

W 159

459

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AGENTS FOR

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"GURLEY" SURVEYING and HYDRAULIC INSTRUMENTS
"CHICAGO" STEEL TAPES, etc.

Level Notes and Side slopes
of Road around S. ^W side
of El Capitan Reservoir ^{Dam to Intersect}
with Road E of City Camp. 1-7
Profile and slope stakes on 6.4% Road. 9-10
5% line Foster to Oat Hill 12-18
7% line from pt. 34 (= 2 on 67.)
to Foster 19-22 %

road
Run
June 1935
F B 335

id
k

El Capitan Reservoir - Road
around South-east Side of Res.

765.00 B.M.

11.13	776.13		
		01.00	776.13
12.42	788.55		
		0.00	788.55
9.00	797.55		
27+654	= Dam Axis	5.3	92.2
27+50		7.9	89.6
+30		7.9	89.6
27+00		4.5	93.0
26+529	P.I.	4.2	93.3
26+00		10.6	87.0
		12.87	784.68
11.22	785.90		
25+85		7.5	78.4
25+50		7.1	78.8
25+00		11.90	773.00
1.77	775.77		
24+50		2.0	73.8
24+20°	P.I.	6.3	69.5
24+00		12.0	63.8
		13.00	762.77
1.38	764.15		
23+65		13.2	51.0

12/8/33

side slopes

15	12	52	50	
0°	-41°	-33°	+33°	} Rock 75%
14	15	49	120	
0°	-46°	-33°	+34°	
18	18	55	120	
0°	-49°	-30°	+30°	
15	8	54	75	
0°	-48°	-29°	+21°	
	10	27	100	
	0°	-31°	+38°	
10	4	35	150	
0°	-90°	-34°	+22°	
38	10	41	29	
-22	-91°	-33°	+33	60
		Fl.		+16°
				} Solid Rock
8	80	26	5	
90°	-23°	Fl.	0°	50
			0°	100
				+31° +16°

Road Level Notes
of road around Reservoir

	764.15		
23+50	10.6	53.5	
23+25	3.4	60.7	
22+90	11.5	52.6	
	12.43	751.72	
22+47.5	P.I.	751.5	
	5.70	757.42	
22+00	5.5	51.9	
21+50	5.9	51.5	
21+00	5.6	51.8	
20+50	5.3	52.1	
20+00	5.8	51.6	
19+50	5.8	51.6	
19+00	5.0	52.4	
18+50	6.0	51.4	

P.O.C.
Moore
Thurston

12/8/23 (2)

90% Solid Rock

50ft south of
Flume spill
overlays
rock

25	14	16	14	100		
-41°	0°	± Fl.	-42°	+ 27°		
40	14	2	20	100		
-37°	0°	7 Fl.	+35°	+ 27°		
35	3	6	12	15	100	
-35	0°	± Fl.	0°	+45°	+28°	
25	4	5	12	15	100	
-33°	0°	± Fl.	0°	+45°	+36°	
30	6.5	14	40	30		
-39°	± Fl.	0°	+40°	+70°		
45	1	7	14	40	100	
-40°	0°	± Fl.	0°	+40°	+31°	
50	6	7	12	12	100	
-45°	0°	± Fl.	0°	+40°	+27°	
80	1	8	13	20	150	
-28°	0°	± Fl.	0°	+42°	+31°	
100	12	18	12	15	100	
-32°	± Fl.	0°	+90°	+41°	+25°	
100	4	6	12	30	100	
-35	0°	± Fl.	0°	+45°	+25°	
100	15	7	13	15	100	
-29	-85	0°	± Fl.	0°	+40°	+22°

Road Survey around Reservoir
Level Notes & X-sections

	757.42		
18+08.3 P.I.	5.7	51.7	
	4.60	752.82	
	3.42	756.24	
17+38.6	4.3	51.9	
	6.7	49.5	
17+00	12.75	743.49	
	0.70	744.19	
16+58	16.3	27.9	
	12.2	32.0	
16+00	12.43	731.76	
	0.31	731.07	
15+50	9.8	21.3	
	12.67	718.40	
	0.45	718.85	
15+05	5.5	13.3	
	12.8	06.0	
14+95	7.8	11.0	
	13.10	705.75	
	0.03	705.78	
14+00	5.3	700.5	

P.O.G
Moore
Thurston

12/8/33 (3)

90% Rock

75% Soil

100	1	9	14	12	100	soil	
-32°	00	± Fl.	00	+80°	+230		
180	10	3	10	12	200	soil	
-28°	00	± Fl.	00	+45°	+220		
25	30	13	4	18	25	100	
-29°	00	90°	00	± Fl.	00	+25°	
90	12	5	15				
-28°	00	± Fl.	25	+80			
Many large caps	100	30	22	14	7	10	NO
to left of line	-25°	+20°	+27	± Fl	00	+45°	+29
50	40						
-28°	-18°	+25°					
75	114	13					
-23	+21°	± Fl					

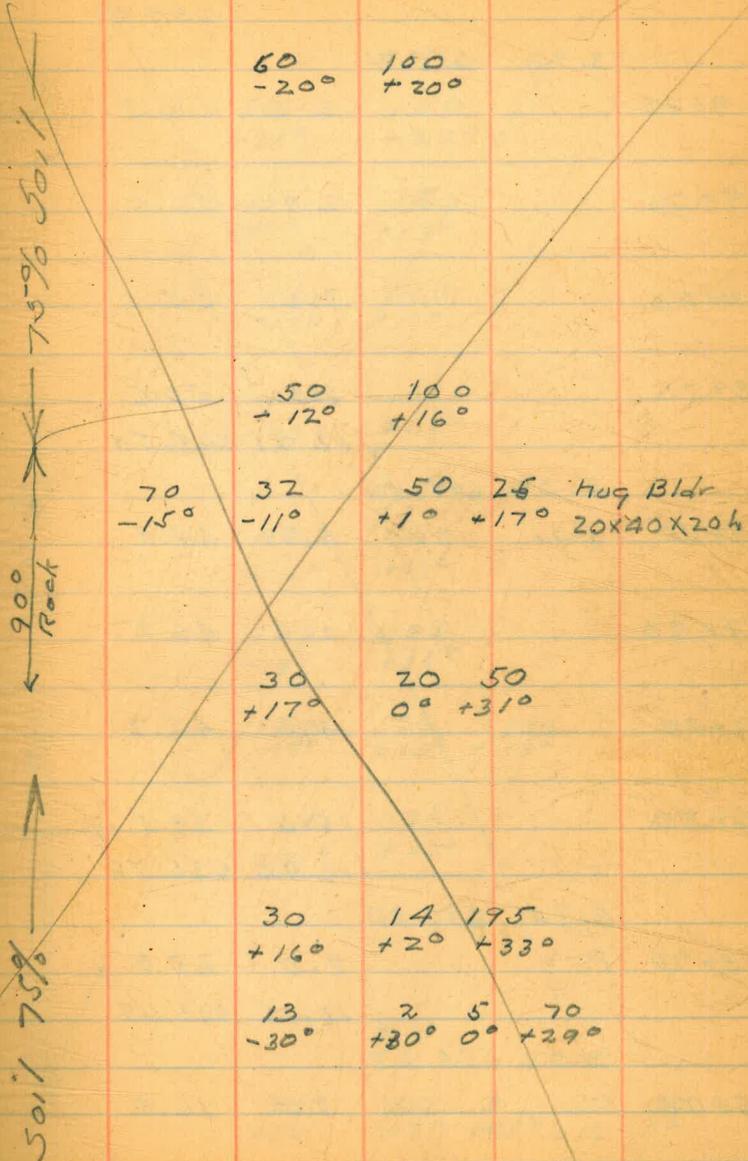
Level & X-section of road
around Reservoir

Station	Level	X
13+50	705.78	6.5 699.3
13+00		8.4 97.4
12+75		16.0 89.8
12+50		12.0 93.8
12+30 ²⁵		8.3 97.5
11+98 ⁵	P.I. 0.03	12.80 692.98
		12.31 680.70
	0.44	681.14
11+50		13.3 67.8
		13.25 667.89
	0.52	668.41
	0.80	656.41
11+00		11.8 44.6
10+50		14.0 42.0
10+00		6.7 49.7
		1.66 654.75

TR3' west
on rock

20.6
Moore
Thurston

12/9/33 (4)



Level & X-Sections of road
around reservoir

			654.75
	3.96	658.71	
9+70		2.2	56.5
9+50		2.7	56.0
9+00		3.6	55.1
8+50		8.1	50.6
		13.21	645.50
	4.00	649.50	
8+00	P.I.	4.7	44.8
7+50		2.6	46.9
7+00		4.3	45.2
6+50		10.0	39.5
		12.94	636.56
	0.24	636.80	
6+20	P.I.	8.0	28.8
		13.15	623.65
	2.02	625.67	
6+00		9.3	16.4

P.O.G.
Moore
Thurston

12/8/33

⑤

Soil 75%

50 150
-24° +20°

100 180
-19° +19°

140 140
-17° +17°

100 100
-17° +17°

40 100
-12° +17°

100 100
-18° +18°

100 30 100
-18° +16° +18°

25 75
-21° +21°

30 40 8 50 30
+12° +7° +45° +19° 0°

Level & X-Section notes of
road ground reservoir

	625.67		
5+50	10.1	15.7	
5+25	14.0	11.7	
5+15	6.0	19.7	
5+00	3.1	22.6	
4+785	2.5	23.2	
4+50	7.0	19.7	
	13.22	612.45	
0.25	612.70		
4+00	5.1	07.6	
3+75	11.6	01.1	
3+50	8.0	04.7	
	12.89	599.86	
1.25	601.11		
3+145	P.I.	+1.0	602.1
3+00		2.9	598.2

P.O.G
Maorc
Thurston

12/8/33

	25	40	80
	-12°	+2°	+12°
	30	20	
	-11°	+13°	
	30	30	50
	-5°	+11°	+13°
	40	14	100
	0°	+2°	+24
	30	60	
	-29°	+29°	
	50	75	
	-20°	+33°	

Rock 50%

Level X-X-Section
notes of road ground reservoir

	601.11		
2+75	10.0	591.1	
2+50	4.6	96.5	
2+00	8.6	92.5	
	12.85	588.26	
2+94	591.20		
1+50	P.I.	4.3	86.9
1+00		3.2	88.0
0+70		3.9	87.3
0+50		9.5	81.7
0+00		10.5	80.7
-1+00		12.4	78.8
-2+00		14.4	76.8
		8.90	82.3
ground at pipe line sta. 17+50		11.85	579.4 = 80.8

83/6
P.7

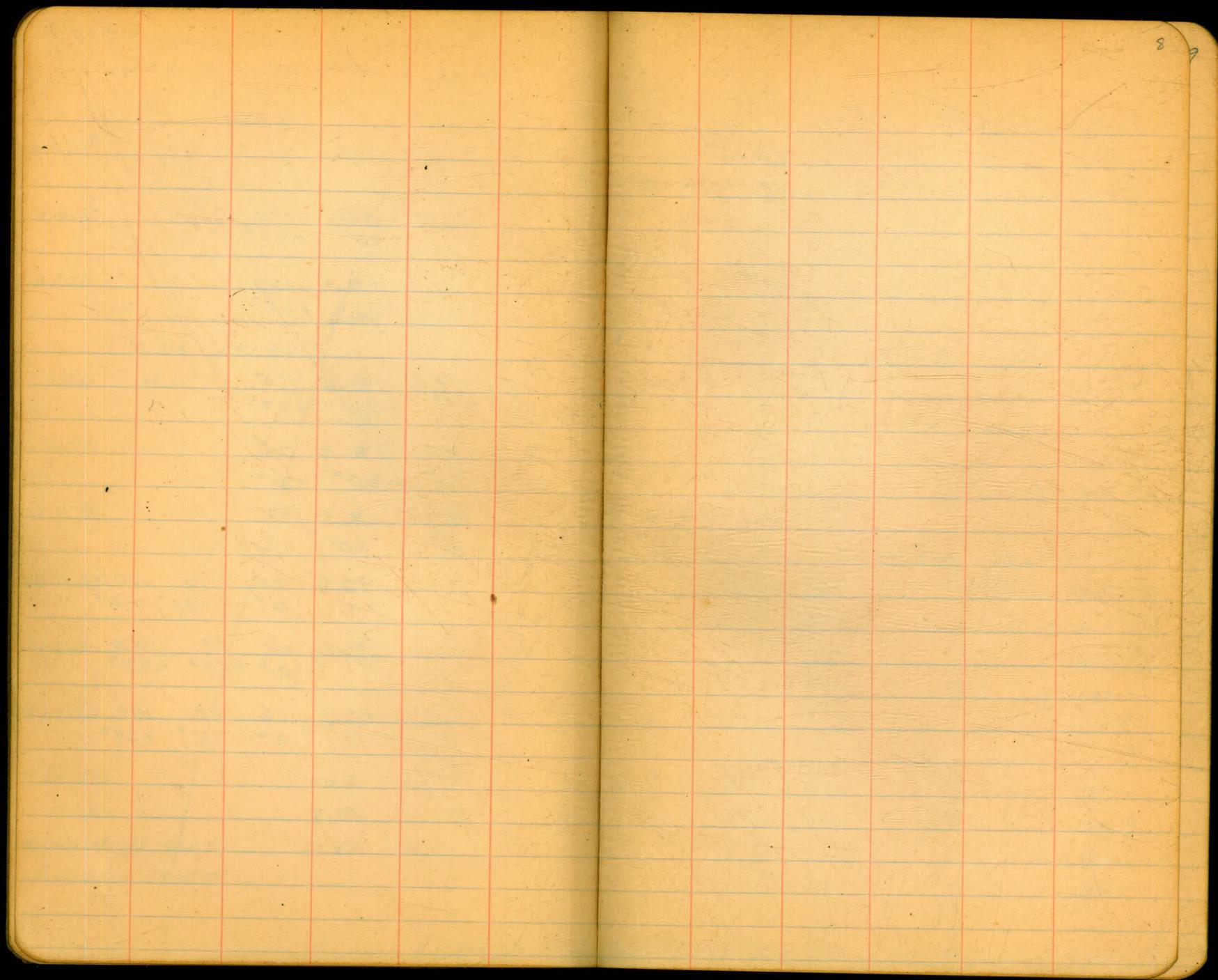
P.O.G
Moore
Thurston

12/8/33 7

35 by 7 1/2
Sec 18 335
field

	40	100		
	-25°	+25°		
	40	100		
	-26°	+28°		
12	8	14	75	
0°	-90°	-26°	+27°	
12	8	12	75	
0°	-90°	-20°	+21°	
12	8	12	75	
0°	-90°	-20°	+21°	
	30	10	10	100
	0°	0°	+80°	+29°
	18	15	14	100
	0°	0°	+50°	+29°
	18	13	18	100
	0°	0°	+75°	+29°

road

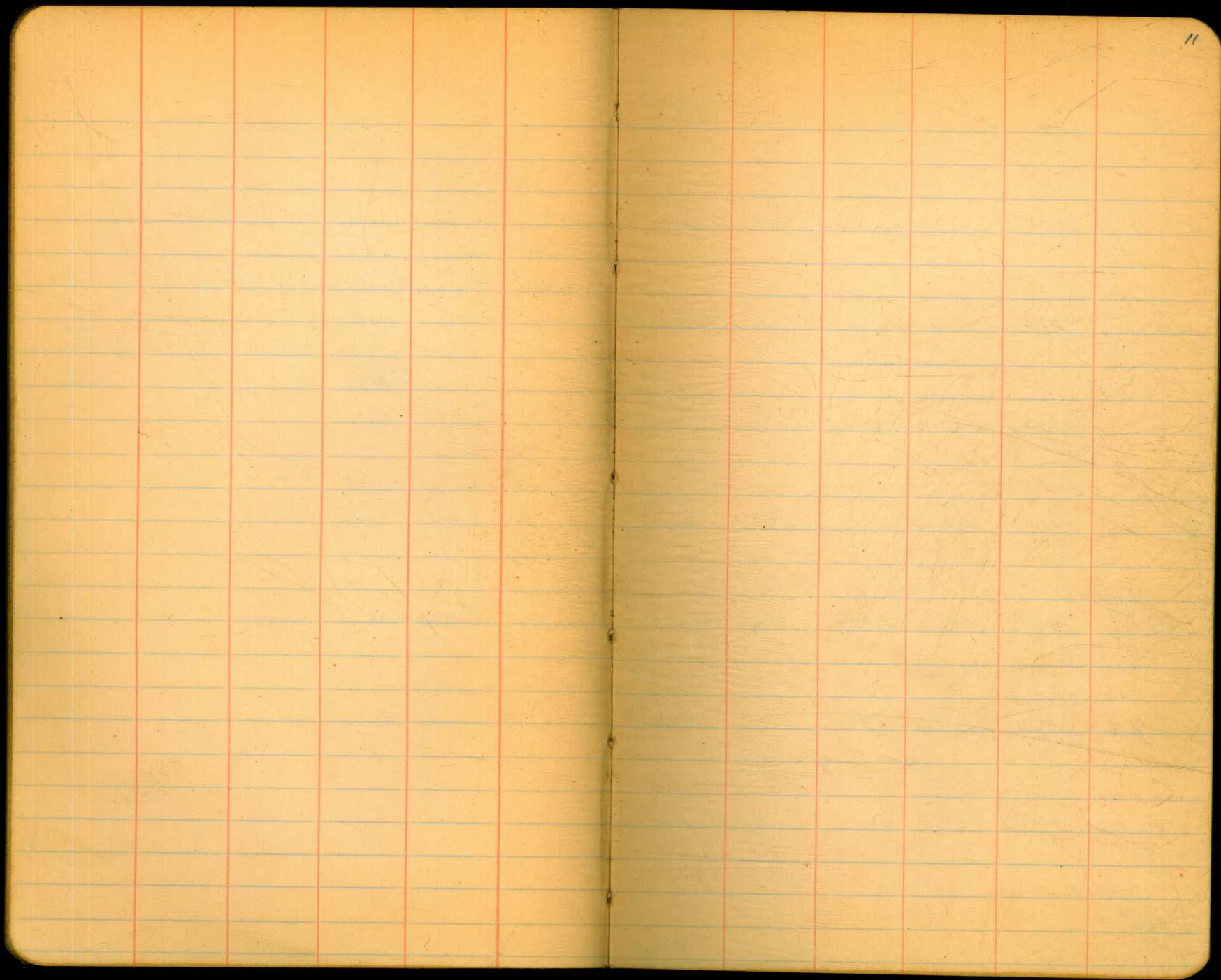


Jan. 8. 1937

Soper
L. S. Bell
Remmen.Profile over portion of 6.4% Road to top
of Dam, for use in setting slope stakes.

Grades, alignment and slope stakes in Book 335.

				Grade		
B.M.	1.55	771.22		769.67		
TP			12.91	758.31		
	2.28	760.59				
TP			8.67	751.92		
	3.20	755.12				
4+36.87 Ext.			10.4	744.7	743.0	c 9.2 17.6
TP			12.96	742.16		1.7
	0.76	742.92				
4+68.38 EC.			0.7	42.2	741.0	c 11.6 (under flume) 18.8
5+17.21 A			5.4	37.5	736.9	(under flume) 0.6
5+61.10			7.4	35.5	735.1	c 9.7 17.9
6+00			10.1	32.8	732.6	c 12.6 19.3
TP			12.81	730.11		
	1.00	731.11				
6+50			1.4	729.7	729.4	c 20.1 23.1
7+00			4.9	26.2	726.2	c 18.8 22.4
skengrade - 7+00			4.9	26.2	726.2	
+50			5.9	25.2	723.0	c 0.9 13.5
8+00			10.8	20.3	719.8	c 0.9 13.5
+50			11.7	19.4	716.6	c 2.7 23.9



5% line from Foster to Cat Hill

9/10/38 Hot

Hill
Osborne
Isbell
Leckey
Brooks

12

Sta.	Dist.	Hor. Δ	Vert. Δ	H.L.	Rod + Elev.	Mag. Bearing
6 to 7	128.7 (125')	24°18'R	+2°52'	5.0	5.0	
4 to 6	589.6 (590')	18°20' 9°10'L	+2°52'	4.9	4.9	N69°30'W grade
4 to 5	297.3 (297')	19°12'R	+2°52'	4.9	4.9	grade 5' cut at pt. 4
3 to 4	1020.0 (1020')	6°33' 3°46'30"R	+1°50'	5.2	5.2	N61°W
7 to 3	873.9 (875')	P.O.T.	+2°51'	5.0	5.0	
1 to 2	631.0 (630')	6°00' 30°03'L	-0°03'	5.0	5.0	
0 to 1	991.0 (990')	P.O.T.	+0°13'	4.8	4.8	N19°30'W (cont.)

510 ft on back
long. of prod. line0
CA Foster line

(cont.)

Sta.	Dist.	Hor. Δ	Vert. Δ	H.I.	Rods Elev.	Mag. B.	
14 to 15	609.5 (610')	279°45'30"	139°52'30" L +2°52'	4.9	4.9	S 25°30' W	Pt. 14 in draw - L +18% 100' +10'-200' R +40% 150'
13 to 14	729.2 (730')	3°27'30"	1°44' R +2°52'	4.9	4.9	N 15° W	Pt. 13 side slopes L. -30% 125' to draw R +35% 100'
12 to 13	439.9 (440')	31°52'	15°46' R +2°52'	5.0	5.0	N 16°30' W	
11 to 12	159.6 (160')	42°25'	21°12' R +2°52'	5.1	5.1	N 31°30' W	
10 to 11	72.8 (72')	59°29'30"	29°45' R +2°52'	5.0	5.0	N 54° W	
9 to 10	115.7 (115')	40°05'	20°08' R +2°52'	4.8	4.8	N 82°30' W	
8 to 9	160.6 (160')	50°50'	17°55' R +2°52'	4.7	4.7	S 77° W	
6 to 8	579.7 (580')	102°12'	51°05' L +2°52'	5.0	5.0	S 57°30' W	

(cont.)

Sta.	Dist.	Hor. Δ	Vert. Δ	H.L.	Red. Elev.		
21 to 23	714.8 (720')	P.O.T.	+5°23'	5.1	5.1		cut 31.3 at " 23
21 to 22	569.6 (578')	41°35' 20°48'R	+2°52'	5.1	5.1	N 39° W	Pt. 21 side slopes L - 44% 150' draw R + 35% 100'
18 to 21	386.1 (386')	P.O.T.	+2°52'	4.9	4.9		
18 to 20	191.9 (195')	3°14' 1°37'R	- 8°20'	4.9	14.0	N 61° 30' W	
18 to 19	232.4 (232')	28°23'R	+2°52'	5.0	5.0		Pt. 18 side slopes L - 40% 300' draw R + 35% 100'
17 to 18	187.5 (187')	63°59' 31°22'30'R	+2°52'	4.9	4.9	N. 65° 30' W	Pt. 17 side slopes L - 38% 400' draw R + 35% 100'
16 to 17	80.8 (80')	70°20'58" 45°10'R	+2°52'	5.0	5.0	S 54° 30' W	
15 to 16	92.8 (92')	29°41'30" 14°51'R	+2°52'	5.0	5.0	S 43° W	Pt. 15 side slopes L - 45% 250' R + 40% 50'

(cont.)

9/17/38

Sta.	Dist.	Hors Verta	H.L.	Rod + Elev.	Mag. B	
29 to 30	84.8 (84')	114°03' 57°26'30"R +2°52'	4.9	4.9	N. 37°30'W	in line with pt. 27 Pt. 29 side slope ~12% 200' ± to draw R. up hogback +30' 200' base of A
28 to 29	263.4 (263')	224°04' 112°02'L +2°52'	4.8	4.8	S 86°30'W	pt. 28 side slopes 75% indraw
27 to 28	115.0 (115')	64°20' 32°18'R +2°52'	5.0	5.0	N 18°E	pt. 27 side slopes L -10° 150' R +10°30' +10°150'
26 to 27	97.1 (100')	P.O.T. -7°59'	5.2	5.2		
↓ 24 to 26	656.9 (660')	P.O.T. +4°33'	4.8	4.8	N 15°W	pt. 24 side slopes L -45° 150' R +15°30' +20°450'
24 to 25	509.0 (508')	57°09' 25°34'30"R +0°29'	4.8	4.8		
23 to 24	139.4 (140')	P.O.T. -6°11'	4.9	13.9		
on sep. line 23 to pt. N1 (back sight on pt. 21)	(290')	264°04' 132°02'L -1°27'	4.9	14.0	S 8°W = direct. at hogback & slope	

(cont.)

Sta.	Dist.	Hor. Δ	Vert. Δ	H.I.	Rods Elev.	Mag. B.	
37 to 38	339.2 (339')	29°35'30" 14°48'R	+2°52'	5.0	5.0	N 0°30'E	pt. 37 side slopes L - 35° R + 30°
36 to 37	55.9 (55')	89°46'30" 4°20'R	+2°52'	5.1	5.1	N 16°30'W	
35 to 36	198.5 (198')	82°11' 41°06'R	+2°52'	5.1	5.1	N 69°30'W	pt. 35 side slopes L - 30°-100' R + 30% 100', + 15°-100'
34 to 35	65.8 (66')	73°47' 46°53'30'R	+2°52'	4.8	4.8	S 80°W	pt. 34 side slopes 40%
32 to 34	439.9 (440')	76°03' 37°51'30'L	+2°52'	4.8	4.8	S. 92°W	
32 to 33	166.6 (166')	23°22'L	+2°52'	4.8	4.8		pt. 32 side slopes 42%
31 to 32	415.0 (415')	187°54'30" 93°47'L	+2°52'	4.3	4.3	S 69°W	pt. 31 side slopes 35% 100' down
30 to 31	216.5 (216')	42°12' 21°06'R	+2°52'	5.0	5.0	N 16°30'W	pt. 30 side slope - perp. to pt. 31 L - 40% 150' down R + 35% 30', + 10% 50'

(cont.)

Sta	Dist	Hor Δ	Vert Δ	H.I.	Rod & Elev	Mag. B
43 to 45	575.8 (576')	P.O.T.	+2'41"	5.1	5.1	
43 to 44	291.3 (292)	^{28°01'} 17°00'30"R	-1'50"	5.1	5.1	N 11° E
39 to 43	974.6 (975')	^{36°07'} 18°03' L	+2'18" ✓	4.7	4.7	N 9° W
39 to 42	588.2 (588')	17°40' L	+2'18"	4.7	4.7	
39 to 41	116.1 (115')	16°28' L	+2'18"	4.7	4.7	
39 to 40	215.7 (215')	18°06' R	+2'18"	4.7	4.7	
38 to 39	181.7 (182')	^{31°05'} 15°33' R	+2'18"	4.8	4.8	N 14° E

Pt 43 side slopes 28%


Pt 39 side slopes 40%

Pt 38 side slopes 35%

(cont.)

Sta.	Dist.	Hor. Δ	Vert. Δ	H.L.	Rods Elev.
------	-------	--------	---------	------	---------------

47 to N 1			66° 50' 30"		
			33° 25' 2"		
0. pt. Easter line.					
45 to 47	860.6 (860)	P.O.T.	+1° 13'	5.1	5.1
45 to 46	488.7 (488)	P.O.T.	-1° 29'	5.1	5.1

7% line from pt 52 of old
6% line to Foster

Sta	Cor Dist.	Horz Ang	Vert Ang	H.I	Rod
39 to 42 40 = 55 6% Line	653.8 (655)	A Pt.	-1° 03	5.2	5.2
39 to 40	324.8 (324)	P.O.T.	-1° 23	5.2	7.2
37 to 39	581.0 (580)	P.O.T.	-0° 07	5.0	5.0
37 to 38	316.0 (315)	P.O.T.	-1° 51	5.0	5.0
34 to 37	481.0 (480)	P.O.T.	-1° 09'	5.1	5.1
34 to 36	226.0 (225)	P.O.T.	-1° 24	5.1	9.1
# 34 to # 35	37.0 (37)	15° 39 7° 49 Lt	+1° 05	5.1	5.1
# 34 = 52 6% Line.		Backsighted on 32 - 7%			

Hill
Osborne
Isbell
Leckey
Brooks.

9-30-38

19

Mag Ber

$\frac{+21.70}{100}$

$\frac{+8.70}{75}$

$\frac{-8.70}{150}$

$\frac{+2.70}{150}$

$\frac{-9.70}{50}$

$\frac{-12.70}{100}$

$\frac{+9.70}{150}$

$\frac{-9.70}{150}$

$\frac{+17.70}{125}$

$\frac{-10.70}{150}$

$\frac{+29.70}{60}$

$\frac{+34.70}{100}$

$\frac{-32.70}{30}$

$\frac{-16.70}{100}$

$\frac{+29.70}{150}$

$\frac{-14.70}{150}$

$\frac{+29.70}{150}$

$\frac{-29.70}{50}$

$\frac{-29.70}{125}$

$\frac{+25.70}{125}$

$\frac{-29.70}{25}$

$\frac{-13.70}{125}$

N 83 E

Sta	Cor. Dist	Horz Ang	Vert Ang	H1	Rod	Mag. Bar.					
47 + 48	156.4 (157)	P.O.T.	-5°45'	5.1	11.1		$\frac{+16\%}{100}$	$\frac{-10\%}{40}$	$\frac{+21\%}{35}$	$\frac{-15\%}{75}$	$\frac{-6\%}{90}$
47 to 51	868.8 (870)	11°16' 5°58'30" Rt	-2°50'	5.1	5.1	564°E		$\frac{0\%}{200}$	$\frac{0\%}{200}$		
47 to 46	190.4 (190)	P.O.T.	-3°06'	5.1	11.1		$\frac{+34\%}{120}$	$\frac{+17\%}{30}$	$\xrightarrow{\text{wash}} \frac{-17\%}{125}$		
44 + 45	183.0 (182)	P.O.T.	-0°41'	5.1	5.1		$\frac{+42\%}{70}$	$\frac{+20\%}{90}$	$\frac{-18\%}{120}$	$\frac{-31\%}{50}$	
44 to 47 47-83=23	485	29°06' 14°33' Rt	00	5.1	5.1	568°30'E	$\frac{+33\%}{125}$	$\frac{+14\%}{30}$	$\frac{-2\%}{75}$	$\frac{-38\%}{90}$	
42 to 43	167.0 (150)	P.O.T.	+1°09'	5.2	5.2		$\frac{+18\%}{125}$	$\xrightarrow{\text{wash}} \frac{-12\%}{80}$	$\frac{-16\%}{60}$		
42 to 44	310.9 (311)	19°31' 9°46' Rt	+3°25'	5.2	5.2	584°30'E	$\frac{+25\%}{100}$	$\frac{+14\%}{65}$	$\frac{-12\%}{200}$		
42 to 41	220.3 (220)	P.O.T.	-3°03'	5.2	5.2		$\frac{+18\%}{70}$	$\frac{+5\%}{80}$	$\xrightarrow{\text{wash}} \frac{-5\%}{150}$		

#42 = 56 L% line.

	Sta	Cor Dist	Horz Ang	Vert Ang	H.I	Red	Mag Ber		
4	55 to 57	205.0 (204)	P.O.T	+0°16'	4.8	4.9		Level	
	55 to 56	157.0 (156)	P.O.T	-0°14'	4.8	4.8	S Edge of Stream Bed	Level	
	51 to 55	571.0 (570)	P.O.T	-0°27'	4.9	4.9	E of Stream Bed	Level	
	51 to 54	493.0 (492)	P.O.T	-0°29'	4.9	4.9	N Edge of Stream Bed	Level	
	51 to 53	485.0 (484)	P.O.T	-0°20'	4.9	4.9		Level	Level
	51 to 52 51 = B-1	317.0 (316)		60°10' 30°05' RT +0°04'	4.9	4.9	S 34° E	Level	Level
	51 to 50	293.0 (292)	P.O.T	-0°10'	4.9	4.9		$\frac{0}{200}$	$\frac{0}{200}$
	51 to 49 49 = B.	631.0 (630)	P.O.T	-0°04'	4.9	4.9		$\frac{0}{200}$	$\frac{0}{200}$ Toe of Slope

Sta	Cor. Dist	Horz Ang	Vert Ang	Hi	Rod	Mag Bar
Edge of Pavement. 55 y Branch	(214)		13° 26'	4.8	4.8	Edge of Pavement
Top of Slope. 55 y Branch	(139)	64° 50' Lt	+0° 07'	4.8	4.8	Top of slope.
55 to 60	571.0 (570)		+0° 01'	4.8	4.8	BC of Pavement Curve.
55 to 59	431.0 (430)	P.O.T	+0° 12'	4.8	4.8	Top of Burm.
55 to 58	391.0 (390)	P.O.T	-0° 06'	4.8	4.8	Level

4

0+00

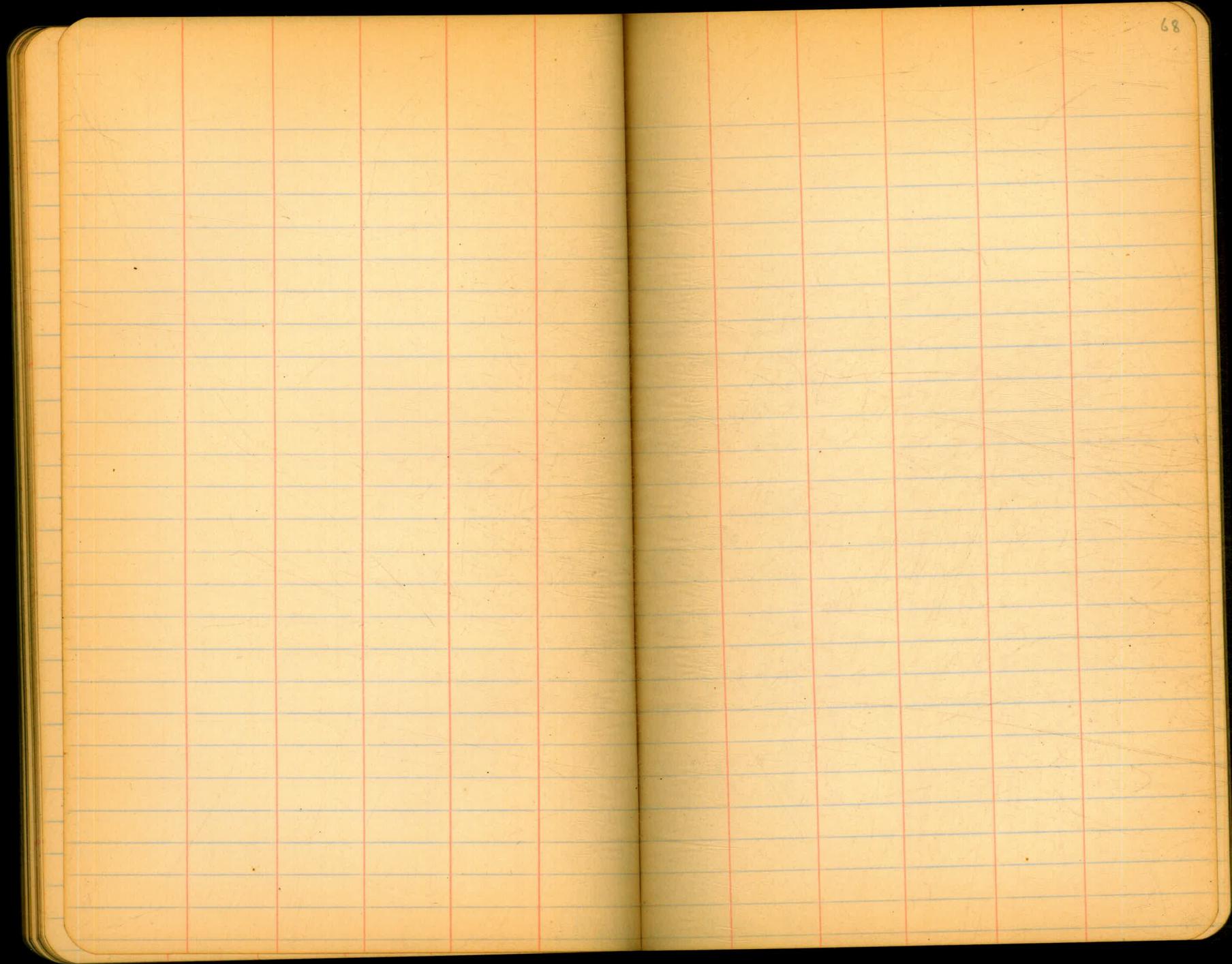
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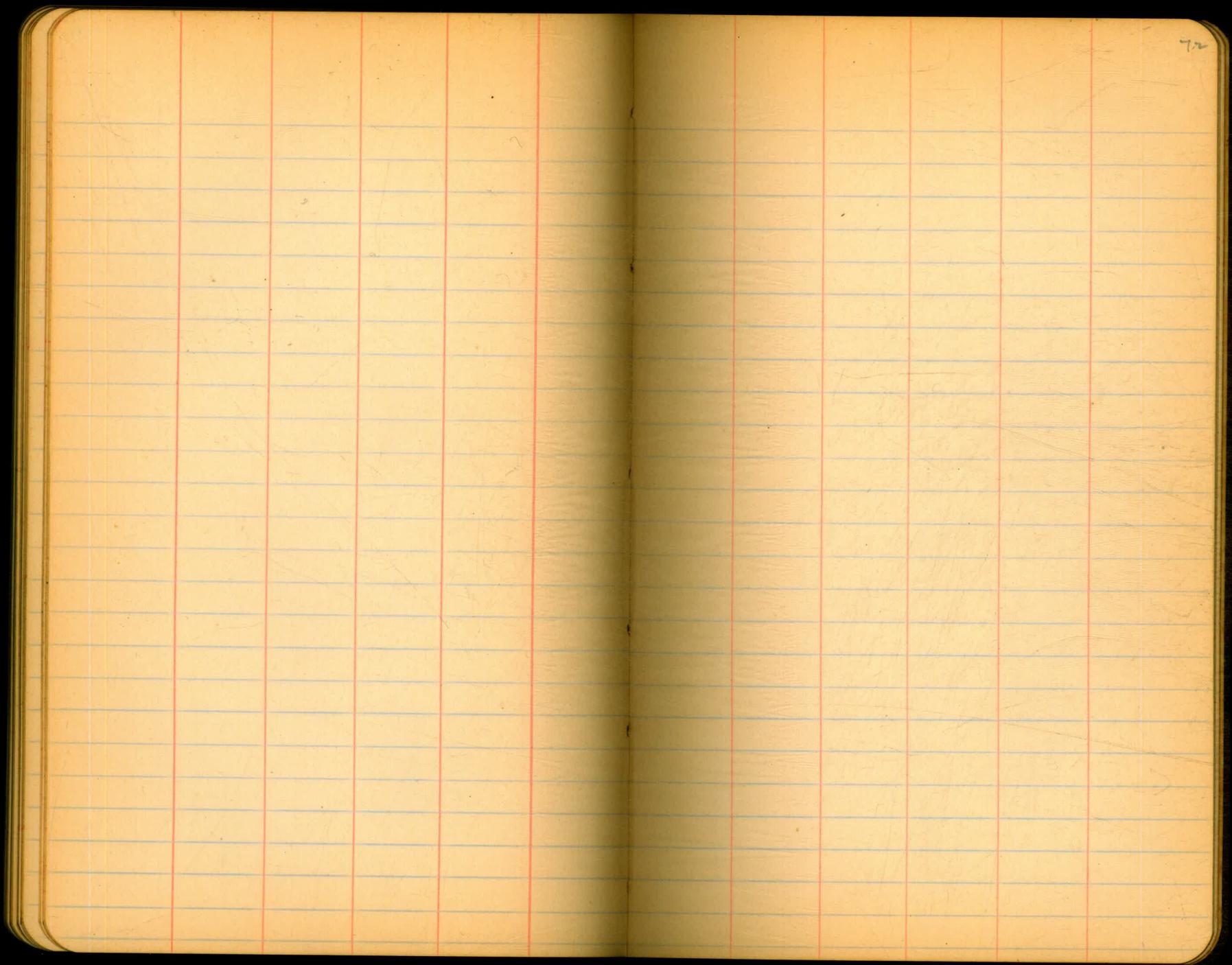
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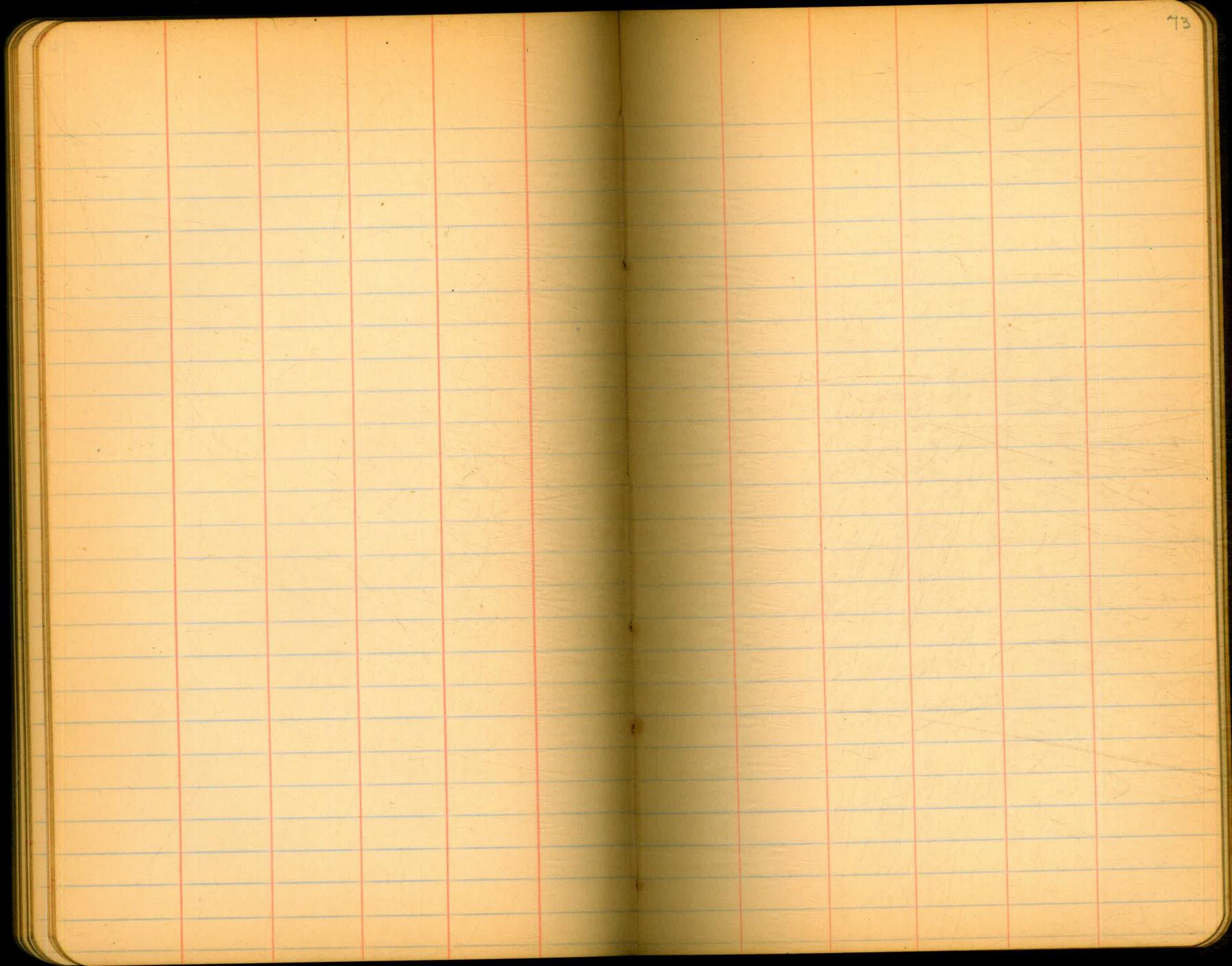
6

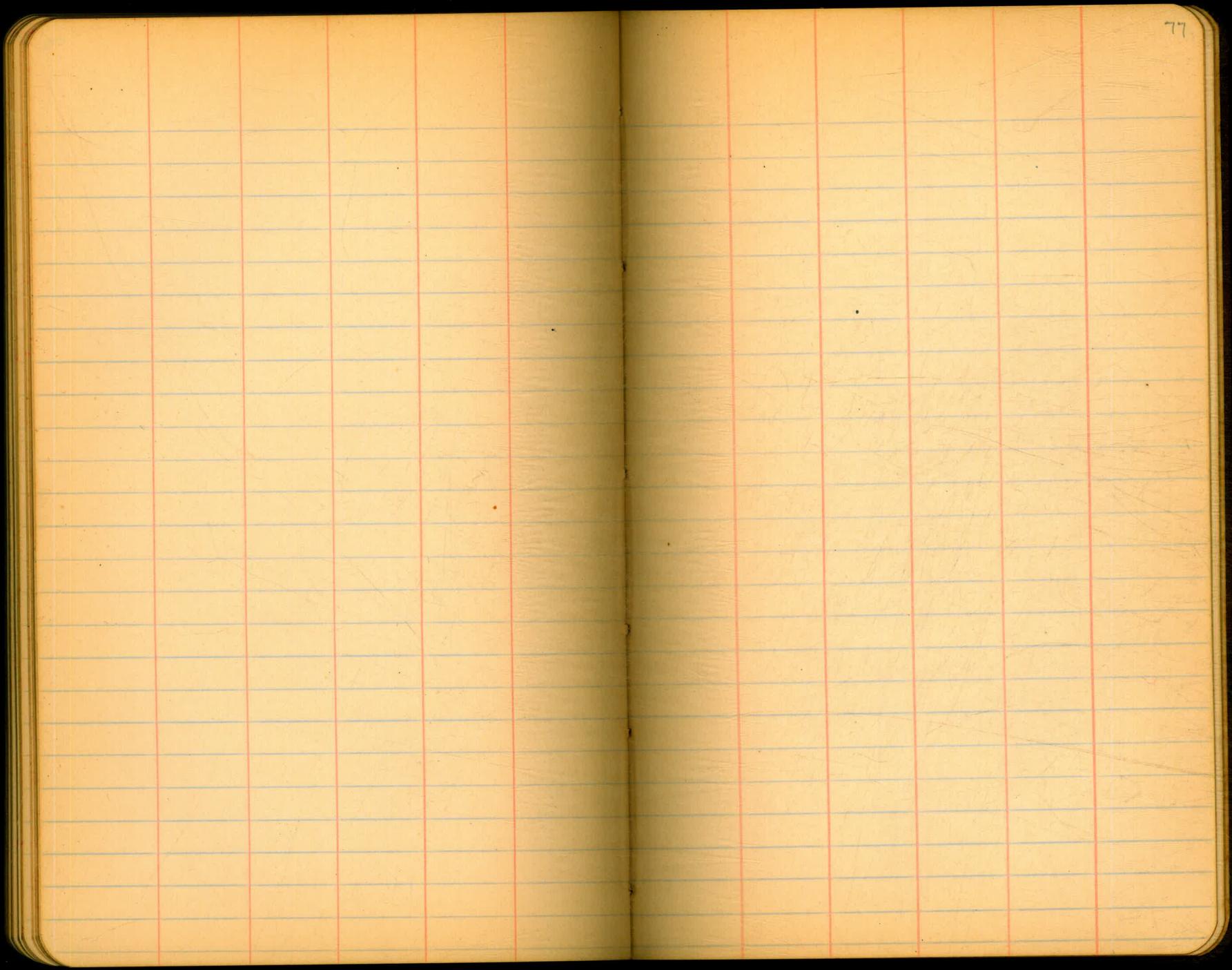
3





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Lecky - R 5035.

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

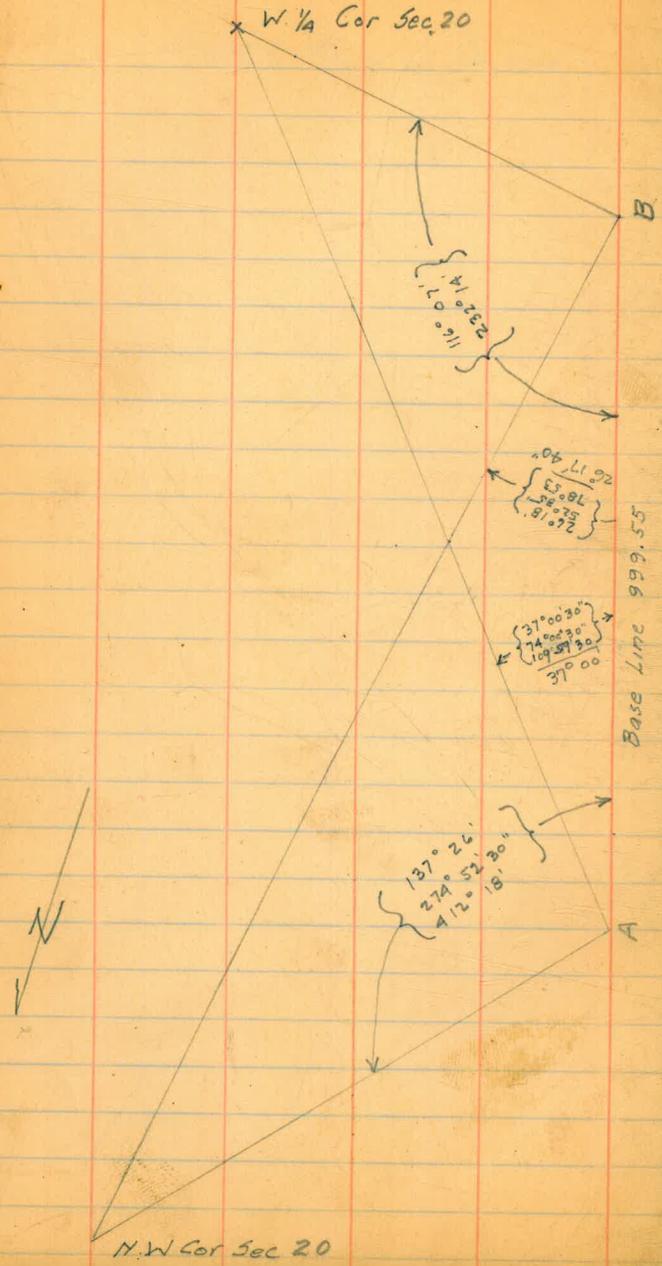
Distance of slope stake from side or shoulder stake for any width roadway, slope 1 1/2 to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance

from side stake to slope stake. If ground is not level estimate the difference in elevation between amount it cuts always it fills. Add this amount to cut or fill and find place in table. Set up rod at this point and line of sight should cut target.

**IMPROVED TABLES
AND
INFORMATION**

TABLE No. 2.

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections. Degree of curve with a given I may be found by dividing tangent (or external) opposite I by given tangent (or external). The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.



1020 + 1050

32.6

49.4

50.1

32.6

17.8

1054930

31°35'

1700530

354980

51

9°45' Rt.

571.0
571
1142

53.95

35.54

17.81

31 32 30

15° 45'

15° 46'

21° 32'

710 34

51

115 39

7 18 30



+24 / 60

+34% / 100

-32% / 30

-16% / 100

+17% / 125

-10% / 150