

W 678

# 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 1½ see inside of back cover.

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Indexed to ~~35~~ <sup>Plotted</sup> <sup>1132</sup> <sup>Map</sup> <sup>4/2/46</sup>

Pages	Date	By	Pages	Date	By
to 39	4/17	msd			
41	7/2/47	msd			

## Index

Pages

- Dulzura Pt. survey, State  
(Green) line cont. from book 670 1-16  
Brown line to junction with  
Green line at termination. 17-18  
Alternate Red "E" Line From  
Pt. 115 Red "H" Line To Res. Site 19-35  
Stadia Survey For Trail to Tunnel  
#4 - Dulzura Conduit - From Woods  
Place on Barrett Road. P 34-39  
Ties to Dulzura Conduit Rd. Also Tie  
to recorded center. ✓ 40-41  
Traverse - Road around Tunnel #1 Barrett 42 ✓  
Alice

State (Green line) cont. from

250 to 255 (1150)	POT	+10°45'	4.0 4.0
250 to 254 (830)	POT	-4°02'	14.0 4.0
250 to 253 (680)	POT	-4°0'	4.0 4.0
250 to 252 (442)	POT	-11°06"	4.0 4.0
250 to 251 (138)	POT	-15°02'	4.0 4.0
249 to 250 (180)	S68°W	32°18'30" L <sup>th</sup> + 2°10'	5.0 5.0
247 to 248 (274)	POT	-11°39'	5.0 5.0
247 to 248 (115)	POT	-12°0'	5.0 5.0
246 to 247 (63)	N80°W POT	0°0'	4.1 4.9

book # 670 p 69

10/2/44

589.5 Point 250 on large outcropping

577.7



631.9 In large outcropping

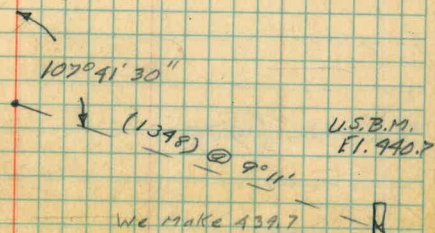
631

262 to 264 (312)	POT	-0°15'	5.0 5.0
261 to 263 (177)	POT	-5°49'	5.0 5.0
257 to 262 (574)	POT	+4°06'	4.4 4.4
257 to 261 (471)	POT	+3°45'	4.4 4.4
257 to 260 (370)	POT	-2°27'	4.4 4.4
257 to 259 (289)	POT	-6°09'	4.4 4.4
257 to 258 (228)	POT	-10°01'	4.4 4.4
256 to 257 (136)	POT	0°0'	12.9 5.0
250 to 256 (1301)	POT	+1°30'	4.0 4.0

651.7

610.7

618.6



272 to 273 (228) S 87° W 9° 39' 30" RT + 3° 38' 4.7  
4.7

266 to 272 (1500) POT + 2° 39' 5.0  
5.0

266 to 271 (1030) POT + 0° 33' 5.0  
5.0

266 to 270 (750) POT - 3° 24' 5.0  
5.0

266 to 269 (389) POT - 10° 50' 5.0  
5.0

266 to 268 (398) POT - 12° 26' 5.0  
5.0

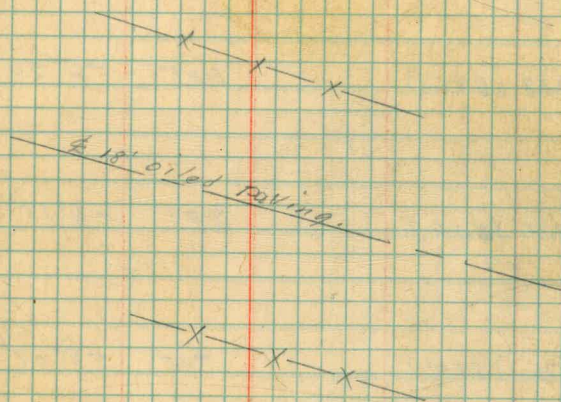
266 to 267 (312) S 79° W 8° 26' 30" RT - 12° 50' 5.0  
5.0

265 to 266 (479) S 70° W 0° 54' RT - 9° 09' 4.9  
4.9

262 to 265 (466) POT 0° 0' 3.5  
5.0

661.6

647.2



577.9

653.2

π 281 to 282 (542) POT -1°44' 5.0  
5.0

π 279 to 281 (1820) POT +3°00' 4.9  
4.9

274 to 280 (1510) POT +1°50' 4.9  
4.9

274 to 279 (1220) POT 0°0' 5.9  
4.9

274 to 278 (695) POT -5°50' 4.9  
4.9

274 to 277 (601) POT -6°28' 4.9  
4.9

274 to 276 (545) POT -8°07' 4.9  
4.9

274 to 275 (158) POT -7°55' 4.9  
4.9

π 273 to 274 (335) POT -2°01' 8.0  
5.0

731.9

742.0 748.3 Corrected to B.M.

B.M. El. 575 (2340) @ 3°33' El. 748.3  
(439) @ +346' El. 603.7

646.8

Begin Cultivated Land  
☐ Conc. Man.

283 to 291 (2080) POT +0°30' 5.0  
5.0

283 to 290 (1920) POT +0°25' 5.0  
5.0

283 to 289 (1700) POT -0°34' 5.0  
5.0

283 to 288 (1360) POT -4°01' 5.0  
5.0

283 to 287 (1180) POT -5°58' 5.0  
5.0

283 to 286 (921) POT -8°05' 5.0  
5.0

283 to 285 (250) POT -12°58' 5.0  
5.0

283 to 284 (175) POT -12°22' 5.0  
5.0

282 to 283 (183) POT -5°13' 5.0  
5.0

733.4

715.3



299 to 300 (133) POT -1°06' 6.9  
4.9

298 to 299 (140) S86½ W 0°54'30" = 5°55' 8.8  
4.8

291 to 298 (2489) POT -1°13' 4.7  
4.7

291 to 297 (2320) POT -1°18' 4.7  
4.7

291 to 296 (2120) POT -3°07' 4.7  
4.7

291 to 295 (1800) POT -4°38' 4.7  
4.7

291 to 294 (1450) POT -4°37' 4.7  
4.7

291 to 293 (1240) POT -4°43' 15.7  
4.7

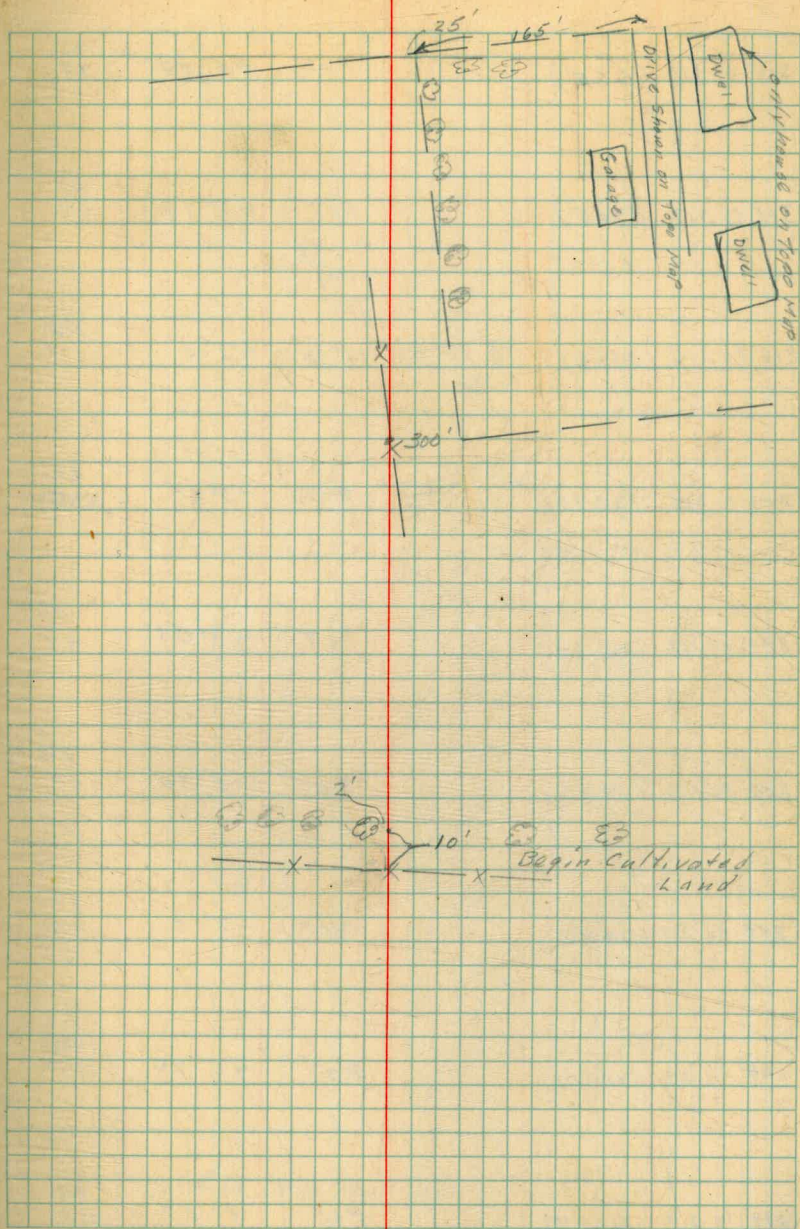
291 to 292 (196) POT -4°0' 4.7  
4.7

583.6

682.0

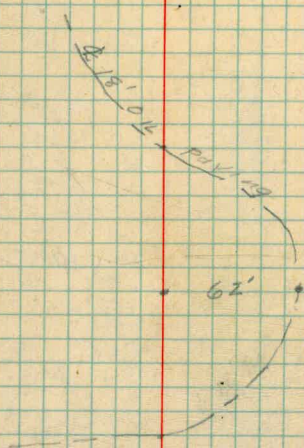
End of Cultivated

299 to 309 (1100)	POT	-8° 45'	1.9 4.9
299 to 308 (995)	POT	-9° 07'	1.9 4.9
299 to 307 (900)	POT	-10° 59'	4.9 4.9
299 to 306 (820)	POT	-10° 34'	4.9 1.9
299 to 305 (685)	POT	-10° 54'	9.9 4.9
299 to 304 (530)	POT	-16° 10'	4.9 4.9
299 to 303 (452)	POT	-16° 05'	1.9 4.9
299 to 302 (318)	POT	-17° 39'	1.9 4.9
299 to 301 (279)	POT	-20° 07'	13.9 4.9



315 to 318 (625)	POT	-9° 59'	4.8 4.8
315 to 317 (305)	POT	-7° 17'	4.8 4.8
315 to 316 (103)	S 73° W	13° 38' Lt -9° 0'	5.8 4.8
299 to 315 (2310)	POT	-3° 05'	4.9 4.9
299 to 314 (2260)	POT	-3° 03'	4.9 4.8
299 to 313 (1940)	POT	-5° 30'	4.9 4.9
299 to 312 (1420)	POT	-7° 0'	4.9 4.9
299 to 311 (1141)	POT	-8° 25'	4.9 4.8
299 to 310 (1125)	POT	-8° 35'	4.9 4.9

539.6



~~18' OIL PILING~~

324 to 326 (671) POT  $-0^{\circ}39'$  4.8  
4.8

324 to 325 (275)

320 to 324 (1008) POT  $-0^{\circ}47'$  4.8  
4.8

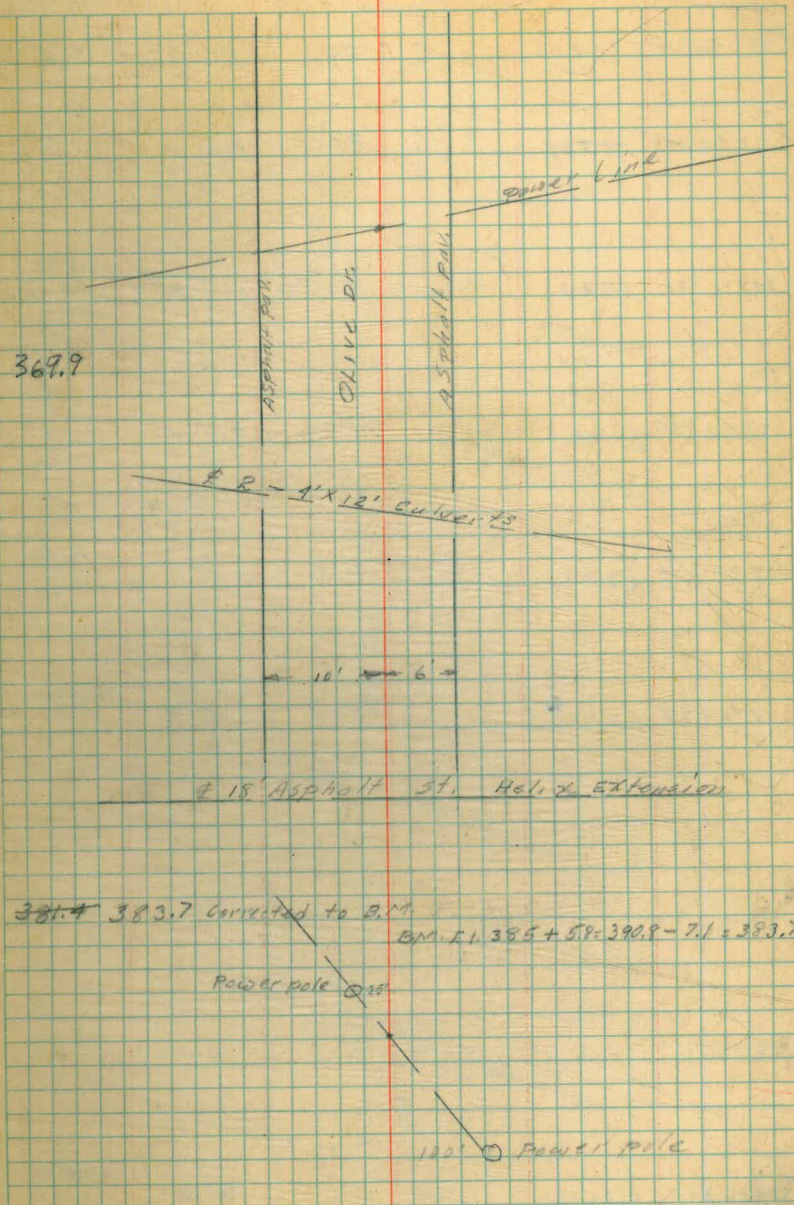
320 to 323 (720) POT  $-1^{\circ}16'$  4.8  
4.8

320 to 322 (481) POT  $-1^{\circ}17'$  4.8  
4.8

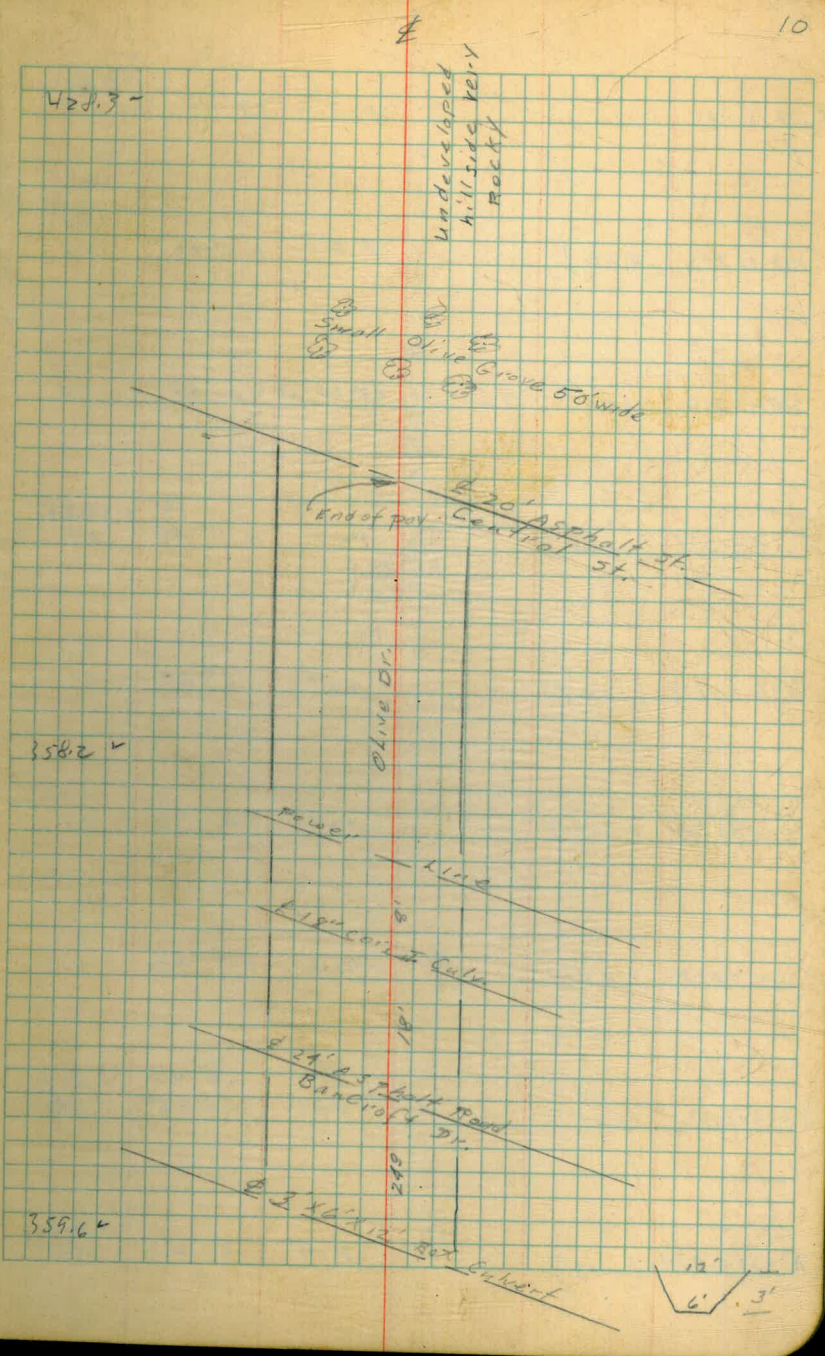
320 to 321 (38') POT  $+853'$  4.8  
4.8

315 to 320 (1480) POT  $-4^{\circ}36'$  4.8  
4.8

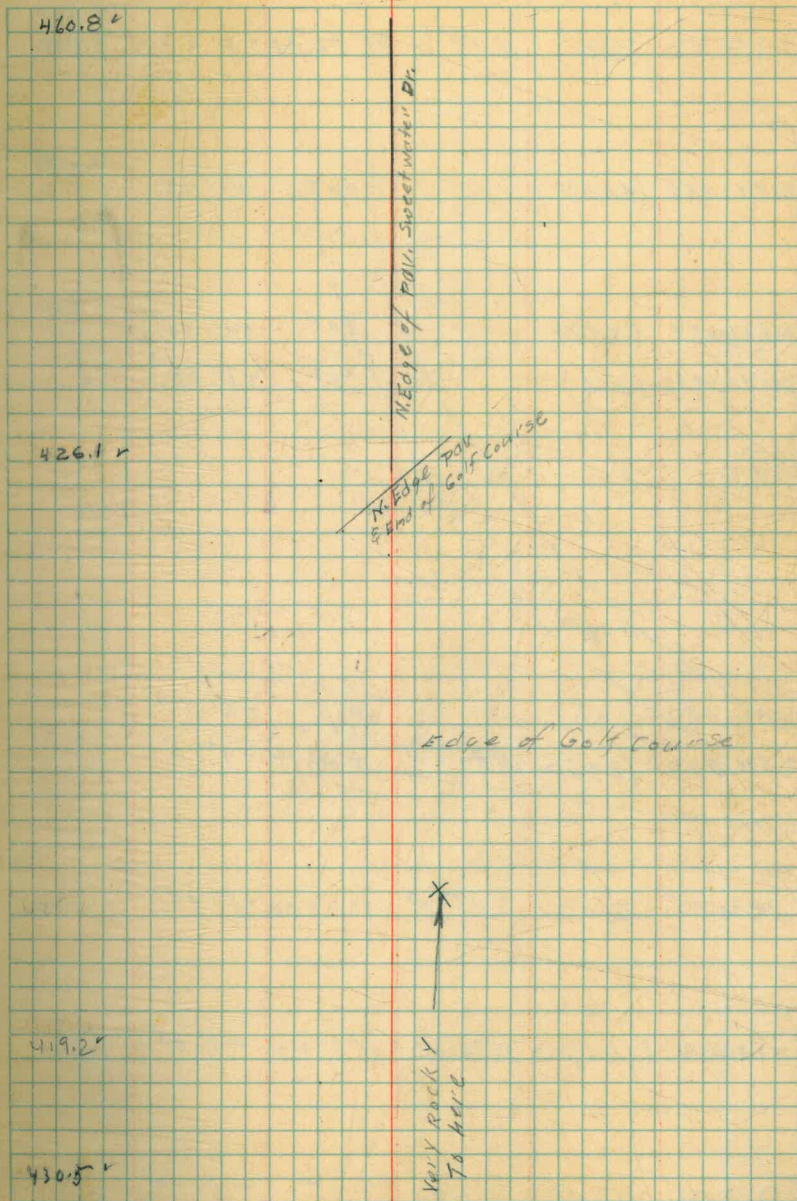
315 to 319 (1410) POT  $-6^{\circ}03'$  4.8  
4.8



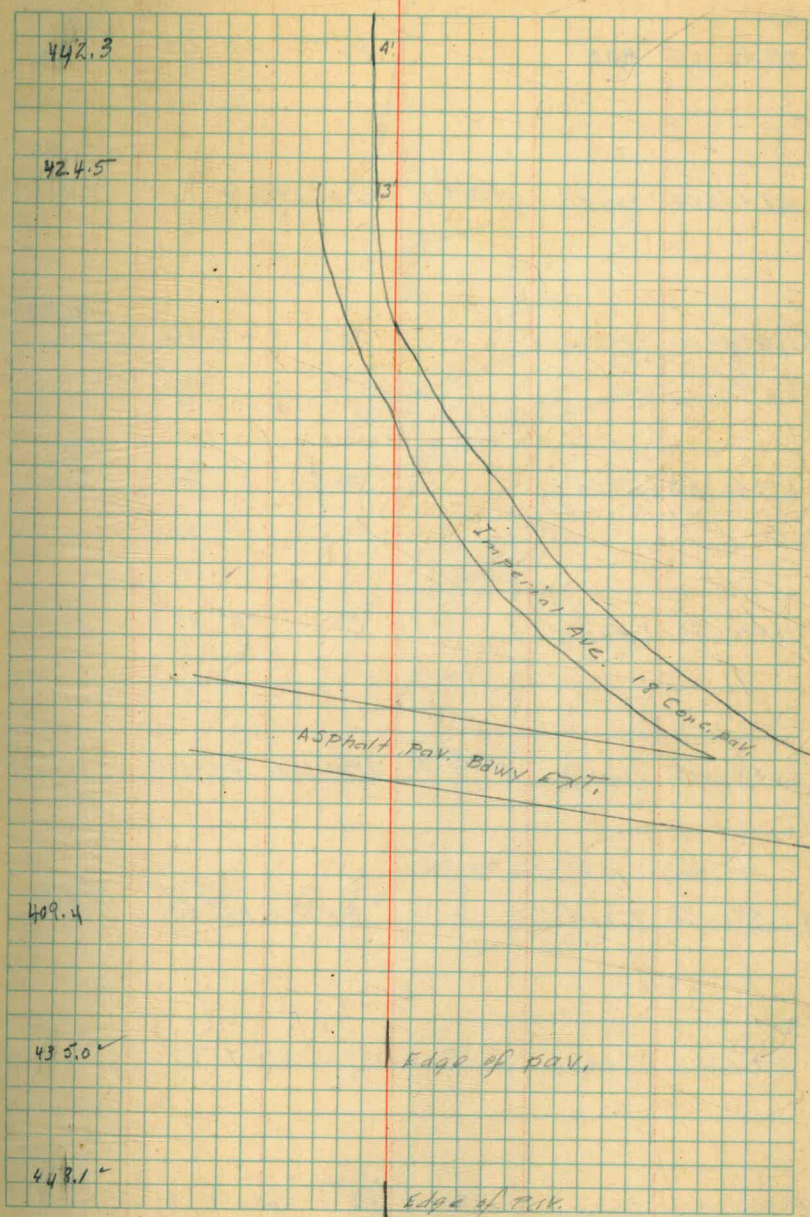
328 to 333 (1320)	POT	+3° 03'	5.0 5.0
328 to 332 (1100) (530)	POT	+3° 0'	8.0 5.0
328 to 331 (724)	POT	+1° 43'	6.0 5.0
328 to 330 (660)	POT	+2° 05'	5.0 5.0
328 to 329 (374)	POT	0° 0'	1.4 5.0
327 to 328 (343)	POT	0° 0'	6.4 5.0
329 to 327 (917)	POT	0° 0'	15.1 1.8



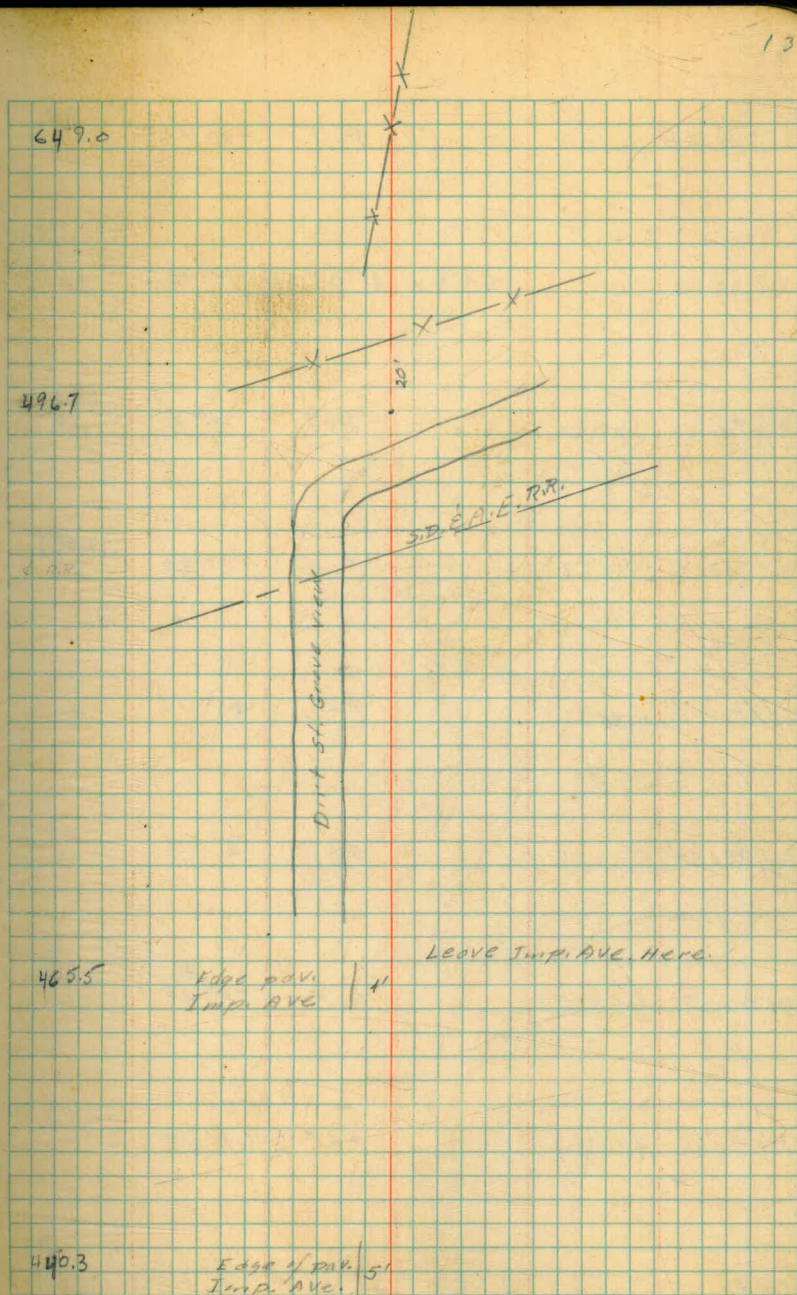
$\pi$ 339 to 342 (780)	POT	+2° 33'	5.0 5.0
339 to 341 (426)	POT	+2° 42'	5.0 5.0
339 to 340 (185)	N 63 $\frac{1}{2}$ ° W	43° 20' Rt + 0° 47'	5.0 5.0
$\pi$ 335 to 339 (1410) ( <del>1414</del> )	POT	+0° 17' +0° 42'	4.7 4.7
335 to 338 (1022)	POT	-2° 34'	4.7 4.7
335 to 337 (518)	POT	-5° 42'	4.7 4.7
335 to 336 (281)	POT	-8° 32'	4.7 4.7
$\pi$ 334 to 335 (160) ( <del>165</del> )	POT	-3° 46' -4° 36'	5.2 4.2
$\pi$ 333 to 334 (113)	POT	0° 0'	2.4 4.6



$\pi$ 350 to 351 (358)	N 77° W	9° 52' R.H. + 2° 52'	5.1 5.1
$\pi$ 345 to 350 (440)		POT + 1° 58'	5.0 5.0
345 to 349 (357)		POT + 1° 34'	5.0 5.0
345 to 348 (266)		POT + 1° 05'	5.0 5.0
345 to 347 (106)		POT - 2° 57'	
345 to 346 (67)	N 86 1/4° W	8° 20' R.H. - 4.20'	5.0 5.0
$\pi$ 344 to 345 (392)	S 85° W	19° 57' L.H. - 3° 45'	4.9 4.9
$\pi$ 343 to 344 (182)	N 75° W	11° 39' 30" L.H. - 4° 08'	4.9 4.9
$\pi$ 342 to 343 (390)		POT - 2° 08'	1.52 5.0 5.0



T 358 to 360	970		POT +9° 09'	4.9 4.9
358 to 359	(495)	N 30 1/4° W	16° 06' Lt +8° 16'	4.9 4.9
T 354 to 358	(626)		POT +2° 52'	5.0 5.0
354 to 357	(595)		POT +2° 55'	5.0 5.0
354 to 356	(435)		POT +2° 09°	5.0 5.0
354 to 355	(195)	N 14 1/4° W	91° 26' 30" Rt +2° 27'	5.0 5.0
T 352 to 354	(1068)		POT +1° 21'	4.7 4.7
?				
352 to 353	(440)	S 75 1/2° W	12° 55' 30" Lt +1° 12'	4.7 4.7
T 351 to 352	(295)	S 89 1/2° W	15° 32' 30" Lt 0° 0'	7.0 5.0





367 to 369 (410) POT  $-2^{\circ} 47'$  4.9  
4.9

367 to 368 (202)  $S 65^{\circ} 34' W$   $1^{\circ} 05' R$   $-4^{\circ} 13'$  4.9  
4.9

$\pi$  366 to 367 (270) POT  $0^{\circ} 0'$  7.7  
4.9

$\pi$  363 to 366 (532) POT  $+3^{\circ} 42'$  4.4  
4.9

363 to 365 (390) POT  $+3^{\circ} 08'$  4.9  
4.9

363 to 364 (249) POT  $-2^{\circ} 29'$  4.9  
4.9

$\pi$  360 to 363 (625) POT  $+1^{\circ} 59'$  6.6  
4.6

360 to 362 (380) POT  $+2^{\circ} 04'$  6.6  
4.6

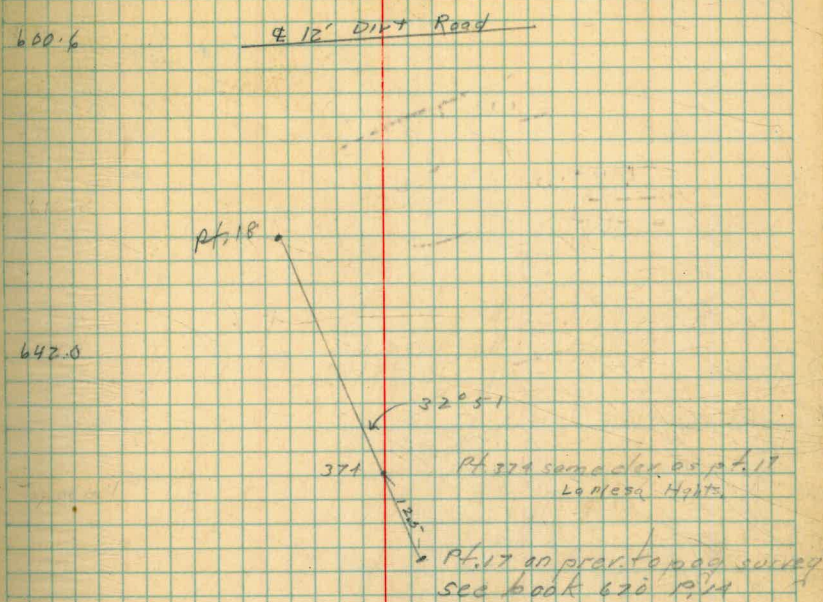
360 to 361 (117)  $S 69^{\circ} 34' W$   $85^{\circ} 17' L$   $-0^{\circ} 33'$  4.6  
4.6

695.7

693.5

664.3

376-377	(112)	P.O.T.	-18° 12'	4.7 4.7
375 to 376	(248)	P.O.T.	-9° 43'	4.8 4.8
373 to 375	(246)		-4° 0'	4.9 4.9
373 to 374	69'	S 81° W	13° 08' Rt	0.0 5.5 4.9
367 to 373	(1002)	P.O.T.	-1° 56'	4.9 4.9
367 to 372	(949)	P.O.T.	-2° 19'	4.9 4.9
367 to 371	(810)	P.O.T.	-2° 26'	4.9 4.9
367 to 370	(475)	P.O.T.	-2° 58'	9.9 4.9



$\pi$ 379-PT.19	(383)		$+9^{\circ}29'$	50 50
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$\pi$ 376-379	(585)	P.O.T.	$-12^{\circ}34'$	47 47
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376-378	(315)	P.O.T.	$-14^{\circ}58'$	47 47
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538.4      PT 19 - Elev. 5374

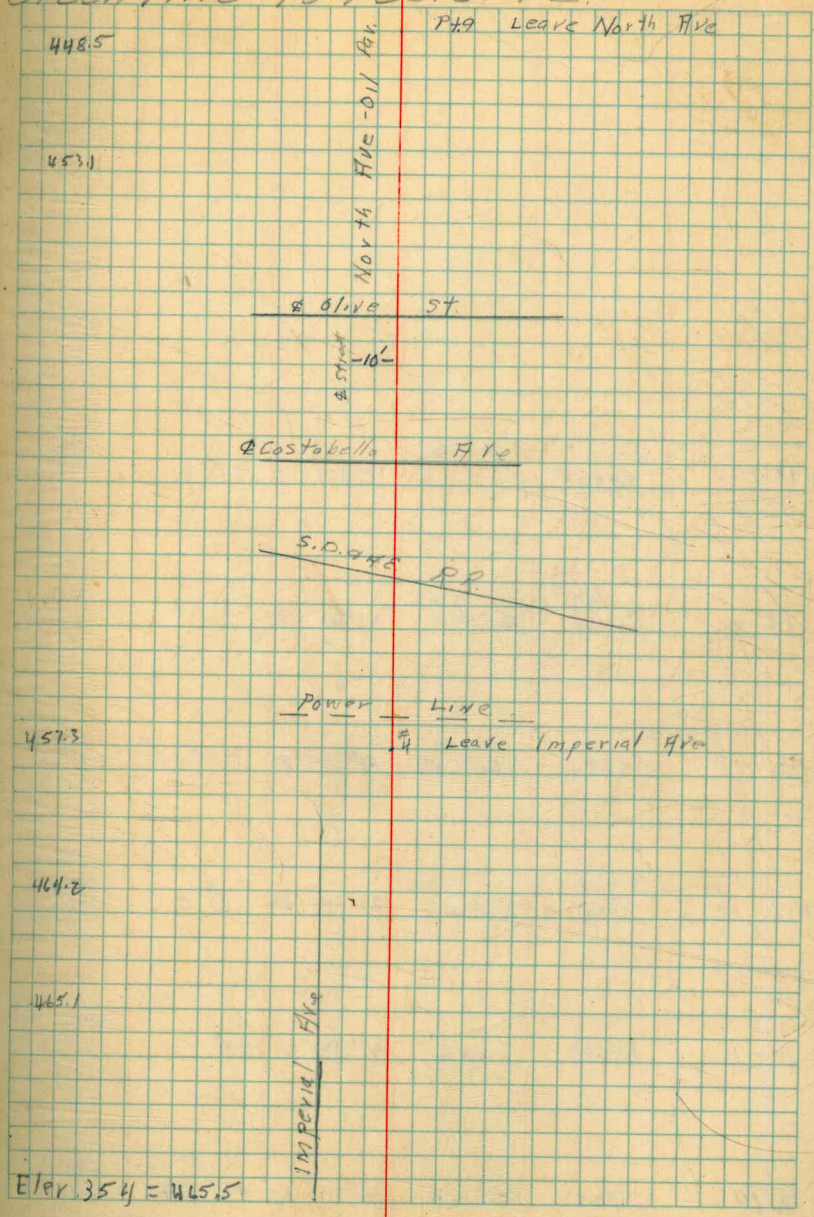
476.4

~~E 18 Gravel Rd.~~

Brown line from pt. 354 on Green line to res. site.

10/16/44

8-9	(363)	P.O.T	0°-0	9.7 5.1	
4-8	(850)	P.O.T	80'	9.2 5.0	
4-7	(656)	P.O.T	80	8.9 5.0	
4-6	(146)	P.O.T	0.0	6.2 5.0	
4-5	(69)	S 73 1/2° W	52° 18' RT	0° 0	2.5 5.0
3-4	(272)	S 20 1/2° S. W.	28° 59' LT	0.0	12.1 5.2
2-3	(340)	S 50 3/4° W	24° 40' LT	0.0	6.0 5.1
0-2	(411)	P.O.T.	0.0	5.4 5.0	
0-1	(123)	S 74° 30'	P.O.T.	+10 10"	5.0 5.0
20	Brown Line				
0	Pt 354 Green line sighting back to pt. 352				



7 13-15 Pt. 379	(545)	P.O.T	-2° 41'	5.0 5.0
13-14	(413)	N 55° W	27° 13' Lt. -3° 34'	5.0 5.0
7 12-13	(575)	N 26° W	41° 35' Rt. +4° 02'	5.1 5.1
7 11-12	(437)	N 69° W	22° 17' Rt. 0° 0'	2.0 5.0
7 10-11	(555)	S 88° W	33° 55' Lt. +0° 51'	4.9 4.9
7 9-10	(325)	N 58° W	49° 11' Rt. +1° 24'	5.1 5.1

432.4

15 = Pt 379 Green Line  
See Page 16

Pt 13 Leave Rd.

507.9

E. No. Bay Gravel Rd.

2'

447.6

Pt 12 - Leave Waite Drive

444.6

Waite Drive

10'

436.4

Alternate Red "AE" Line From  
Pt. 115 on Red "A" Line

KING 10-24-44  
OTTEN  
STEPHENS

19

PT 119-122 (2035) P.O.T.  $-0^{\circ} 42'$  5.0 799.2

119-121 (1800) P.O.T.  $-1^{\circ} 08'$  5.0 5.0

119-120 (1980) P.O.T.  $-1^{\circ} 40'$  5.0 5.0

PT 116-119 (1430) P.O.T.  $-1^{\circ} 22'$  5.1 824.0

116-118 (1260) P.O.T.  $-1^{\circ} 38'$  5.1 5.1

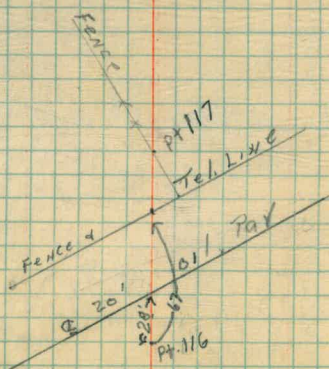
PT 116-117 (280)  $N 83^{\circ} 4' W$   $28^{\circ} 11' 4''$   $-0^{\circ} 57'$  5.1 5.1

PT 115-116 (258)  $N 55^{\circ} 4' W$  P.O.T.  $0^{\circ} 0'$  5.4 858.2

PT 114-115 (1500)  $N 56^{\circ} 2' W$   $11^{\circ} 52' R$   $+1^{\circ} 14'$  5.0 5.0

See Book 671 Page 75

Plowed Bear Field  
Bailey Ranch



Elev. 858.5-

π 128-131 (958) P.O.T +2° 0' 4.9  
4.9

128-130 (795) P.O.T 0° 0' 3.0  
4.9

128-129 (445) N 69<sup>3</sup>/<sub>4</sub> W 5° 16' R+ -2° 15' 4.9  
4.9

π 124-128 (1820) P.O.T +0° 33' 4.8  
4.8

124-127 (1566) P.O.T -0° 0' 12.0  
4.8

124-126 (850) P.O.T -2° 20' 4.8  
4.8

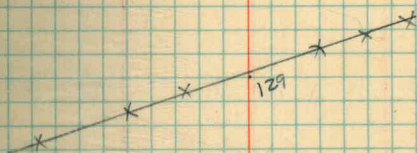
124-125 (715) N 75<sup>1</sup>/<sub>2</sub> W 11° 15' R+ -4° 33' 9.8  
4.8

π 122-124 (1023) P.O.T +3° 24' 4.9  
4.9

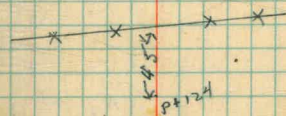
π P+122-123 (345) P.O.T 0° 0' 8.4  
4.9

910.7

GRASSING LAND  
SANDY SOIL  
OTAY RANCH CO



877.3



859.8

139- <sup>EA</sup> 138	A-Red Line		49° 15' Lt	
	= 134 A			
138-139	(115)	N 4 1/4 E	80° 30' Rt + 11° 47'	4.9 4.9
136-138	(290)		P.O.T + 5° 9'	4.7 4.7
136-137	(160)	N 76 1/2 W	32° 25' Lt + 3° 56'	4.7 4.7
134-136	(505)		P.O.T + 6° 22'	5.1 5.1
134-135	(175)	N 43 3/4 W	15° 49' Rt + 3° 32'	5.1 5.1
131-134	(440)		P.O.T + 5° 39'	5.0 5.0
131-133	(235)		P.O.T + 5° 10'	9.0 5.0
131-132	(154)	N 60 3/4 W	8° 06' Rt + 6° 05'	5.0 5.0

1058.5

139-<sup>EA</sup> LINE = 134 Red "A" LINE - See BK. 671 Page 77

1033.3

133

1609.4

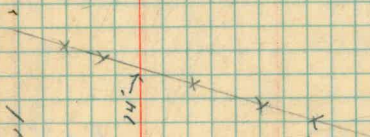
910.7

Rock outcroppings

SANDY SOIL

14.7

134





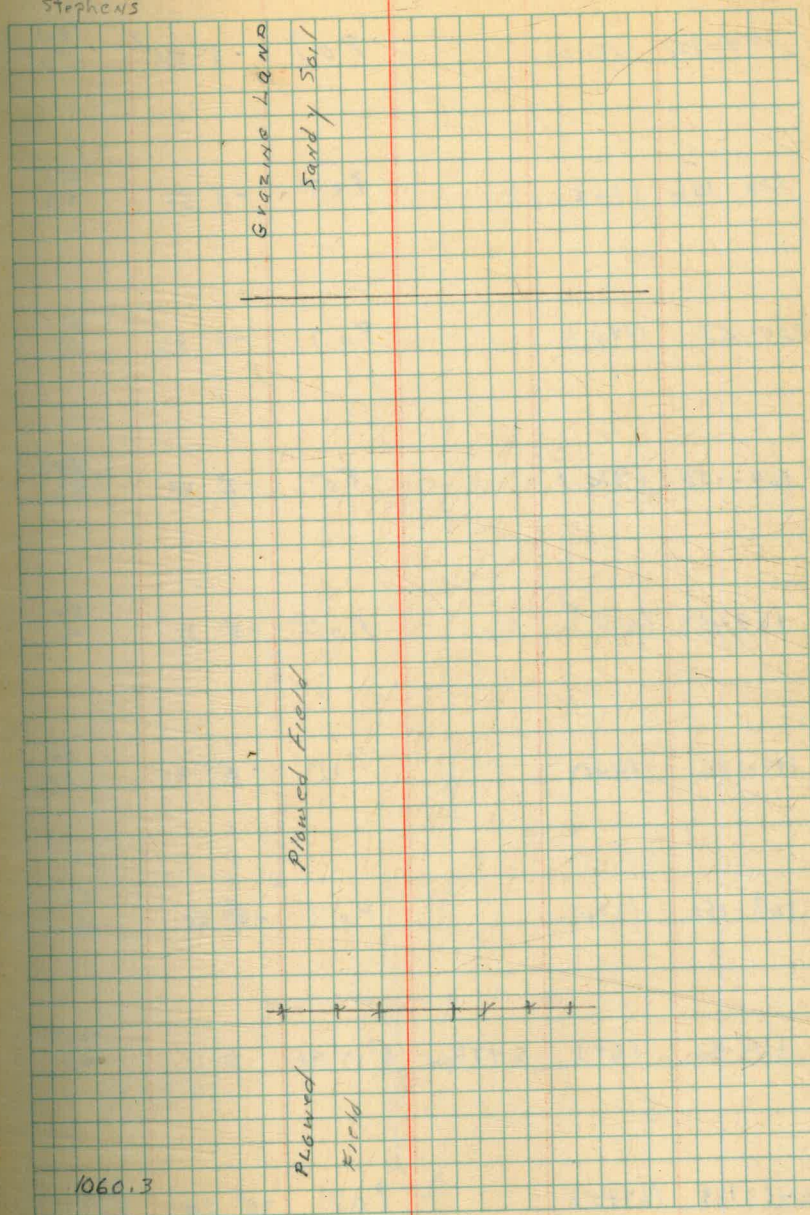
BEGAN Red "E" LINE From Pt. 141  
 See Back 671 - Page 78 - Red "A" LINE

141-148	1500	P.O.T.	10 14'	14.0 5.0
141-147	(1410)	P.O.T.	-1° 22'	5.0 5.0
141-146	(1250)	P.O.T.	-2° 13'	5.0 5.0
141-145	(965)	P.O.T.	-3° 09'	5.0 5.0
141-144	(630)	P.O.T.	-3° 28'	5.0 5.0
141-143	(412)	P.O.T.	-6° 23'	5.0 5.0
141-142	145	570' 1/4 W	53° 05' Lt -8° 55'	5.0 5.0
141-141				
141 - Elev.	62' 1/2			

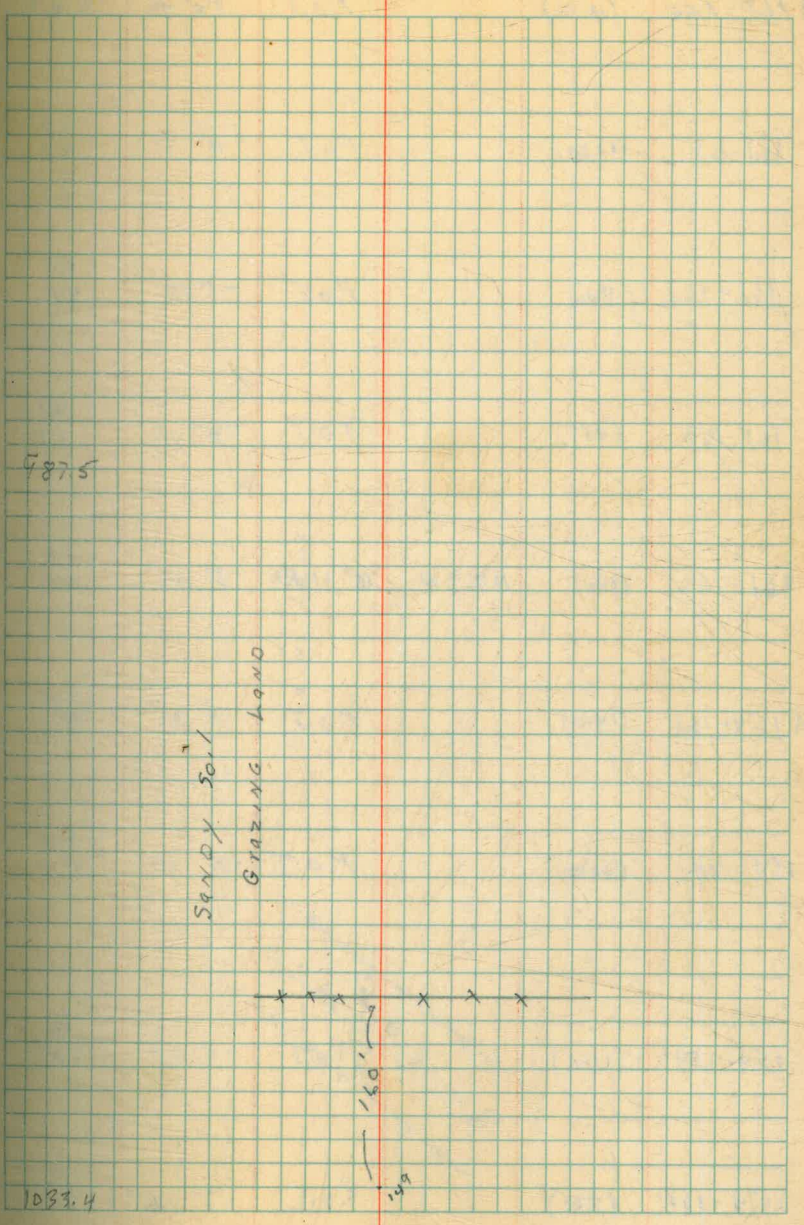
Hill  
 King  
 Otten  
 Stephens

10-24-44

22



154-157 (640)	P.O.T.	-3° 55'	13.0 5.0
154-156 (345)	P.O.T.	-3° 51'	5.0 5.0
154-155 (195)	P.O.T.	-9° 36'	5.0 5.0
149-154 (970')	P.O.T.	-2° 43'	5.0 5.0
149-153 (635)	P.O.T.	-3° 31'	5.0 5.0
149-152 (442)	P.O.T.	-5° 57'	5.0 5.0
149-151 (330)	P.O.T.	-8° 48'	5.0 5.0
149-150 (65)	S 77 <sup>3</sup> / <sub>4</sub> N	8° 17' Rt. 0° 0'	12.5 5.0
141-149 (1715)	P.O.T.	-0° 54'	5.0 5.0



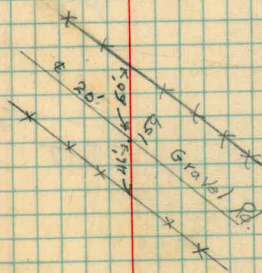
161-166	(1270)		P.O.T.	+0° 46'	4.7 4.7
161-165	(1120)		P.O.T.	-0° 39'	6.7 4.7
161-164	(840)		P.O.T.	-1° 59'	4.7 4.7
161-163	(457)		P.O.T.	-4° 03'	16.7 4.7
161-162	(190)	N 85½ W	16° 11' R±	-3° 49'	4.7 4.7
154-161	(1410)		P.O.T.	-0° 31'	5.0 5.0
154-160	(1270)		P.O.T.	-0° 41'	5.0 5.0
154-159	(1110)		P.O.T.	-1° 47'	5.0 5.0
154-158	(830)		P.O.T.	-2° 26'	5.0 5.0

591.8

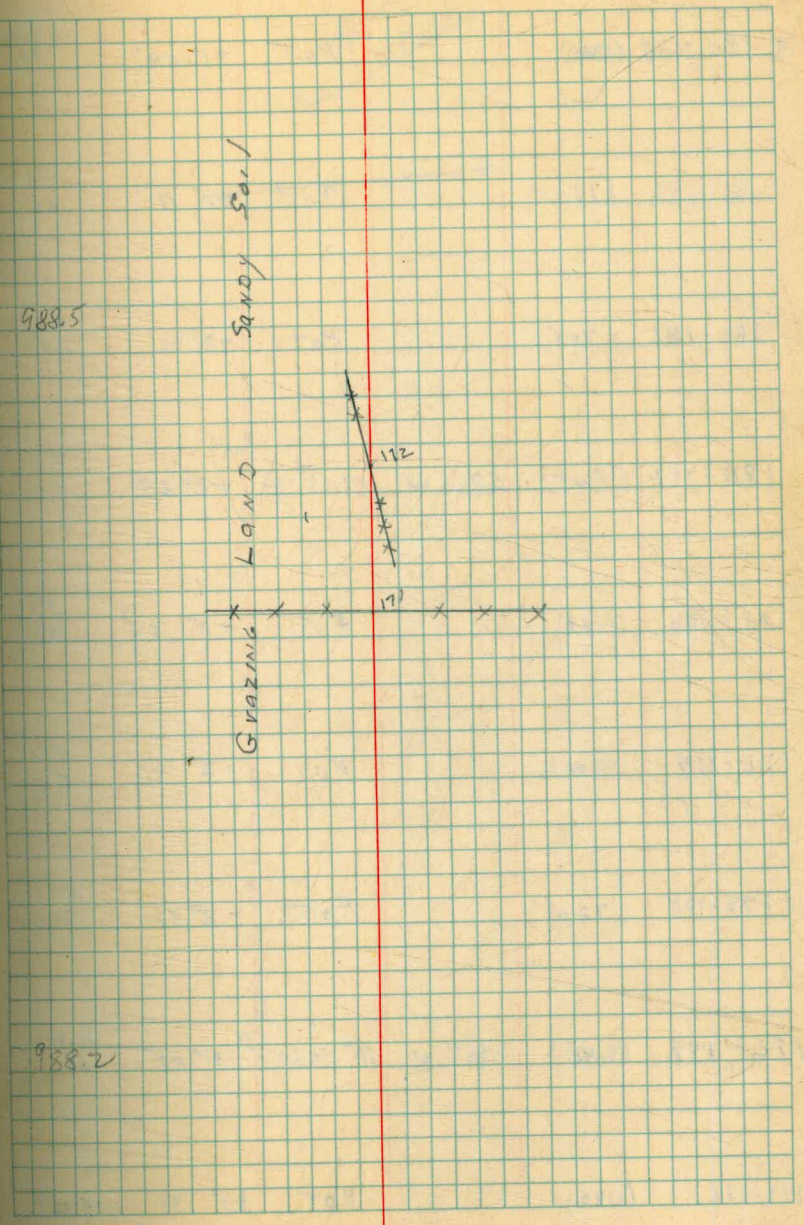
9748

Sandy Soil

GRAZING LAND



173-175 (605)	P.O.T	-1° 59'	5.0 5.0	
173-174 (405)	P.O.T	-3° 28'	12.0 5.0	
168-173 (1102)	P.O.T	0° 0'	4.7 5.0	
168-172 (710')	P.O.T	-2° 52'	5.0 5.0	
168-171 (405)	P.O.T	-3° 17'	10.0 5.0	
168-170 (220)	P.O.T	-4° 59'	5.0 5.0	
168-169 (145)	P.O.T	-6° 19'	9.0 5.0	
166-168 (292)	P.O.T	8 0'	8.6 5.0	
166-167 (145)	N 87 W	1° 33' 14"	0° 0'	13.7 5.0



180-184 (1385)		P.O.T.	+1° 04'	5.0
180-183 (1100)		P.O.T.	+0° 17'	9.0 5.0
180-182 (705)		P.O.T.	-2° 36'	5.0 5.0
180-181 (345)	S86½W	4° 43' Rt	-3° 28'	9.0 5.0
176-180 (1143)		P.O.T.	-0° 34'	5.1 5.1
176-179 (940)		P.O.T.	-2° 36'	5.1 5.1
176-178 (720)		P.O.T.	-2° 52'	5.1 5.1
176-177 (240')	S82½W	10° 50 Lt	-3° 47'	19.1 5.1
173-176 (1120)		P.O.T.	+0° 39'	5.0

1015.7



189.9

SANDY SOIL

ROCK OUTCROPPINGS

1001.2

190-191 205 N 63 $\frac{3}{4}$  W 8 $^{\circ}$  39' Lt -3 $^{\circ}$  31' 5.0  
5.0

189-190 158 N 53 $\frac{1}{2}$  W 17 $^{\circ}$  07' Lt 0 $^{\circ}$  0' 12.4  
5.0

187-189 502 N 38' W P.O.T. +2 $^{\circ}$  09' 4.9  
4.9

187-188 (105) 7 $^{\circ}$  53' Rt -0 $^{\circ}$  19' 4.9  
4.9

185-187 (425) P.O.T. +1 $^{\circ}$  53' 5.0  
5.0

185-186 (135) N 45 W 34 $^{\circ}$  58' Rt -4 $^{\circ}$  18' 5.0  
5.0

184-185 (481) N 81 W 12 $^{\circ}$  47' Rt +1 $^{\circ}$  18' 4.8  
4.8

1057.6 -16' E Road

1068.4 Correct Elev. 1065.0  
Site Book 670 P. 20  
Pt 189 is 3' higher # 6+60

1049.6

1075.6

-16' E Road

-12' E 10' Road

189

188

187

186

185

184

8.10 2.17 x 1.6

T 195-197 (956) P.O.T.  $-1^{\circ} 13'$  5.0  
5.0

195-196 (425) N81°W 78°54' Lt  $-2^{\circ} 54'$  5.0  
5.0

T 194-195 (276) N61½°W 61°18' Rt  $+1^{\circ} 17'$  4.9  
4.9

T 193-194 (115) P.O.T.  $0^{\circ} 0'$  16.4  
4.9

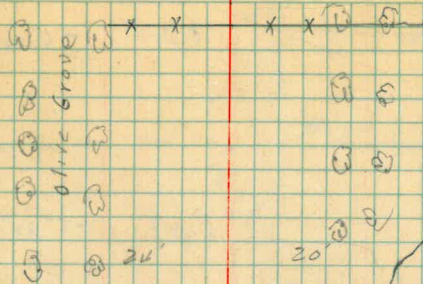
T 190-193 830 P.O.T.  $-3^{\circ} 59'$  5.0  
5.0

190-192 250 P.O.T.  $-4^{\circ} 10'$  20.0  
5.0

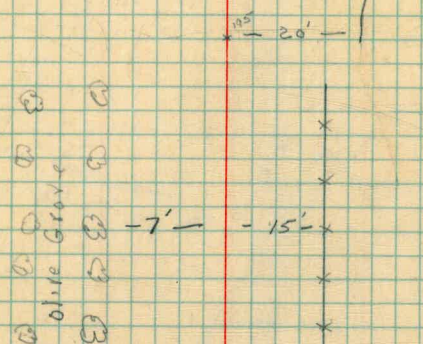
King 10-26-44  
Stten  
St. Phelps

28

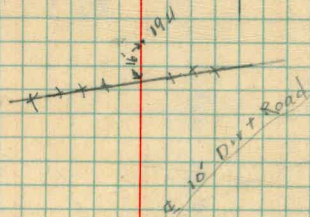
974.5



994.8



988.6



1000.1

199-202 422 P.O.T. -6°06' 4.9

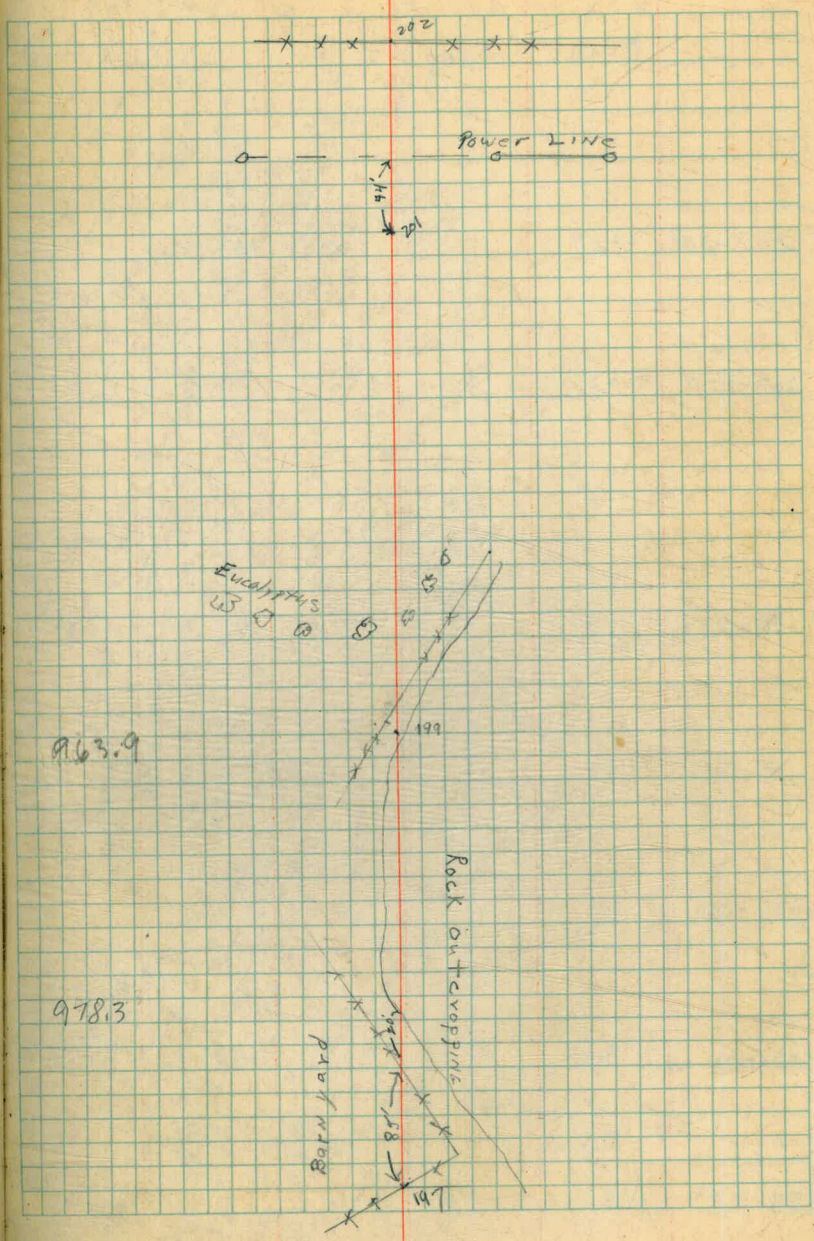
199-201 286 P.O.T. -5°31' 4.9

199-200 (175) N 85 1/2° W 21° 59' Lt -8° 03' 4.9

198-199 (157) P.O.T. -5° 16' 5.1

197-198 (1246) N 63 3/4° W 16° 58' +0° 53'

197-



963.9

978.3



END of Red "E" LINE

Began BROWN LINE - 209-211

∧ 207-209 (382) P.O.T. 0° 0' 5.5  
5.1

207-208 (205') P.O.T. -1° 30' 8.1  
5.1

∧ 199-207 (1548) P.O.T. -1° 39' 4.9  
4.9

199-206 (1150) P.O.T. -2° 50' 4.9  
4.9

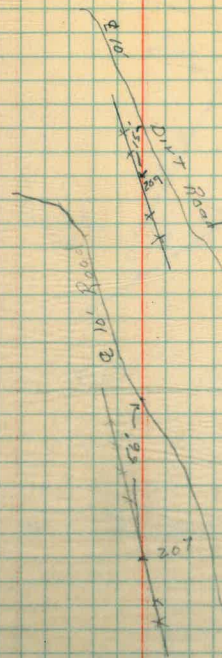
199-205 (960) P.O.T. -2° 55' 4.9  
4.9

199-204 (790) P.O.T. -4° 4.9  
4.9

199-203 (625) P.O.T. -4° 19' 4.9  
4.9

91899

919.3

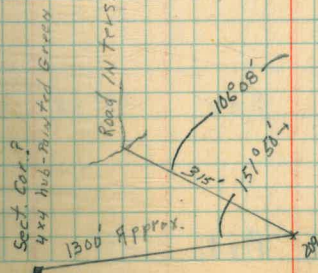
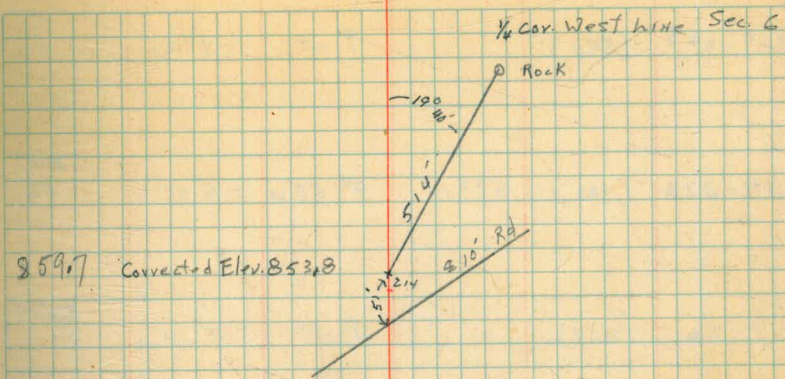


Plowed Field

Plowed Field

211-1/4 Cor	514'		-4° 06'	5.0	5.0
π 211-214	580		P.O.T. -6° 39'	13.0	5.0
211-213	(275)		P.O.T. -7° 37'	14.0	5.0
211-212	(115)	N 33 1/2 W	2° 21 1/2 R	0° 0'	16.5 5.0
π 209-211	(292)		P.O.T. +3° 04'	5.1	5.1
209-210	(162)	N 31 1/2 W	53° 42 R	0° 0'	6' 5.1

209



219-223	(590)	P.O.T.	-8° 30'	5.0 5.0
219-222	(100')	N73°W	9° 58' 44" - 6° 01'	8.0 5.0
219-221	(469)	P.O.T.	0° 0'	8.4 5.0
219-220	(345)	N63°W	29° 21' - 2° 17'	9.0 5.0
214-219	(1252)	P.O.T.	-2° 35'	5.0 5.0
214-218	(850)	P.O.T.	-3° 46'	13.0 5.0
214-217	(705)	P.O.T.	-3° 40'	5.0 5.0
214-216	(370)	P.O.T.	-8° 20'	8.0 5.0
214-215	(89')	P.O.T.	-9°	5.0 5.0

794.1

797.5

Sandy Soil

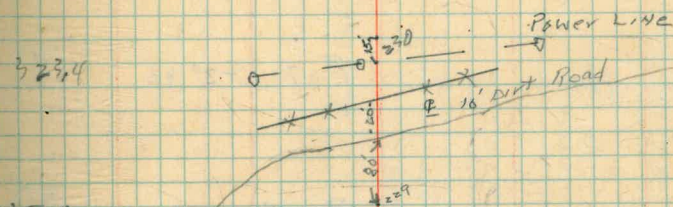
Rock Outcroppings

GRAZING LAND



230-231	276'	P.O.T.	-4° 07'	14.9 4.9
230-231	(255)	P.O.T.	-4° 03'	4.9 4.9
229-230	(571)	P.O.T.	-2° 57'	3.0 5.0
225-229	(1920)	P.O.T.	-7° 50'	4.9 4.9
225-228	(910)	P.O.T.	-9° 59'	4.9 4.9
225-227	(724)	P.O.T.	-12° 12'	4.9 4.9
225-224	(418)	P.O.T.	-15° 27'	5.9 4.9
224-225	(560')	P.O.T.	-13° 15'	4.9 4.9
219-224	(1112)	P.O.T.	-2° 57'	5.0 5.0

Began Bed Sweetwater River



752.8

Few Rock Out Crops  
Sandy Soil

612.0

736.9

= P#1 ON Reservoir Site			
237-239	(825)	P.O.T. +8° 19'	4.9 4.9
237-238	(305)	P.O.T. -2° 30'	11.9 4.9
235-237	(1075)	P.O.T. +12° 06'	4.9 4.9
237-236	(410)	P.O.T. -15° 0'	4.9 4.9
230-235	(1560)	P.O.T. +3° 04'	4.9 4.9
235-234	(660)	P.O.T. -8° 52'	4.9 4.9
235-233	(670)	P.O.T. -8° 56'	14.9 4.9
230-232	495	P.O.T. -1° 25'	11.9 4.9

745.1 NKDd Page 70  
748.2

Rock Outcroppings

627.0

406.7

sandy soil

244- 9° 52' Lt.

= Pt 266 ON GREEN LINE

242-244 (548) S. 87 $\frac{1}{2}$  W 4° 04' Rt -11° 58'  $\frac{50}{50}$

244-241 (140') P.O.T. +7° 18'  $\frac{50}{50}$

↗ 239-242 (890) P.O.T. -3° 04'  $\frac{110}{50}$

242-241 (295) P.O.T. -1° 45'  $\frac{50}{50}$

239-240 (380) S 83 $\frac{1}{4}$  W 23° 56' Lt -3° 50'  $\frac{130}{50}$

Defl. L ahead ON GREEN LINE

577.6 Elev. 577.9

697.6

4-17-47 KING  
Nienow  
White

3E

Stadia Survey From Tunnel #3-3 1/2 down  
T #1. Tunnel 70 DEF. 69° 24'

- T 1-2 486' 573 W 56° 43' LT.
- T 2-3 348' 588° 30' W 10° RT
- T 3-4 338' 568 W 120° 11' LT
- T 4-5 320' 535° W 32° 51' LT -70° 47' S. 10 S. 0
- T 5-6 152' +150° 47'
- T 5-6 (288)  
294 567° E 100° 09' LT -9° 07' S. 1 S. 1
- T 6-7 (118),  
121 150° 55' RT -8° 05' S. 1 S. 1
- T 6-8 (367),  
375 56° 30' E 10° 50' LT -8° 24' S. 1 S. 1
- T 8-9 (94')  
96 300° 02' RT -70° 38' S. 1 S. 1
- T 8-10 (142')  
144 546° 30' E 20° 41' RT -8° 08' S. 10 S. 0
- T 10-11 (59)  
60 28° 43' RT -70° 21'

Trail to Barrett Highway.

Tunnel #3

#1 is on East walkway 70' so. Tunnel Portal #3  
Backsite is S.E. cor. of S.E. 1/4 of N.E. 1/4 sec 8

Elev Sta 262 = 1485.87 Elev. #5 = 1445.3  
#5 Beginning of Trail

- 1399.2
- 1382.3
- 1345.0
- 1330.7
- 1324.7
- 1317.1

$\bar{\pi}_{10-12}$	(211) 216'	S 61° E	14° 57' RT	8° 33'	5.1	5.1	1293.0
$\bar{\pi}_{12-13}$	(170') 174'		19° 52' RT	-8° 23'	5.1	5.1	1267.8
$\bar{\pi}_{12-14}$	(194') 195'		26° 38' RT	-4° 21'	5.1	11.1	1272.3
$\bar{\pi}_{12-15}$	(216') 220'		19° 57' RT	-8° 0'	5.1	5.1	1262.7
$\bar{\pi}_{12-16}$	(325') 332'		50° 58' RT	-8° 26'	5.0	10.0	1245.0
$\bar{\pi}_{12-17}$	(460') 470'		2° 45' RT	-8° 20'	5.0	9.0	1221.5
$\bar{\pi}_{12-18}$	(659') 672'		4° 45' RT	-8° 11'	5.0	5.0	1198.4
$\bar{\pi}_{12-19}$	(775') 792'	S 65° E	5° 16' RT	-8° 45'	5.0	5.0	1174.0
$\bar{\pi}_{19-20}$	(271') 284'	S 76° 30' E	10° 02' RT	-12° 18'	5.0	5.0	1115.0
$\bar{\pi}_{20-21}$	(304') 315'	S 80° 30' E	4° 14' RT	-11° 08'	5.0	5.0	1038.6
$\bar{\pi}_{21-22}$	(39') 39'		78° 54' RT	-7° 09'	5.0	5.0	1033.9
$\bar{\pi}_{21-23}$	(218') 222'	N 80° E	9° 26' RT	-7° 42'	5.0	10.0	1009.1



(165')  
 T 23-24 173' S85°E 88°30'RT -12°23' 4.9 4.9

Elev

968.5

(212')  
 T 24-25 217' N.84°E 10°54'LT -9°28' 5.0 5.0

933.3

(145')  
 T 25-26 150' N47°30'E 16°33'LT -10°16' 5.1 5.1

907.0

(66')  
 T 26-27 66' S62°E 49°00'RT -5°42' 5.0 5.0

900.5 Elev. on Pav.

(115')  
 T 27-28 115' N21°30'E 98°LT 0.0

T 28 #1 N51°30'W 71°54'LT

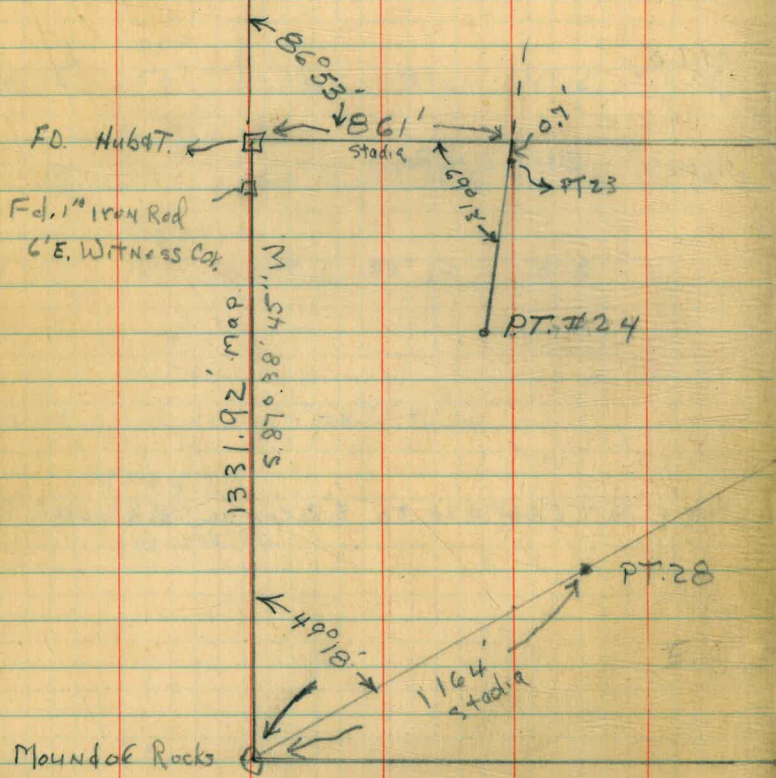
(1164)  
 1178

+06°19

Stadia Shot From #28 to S.E. Cor. of S.E. 1/4 of N.E. 1/4  
 of Sec. 8

Ties to Road From Tunnel  $\frac{1}{4}$  Dulzura Conduit  
To Barrett Road in Sec. 8

Surveyed by Alex & Rowe

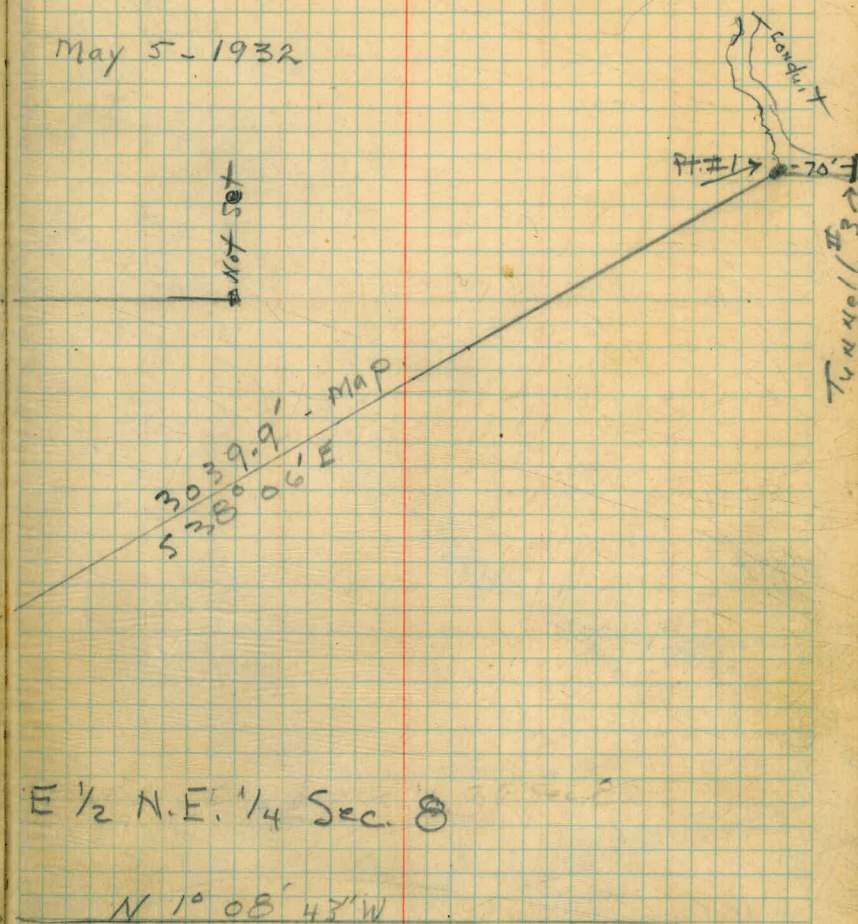


KING  
NICHOL  
WELTE

4-16-47

39

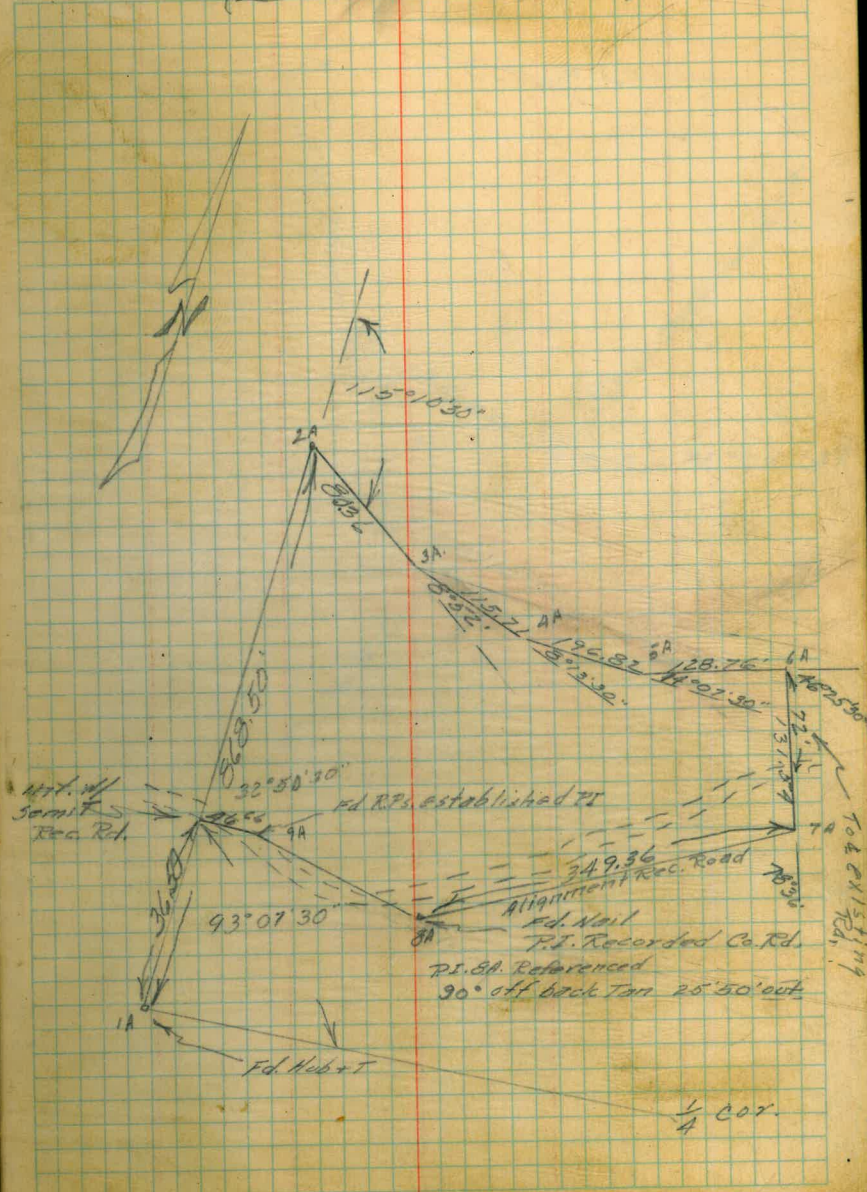
May 5 - 1932



Note If easement thru Wood prop. is obtained  
add. ties will be necessary.

1/16

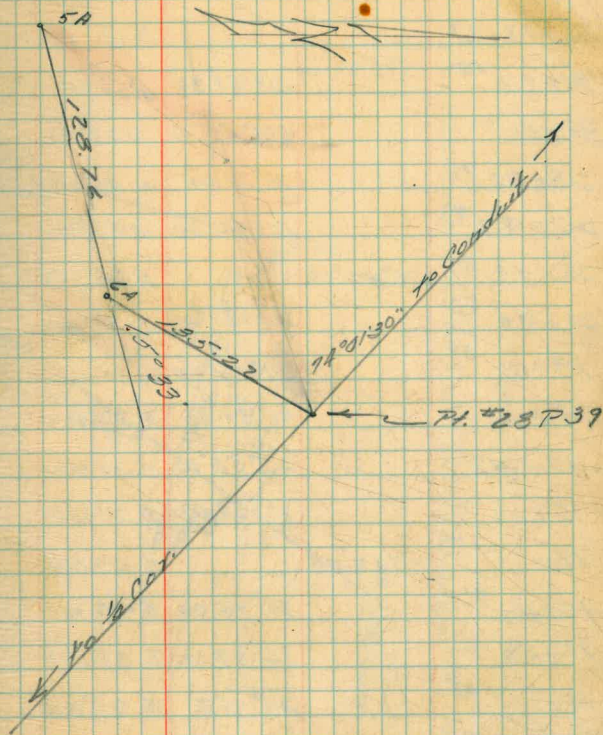
Tie To County Rd. Survey Rainey  
 June 30, 1947 (Barrett Dam) Niemoor  
 Baker AD



41 July 1, 1947

Rainey  
Nierow  
Baker

Tie to Stadii Traverse P39 41  
Barrett Dam



## Road Traverse around Tunnel #1

Sta	Lt	Rt	MAG Bearing
31+98 27			
31+93 62			S 8° 51' 30" N 58° 00" E
31+50 00			64° 55' 00" N 23° 00" E
28+90 76			10° 10' 00" N 45° 00" W
26+97 80			10° 52' 00" N 55° 00" W
25+49 00	21° 47' 00"		N 65° 00" W
21+93 80			43° 21' 00" N 39° 00" W
19+01 89			27° 06' 00" N 80° 00" W
18+42 72			41° 54' 00" S 72° 00" W
17+47 02			28° 53' 00" S 30° 00" W
15+29 80			1° 15' 30" S 01° 00" E
13+65 00	45° 08' 00"		S 04° 00" E
12+16 31			34° 43' 00" S 40° 00" W
11+43 25			36° 48' 00" S 09° 00" W
10+03 02			26° 53' S 29° 00" E
9+24 09	44° 06' 00"		S 55° 00" E
7+31 41	57° 56' 00"		S 12° 00" E
6+59 83			34° 14' 00" S 46° 00" W
4+06 15			47° 10' 00" S 14° 00" W
2+51 92	51° 35' 00"		S 33° 30" E
1+76 1			Beginning of Road
1+40 12 3			170° 00' 00" S 12° W
0+23.20 2	26° 32' 11"		N 20° E
0+00			North Tunnel Portal

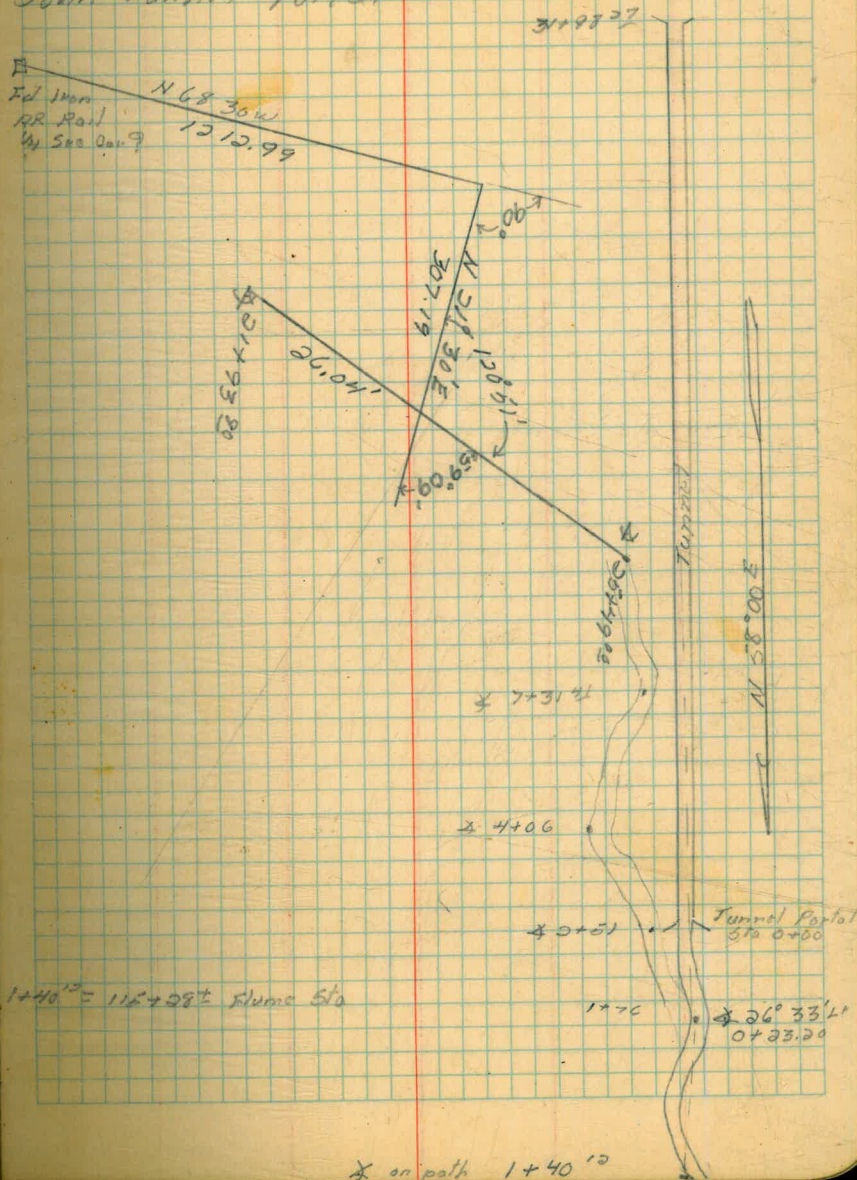
27 April 53

Cool

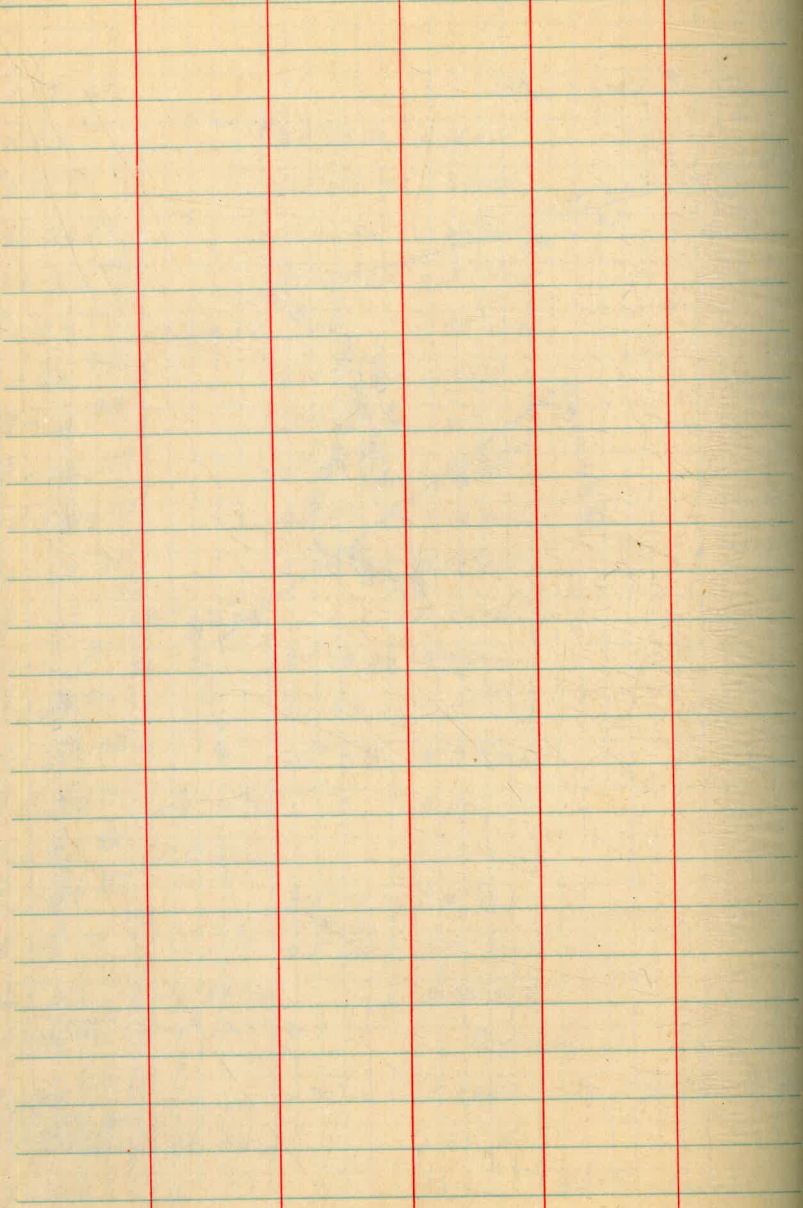
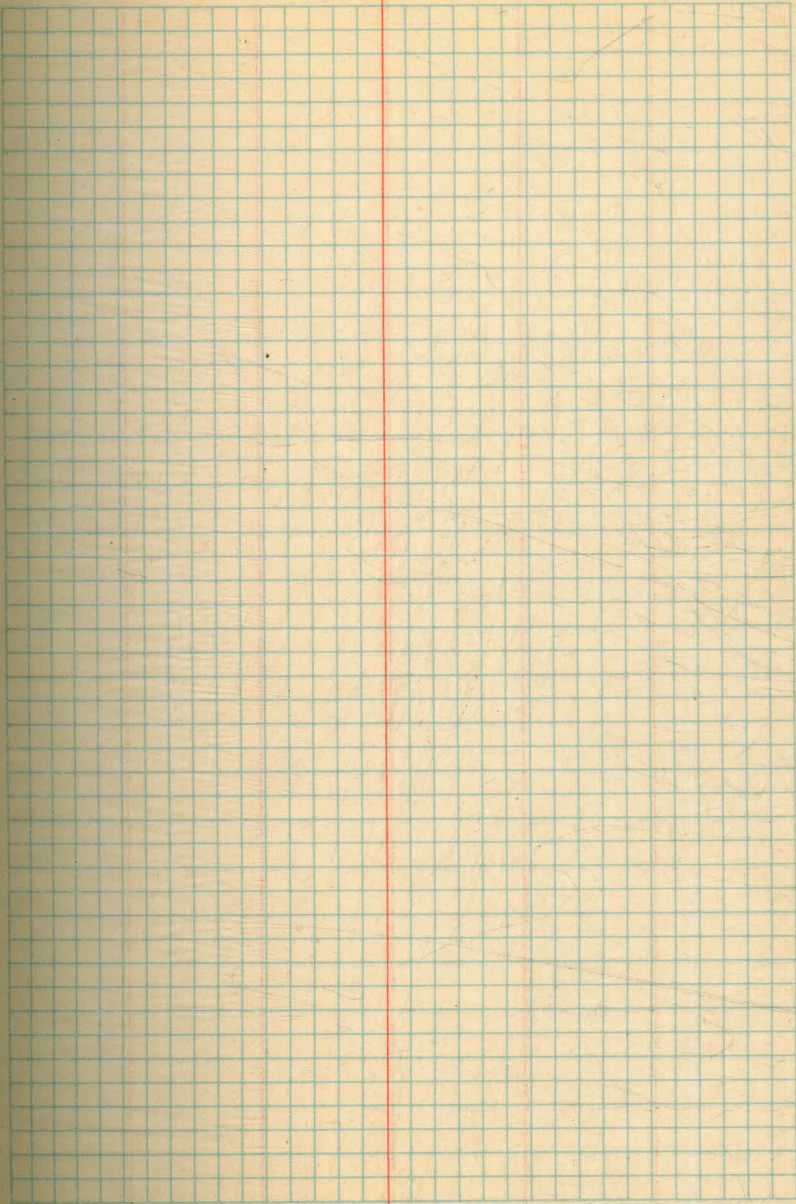
King  
West  
Williams  
Kearl  
Vapor fakes

42.

## South Tunnel Portal

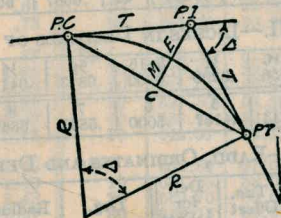


X on path 1+40 12



# DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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## 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)  $= R \div \cos \frac{\Delta}{2} - R$  (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  $1^\circ$  curve  $T = 3454.1$  and  $\div 8\frac{1}{3} = 414.49$  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 =  $.3 \times 54.5 \times 8\frac{1}{3} = 136.2'$  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  $1^\circ$  curve  $E = 960.6$  for  $8^\circ 20' = 960.6 \div 8\frac{1}{3} = 115.27$  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  $D = 5^\circ 30'$ .

89  
97 90  
116.90  
23.20  
140.10  
111.70  
251.82

2 (143 104  
48  
71 54

Portal to Z 23.20 26° 33' 11"

140.10 x

55  
11  
10

780  
1570

780  
560



~~2013~~ 880 = 34  
 19  
 #4 7493.26

5-24  
 6-24  
 1066  
 1063  
 2/29 14 54  
 2/21 7 20  
 967.2  
 1.5  
 918.7  
 2/41 83  
 20 41 83  
 2/197 90  
 43 45  
 196.8  
 262  
 29  
 37.1  
 262  
 381.9  
 21  
 388.5  
 57.8  
 2/65 38.2  
 80  
 32 38  
 2/59 63  
 71 88  
 7 31 41  
 457.3  
 448.5  
 8.8  
 57.3  
 144  
 108  
 46  
 130  
 752  
 144  
 500  
 8.9  
 72  
 54  
 108  
 46  
 782  
 156  
 13  
 402  
 858

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

### 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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