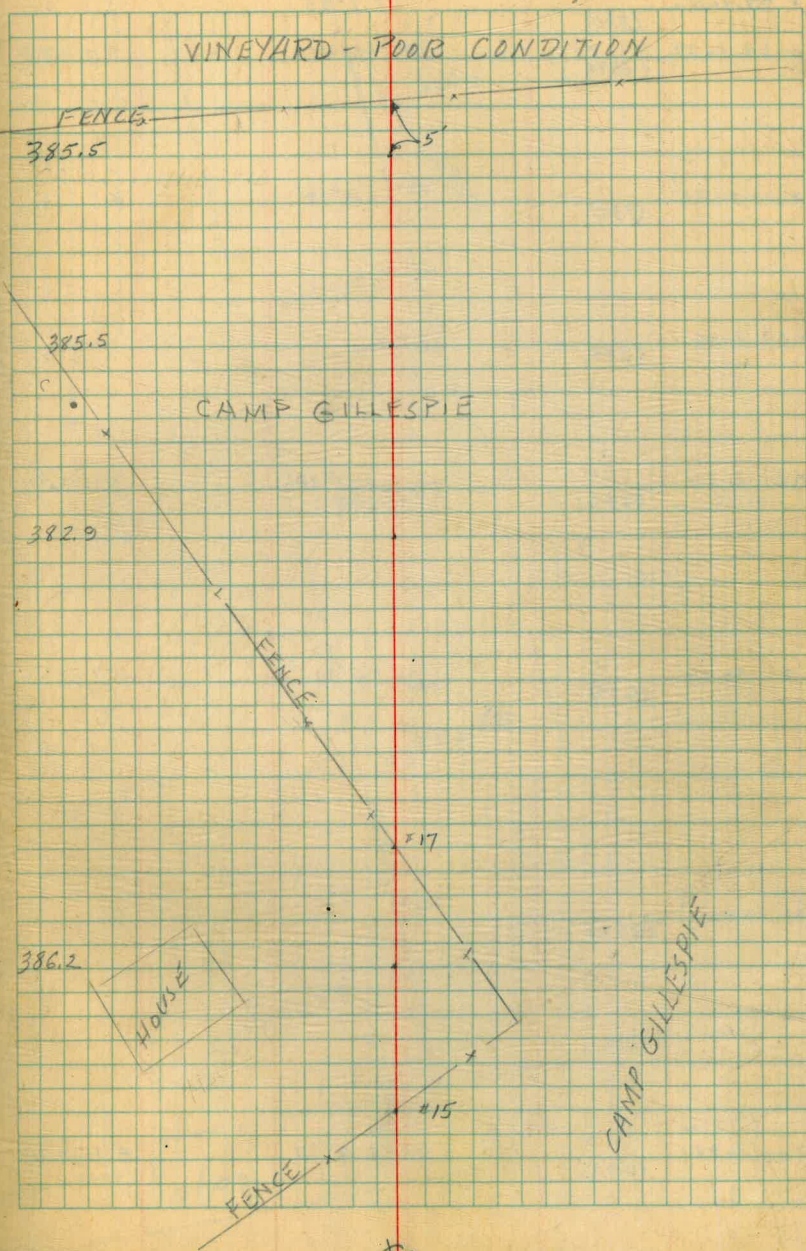
$\pi 16$ to 18 ✓
(800) $-0^{\circ}19'$ 5.1 5.1

$\pi 16$ to 17 ✓
(745) $0^{\circ}00'$ 5.1 9.1

$\pi 13$ to 16 ✓
(475) $-0^{\circ}08'$ 5.1 5.1

$\pi 13$ to 15 ✓
(447)

Aug. 6 1945 69
Super Very Hot
Kind
Phillips



$\pi 27 \rightarrow 26a$ (300) $-1^{\circ}35'$ 5.1 5.1

$\pi 24 \rightarrow 27$ (1385) $+0^{\circ}10'$ 5.1 5.1

$\pi 24 \rightarrow 26$ (735) $+0^{\circ}10'$ 5.1 5.1

$\pi 24 \rightarrow 25$ (385)

$\pi 21 \rightarrow 24$ (605) $+0^{\circ}20'$ 5.1 5.1

$\pi 21 \rightarrow 23$ (640) $+0^{\circ}21'$ 5.1 5.1

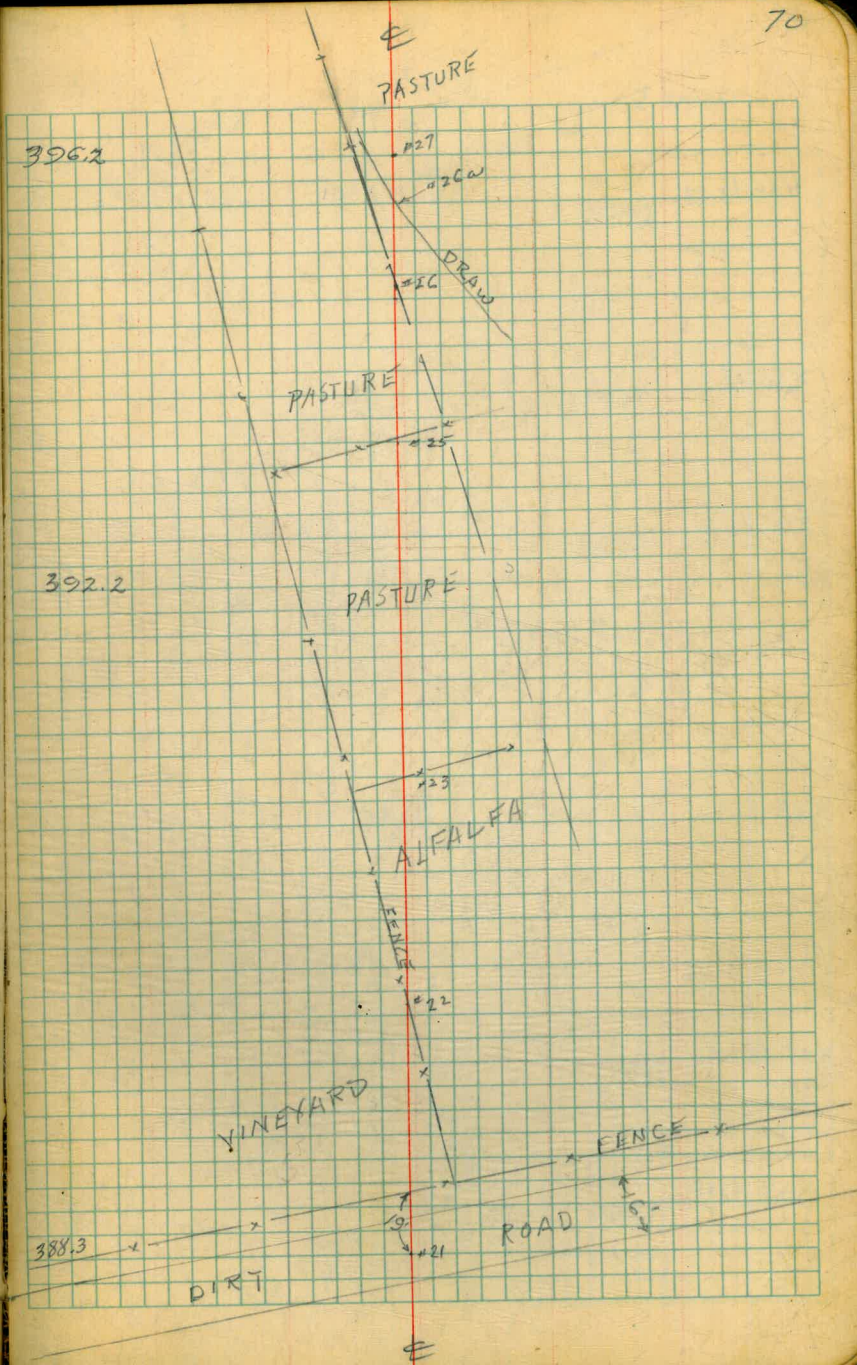
$\pi 21 \rightarrow 22$ (360)

$\pi 20 \rightarrow 21$ (490) $+0^{\circ}20'$ 5.1 5.1

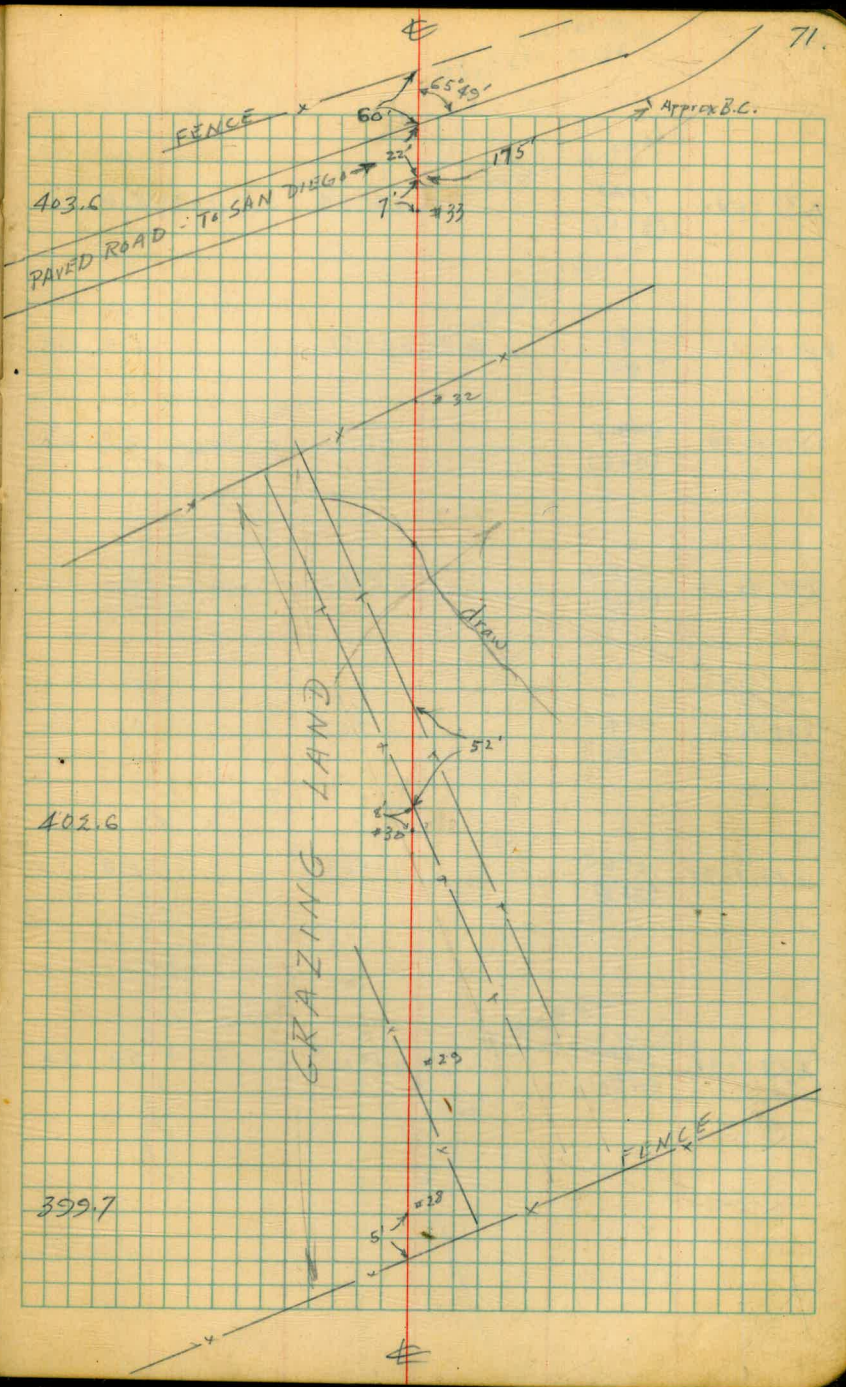
3962

392.2

388.3



π30 to 33	✓ (520)	0°00'	5.0 4.0
π30 to 32	(495)	+0°05'	5.0 5.0
π30 to 31	(245)	-2°10'	5.0 5.0
π28 to 30	✓ (775)	+0°13'	5.0 5.0
π28 to 29	(160)		
π27 to 28	✓ (315)	0°00'	5.1 1.5



± 37 to 40 877.7
(880) +2°54' 5.0 5.0

± 37 to 39 763.0
(765) +2°57' 5.0 5.0

± 37 to 38 424.4
(425) +2°06' 5.0 5.0

± 36 to 37 698.3
(700) +2°53' 5.0 5.0

± 35 to 36 1104.7
(1105) +1°05' 5.0 5.0

± 34 to 35 809.5
(805) +1°23' 5.0 5.0

± 33 to 34 1189.5
(1190) +1°10' 5.0 5.0

442 + 69.49 EG.
439 + 27.94

72

(545.3)

14°27'
P.I. of curve PAGE 17

FENCE

± 39

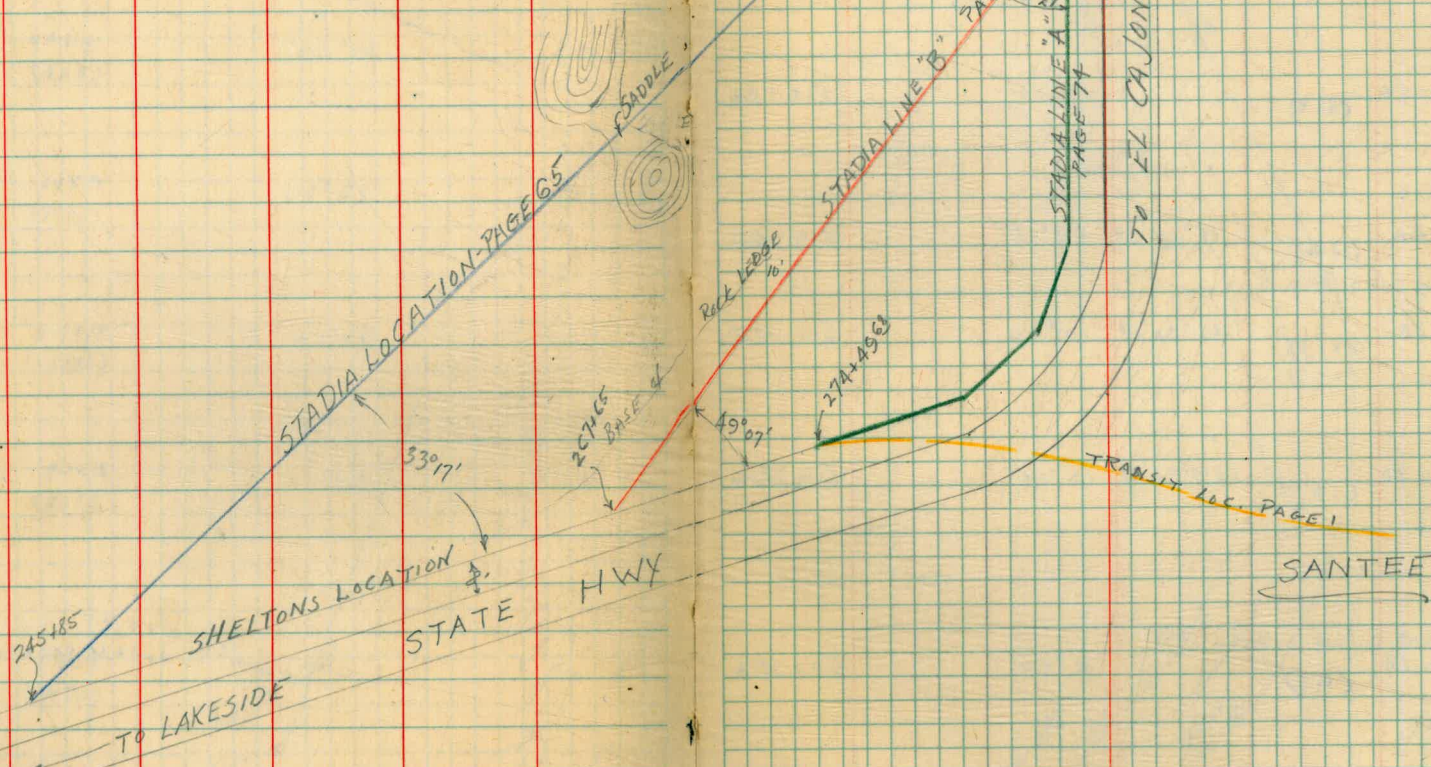
GRAZING LAND

± 34 ± R.R. FILL

± 34 = 40.4 + 10 PAGE 10

5A

KEY TO STADIA LINES - NEAR SANTEE



El Monte P.L. 100

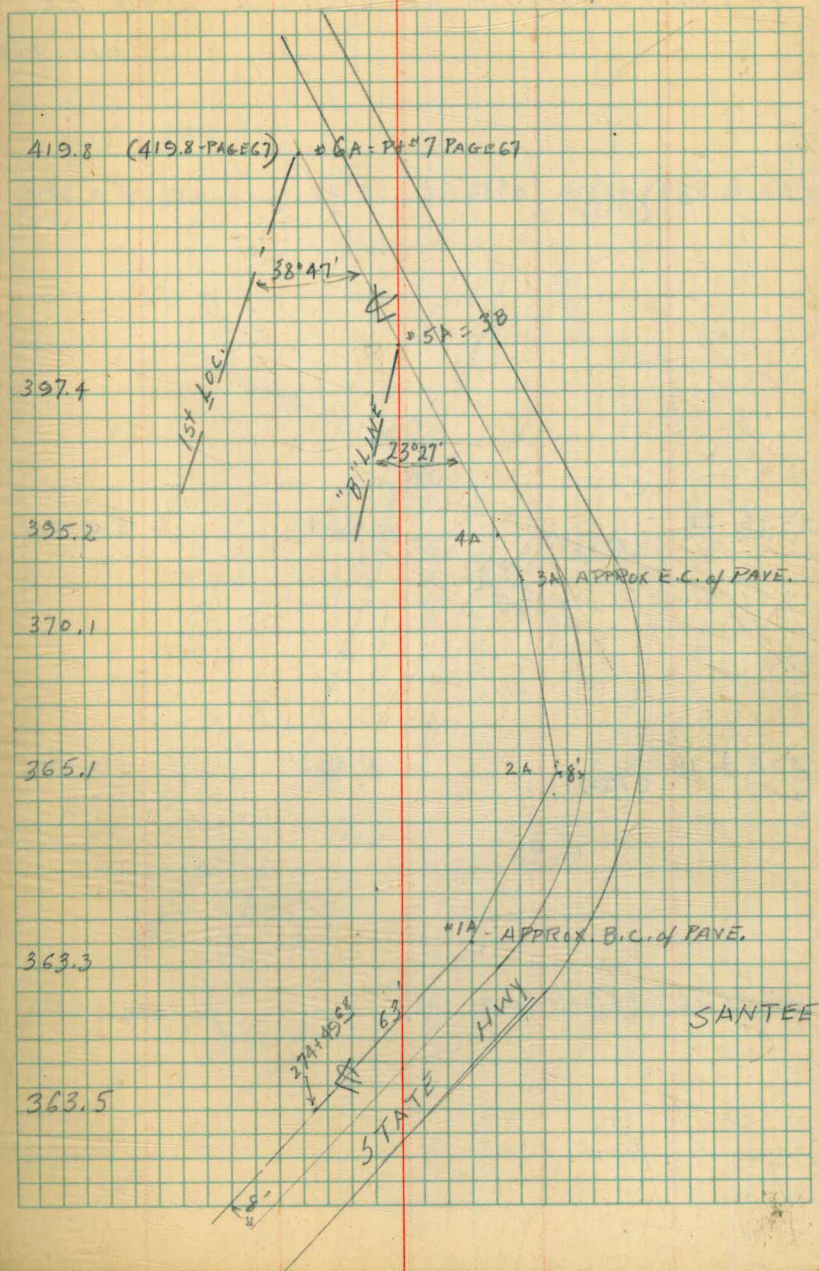
"A" LINE - STADIA ALTERNATE - FOLLOWING
PAVEMENT

14.1 ROD

x 4A to 6A (1320)	+1°04'	5.0 5.0
x 4A to 5A (425)	+0°18'	5.0 5.0
x 3A to 4A (1200)	11°00' Lt +1°12'	5.0 5.0
x 2A to 3A (183)	42°00' Lt 0°00'	5.0 0.0
x 1A to 2A (127)	19°00' Lt 0°00'	5.0 3.2
x 0A to 1A (63)	0°00'	5.0 5.2

PI*0 = 274 + A968 SHELTONS LOC.

Aug 2 1945 74
Saper Very Hot
King
Phillips



"B" LINE - STADIA ALTERNATE - SANTEE

H.I. Red

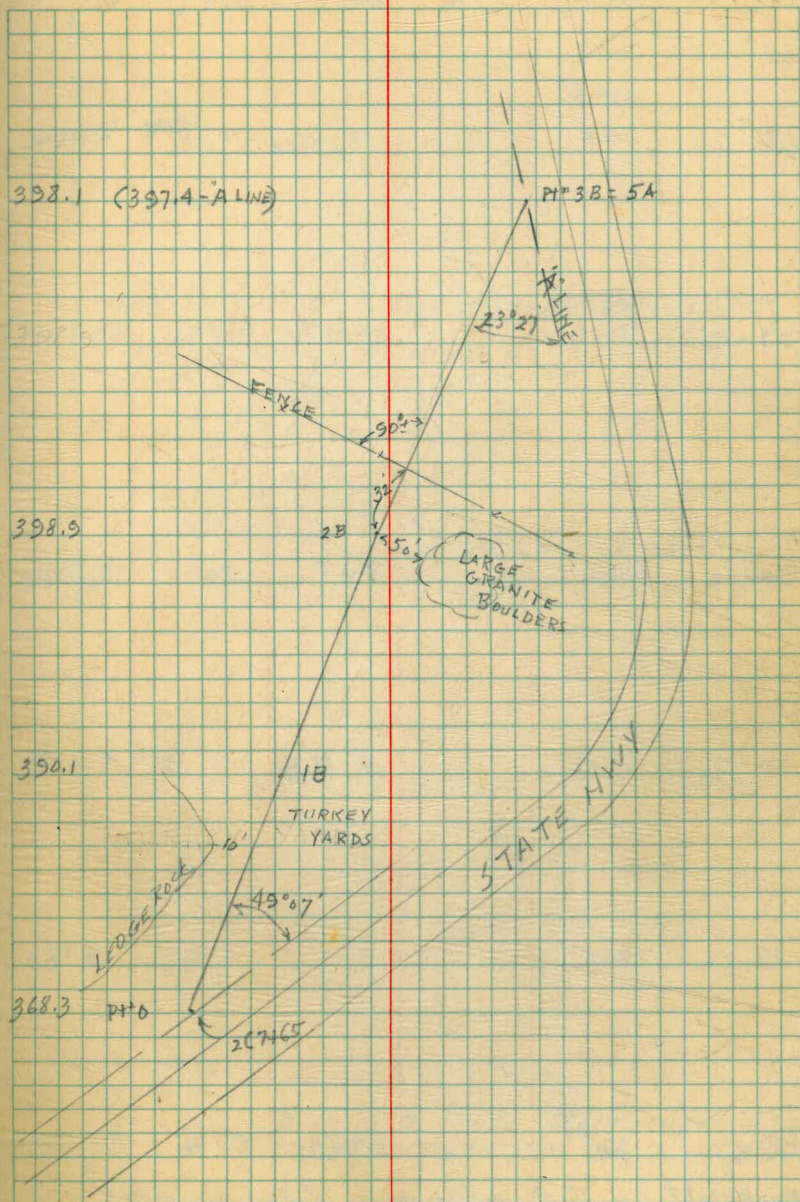
X 2B to 3B (1105) $0^{\circ}33'$ Rt $0^{\circ}00'$ 5.0 5.8

X 1B to 2B (470) $+1^{\circ}04'$ 5.0 5.0

X 0B to 1B (790) $+1^{\circ}35'$ 5.0 5.0

PI⁰ = 267+65 (SHELTONS LOC)

Aug 2, 1945 75
Soper
Kling
Phillips
Very Hot



Alternate line to Murray for investigation
of 3% approach. From Pt. 18 of prev. survey.

	Dist	Mag	Hor L	Vert L	H	Rd
	344.6					
23-24	345'		8° 28' Lt	-1° 52'	5.0	5.0
	397.9					
22-23	398'		8° 23' Lt	-0° 50'	5.0	5.0
	930'		P.O.T.	0° 0'	5.0	5.0
20-21	435'		7° 18' Rt	-0° 48'	5.0	5.0
	437'		P.O.T.	-0° 29'	5.0	5.0
18-19	296'		11° 02' Rt	-0° 40'	5.0	5.0
Backsight on 17A of prev. line along Alvarado creek H.						

9-28-45 EIMonte PL.
King - Hunley
Klinger - Leonard

76.

456.8	W.N.	
448.0	✓	23 = County R.R. 217+98.85
453.8	✓	22 = 222+00 Proposed Co. Highway
447.7	W.N.	
453.8	✓	
454.1	W.N.	0.1 19 Pav. Baltimore Dr.
Elev 18A	457.5	

30-31 126' 38° 33' RT -8' 55" 5.0 5.0

29-30 323.8 324' 19° 06' 30" RT +10' 31" 5.0 5.0

25-29 359.7 360' P.O.T. +10' 36" 5.1 5.1

25-28 235' P.O.T. +0' 5" 5.1 121

25-27 160' P.O.T. -0' 5" 5.1 151

25-26 55' 30° 18' 30" RT +10' 13" 5.1 5.1

23-25 595.8 596' P.O.T. -10' 06" 5.0 5.0

453.2 ✓

455.2 ✓

446.6 ✓

430.0 W.P.H.

426.4 W.P.H.

437.8 W.P.H.

430.6 ✓

Plowed Ground
Dirt Rd.

Pt. 29

Grove

Olive

Pt 26

25-212+00-COUNTY # LOC.

195.8
T 36-38 196' P.O.T. +1° 43' 5.0 5.0

36-37 122' 8° 0' Lt. +1° 29' 5.0 5.0

339.7
T 35-36 340' 5° 23' Lt. +1° 42' 5.1 5.1

266.8
T 34-35 267' 8° 03' Lt. +1° 42' 4.8 4.8

199.8
T 33-34 200' 0° 57' Lt. +1° 43' 4.7 4.7

554.4
T 31-33 555 P.O.T. +1° 54' 4.7 4.7

129.5
31-32 230' 14° 16' 30' Rt. -2° 32' 4.7 4.7

501.4 ✓

498.8 ✓

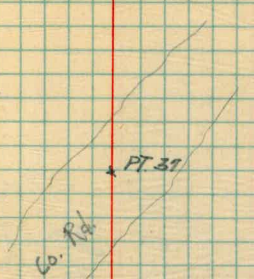
495.6 ✓

485.5 ✓

477.6 ✓

471.6 ✓

443.0



Eucalyptus
Grove

19731

42-37C

74° 0' Lt.

π 40-42
 519.7
 520'

P.O.T. +1° 18' 5.0 5.0

40-41
 269.7
 270'

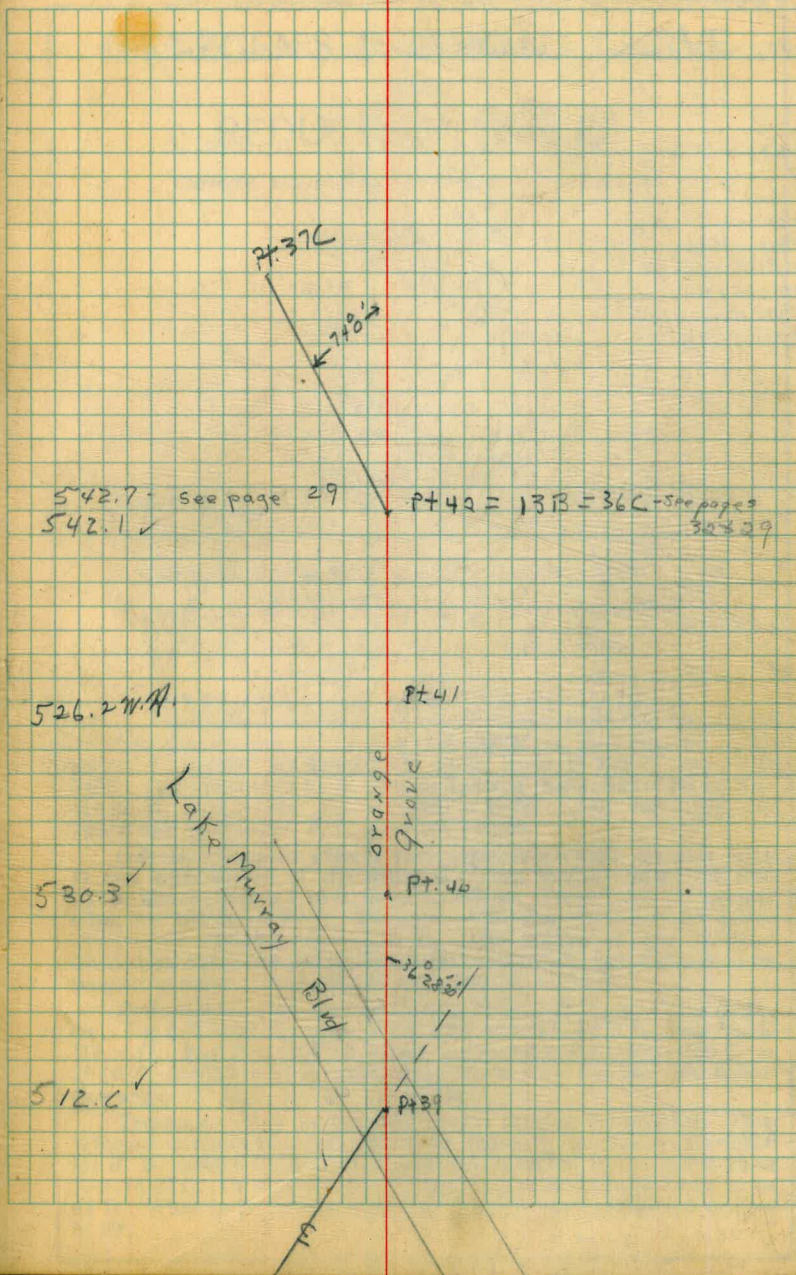
54° 05' Rt -0° 52' 5.0 5.0

π 39-40
 462.3
 463'

36° 28' 30" +2° 12' 5.0 5.0

π 38-39
 254.5
 255'

16° 52' Lt +2° 31' 5.0 5.0



ELEVATIONS OF TEST HOLES - ELMONTE PIPELINE

NORTH & SOUTH OF PAVEMENT - WEST FROM LAKESIDE

COUNTY B.M. # 21	4.48	404.61	400.13
CK ON E STA 126+00			6.6
TEST HOLE - SOUTH OF PAVE. 126+05			6.4
ON PAVE. OPPOSITE STA 126+00			4.96
TEST HOLE NORTH OF PAVE. 126+50			7.9

	ROD ON PAVE.	ROD ON TEST HOLE TO SOUTH	ROD ON TEST HOLE TO NORTH	
--	--------------	---------------------------	---------------------------	--

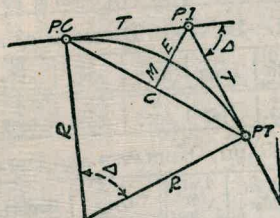
148+00±	4.0	5.7	6.4	WITH HAND-LEVEL
166+50±	2.0	2.5	7.4	"
180+00±	3.0	3.3	5.4	NOT SURE ABOUT THIS
191+80±	0.0	0.9	18.9	"
202+00	4.0	4.1	5.7	"
206+00	4.0	5.6	6.3	TAKEN IN GUTTER DID NOT FIND HOLD
219+65	2.0	5.0	4.0	NOT TO SURE ABOUT THIS
223+65	2.0	5.6	3.6	"

NOTE: TEST HOLE IS 128' EAST OF 12" CULVERT.

NOTE: MARKED ON PAVE. 245400.

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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



CURVE FORMULAS

Radius $= R = \frac{50}{\sin \frac{\Delta}{2}}$ (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) $= R \div \cos \frac{\Delta}{2} - R$ (8) $= R \text{exsec} \frac{\Delta}{2}$ (9)
 Long Chord $= C = 2 R \sin \frac{\Delta}{2}$ (10) $\Delta =$ 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 $= 158 -$ 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) $.3 \times C \times D^\circ$ 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 $= 2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 115.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{2} = 115.27$ and from Table V correction $= .10$ or $E = 115.37$ 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 $D = 5^\circ 30'$.

Using 66' as width of Magnolia St, there is a difference of
34²/₃ between our staking and the R.R. data.

Ente
of t
stad
run
line
locat
the
gives
from
"f +
be a
Dist
scale
6" of
is th



B.M. - Murray Dam - N. edge walk - 8' So. 1st Arch 542.51

Yell - 589.5
Red 579.5

600.1
00.71

600.81
98.2

590.99

9.6

591.95

92.0

92.0

79.5

89.5

12.5

2.5

600.8

89.5

11.3

588.71

1.3

590.0

9.0

580.6

11.7

592.3

90.0

87.5

2.5

60

77.5

12.5

91.3

87.5

3.8

125.0

6.1

18.9

6.9

350-138

Please Return to
City of San Diego Water Dept.
Room 268 Civic Center
Telephone Main 5161

19.04
20.61
5.22
8.00
54.05
57.24
11.0
16.0
54

DISTANCES FROM CENTER OF ROADWAY FOR
CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½
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	26.2	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 above figures 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 = 43.9. For slopes of 1 on 1 see inside of front cover.

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