

21

Final Topog

FIELD BOOK

361S

W116

KEUFFEL & ESSER CO.

DRAWING MATERIALS

AND

SURVEYING INSTRUMENTS.

NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

Tables for Excavations and Embankments.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 48 FEET WIDE. SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION.

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

Calculated by Julian A. Hall, M. Am. Soc. C. E.

FOR KEITH'S RAILROAD CURVE TABLES SEE END OF BOOK

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check on Elevations

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B.F.M.
7-24-19

2' Final Topog - Rt. Abutment.
Rt Abutment
Set on PC Sight P.I. for 0-00.0

A-0.0	0.98	98.06	97.08
Rod #06 4941	27.2	20°-15' ✓	20.4 20-0 ✓
	26.6	25-0 ✓	12.6 26-15 ✓
	20.6	27-45 ✓	8.7 21-15 ✓
	12.0	31-30 ✓	8.9 12-0 ✓
	6.8	38-30 ✓	11.3 0-45 ✓
	3.7	78-0 ✓	9.9 35-430 ✓
	18.0	165-0 ✓	11-0 340-0 ✓
	18.1	179-30 ✓	9.0 327-95 ✓
	2.2	180-0 ✓	10.0 286-30 ✓
	8.8	182-30 ✓	15.2 343-15 ✓
6.06 492	5.5	339-30 ✓	17.7 3-30 ✓
	3.6	383-45 ✓	20.6 3-45 ✓
	2.8	33-30 ✓	22.5 10-15 ✓
	3.6	66-15 ✓	21.10 349-0 ✓
	6.8	35-15 ✓	19.2 344-0 ✓
	22.3	25-15 ✓	19.7 337-15 ✓
	25.0	23-30 ✓	19.8 325-0 ✓
	26.8	20-0 ✓	24.5 293-15 ✓
8.06 490	26.9	20-0 ✓	
	24.8	19-45 ✓	
	22.8	13-0 ✓	

Fillet - Rt Abutment.
Rod
14.06 - 338 - 314-15 ✓
14.06 39.3 313-30 ✓
Top of concrete 14.06 = 484.0

B-FM
6-26-19

Independent Spillway
2' Foot Final Topog.

Set on A-36 - Sight flag
A-A for 0+00 - turn 90° for
50 ft = N-36 - 100' = P-36 -
AT A-36

A-36 5.0 90.60 85.60

A 36 A-00 Zero - Asmeth Right.

Rod 6.6 484.2	15.4	22-0 ✓	21.2	317-30
	17.0	4-30 ✓	20.8	309-30 ✓
	18.7	344-15 ✓	34.1	299-15 ✓
	16.8	327-0 ✓	35.1	302-0 ✓
	15.0	312-15 ✓	22.9	312-0 ✓
	15.3	298-45 ✓	22.2	320-45 ✓
	17.4	291-0 ✓	19.2	320-0 ✓
	21.1	287-15 ✓	17.3	312-0 ✓
	30.0	287-0 ✓	17.3	302-30 ✓
	32.2	285-30 ✓	19.3	296-0 ✓
	35.6	286-15 ✓	22.6	294-0 ✓
	35.6	293-0 ✓	33.2	293-30 ✓
	23.0	294-30 ✓	Gap	—
	19.6	297-0 ✓	35.0	287-15 ✓
	18.0	302-30 ✓	25.3	288-30 ✓
	16.3	309-30 ✓	21.3	289-0 ✓

Plotted 8/5/19

6/26/19

17.8	292-30 ✓	Rod 12.6 478	34.1	307-15 ✓
15.4	300-30 ✓		26.3	316-30 ✓
15.2	312-0 ✓		24.2	324-30 ✓
16.99	323-0 ✓		24.4	325-0 ✓
20.66	335-30 ✓		20.4	322-30 ✓
19.44	345-45 ✓		20.0	325-30 ✓
19.88	0-00 ✓		20.4	333-0 ✓
18.49	155-30 ✓		24.0	341-30 ✓
17.00	23-30 ✓	End of Concrete.	23.2	348-30 ✓
17.88	38-0 ✓	"	24.0	350-45 ✓
10.6 480.2	20.0	Concrete 476.2	24.8	350-1 ✓
18.22	28-15 ✓	Concrete	24.8	347-45 ✓
19.22	15-0 ✓		24.8	342-30 ✓
20.00	1-30 ✓		21.0	336-0 ✓
23.11	340-15 ✓		18.8	326-30 ✓
20.90	344-15 ✓		21.0	324-0 ✓
16.0	321-30 ✓		24.6	327-15 ✓
18.6	317-15 ✓		28.2	318-30 ✓
19.2	321-30 ✓		33.7	310-30 ✓
23.88	323-45 ✓			
24.77	313-30 ✓			
33.33	305-0 ✓			

Plotted 8/5/19

6/26/19

B.F.M.

AT-N-36

Section N-36 Sight A36

90°0' Asmuth - Right

A-36

Rod-1378

476°

4.18 89.78 85.60

28.8 345°-0'

32.7 347-15 46.8 321-30

36.5 338-0 49.7 321-45

40.0 332-30 Rod 778 55.3 316-0

45.3 327-0 482° 55.1 315-0

44.8 326-30 51.6 318-0

52.5 324-0 47.2 320-15

(11.78)

478 51.0 322-30 40.9 325-30

47.9 323-0 35.9 329-0

42.6 325-15 36.0 331-0

38.3 330-15 31.2 335-45

35.1 337-0 27.2 346-0

32.3 341-30 23.7 5-0

Rod 9-78

26.9 8-0 22.3 52-30

480°

26.2 7-0 19.0 26-0

27.9 349-15 19.6 2-0

29.7 344-15 25.7 333-30

34.0 337-15 29.6 326-0

37.2 333-0 26.0 321-0

39.0 328-30 22.8 331-0

43.2 324-45 16.6 356-0

6/26/19

15.2 3°-0 32.7 303-0

15.9 15-30 42.6 315-0

16.4 41-15 43.3 317-0

Rod 578

484°

17.2 50-15 48-2 316-45

14.3 34-0 52.3 316-0

15.3 26-30 R.C. 90° 54.8 313-30

15.5 10-0 19.3 21-0

14.2 356-15 21.4 350-30

17.5 347-15 30.6 325-30

23.9 327-15 39.7 319-30

26.2 321-15 41.0 322-15

30.2 318-0 35.7 326-0

34.7 314-0 35.5 328-0

31.0 307-0 32.2 329-30

26.8 294-30 31.6 333-0

22.5 276-15 27.5 343-0

24.4 241-0 Rod 398 24.6 349-15

29.3 222-30 486° 55.6 313-0

29.9 226-0 52.1 314-30

27.5 235-30 48.6 314-30

26.1 242-30 43.6 315-0

24.5 268-0 40.3 313-0

28.2 294-45 34.4 305-30

6/26/19

AT N-36

486°	32.9	300-30	34.4	299-30
	29.3	296-0	31.1	293-45
	25.5	275-0	30.5	289-30
	26.7	241-0	27.8	244-30
	29.4	228-15	27.6	241-0
	40.8	206-15	33.1	222-30
	54.2	200-30	50.0	206-30
488°	57.6	201-0	59.0	202-15
	50.6	203-15	65.5	198-30
	44.9	207-15		
	36.9	215-0		
	31.9	224-3		
	27.1	240-0		
	25.9	267-30		
	30.2	290-15		
	33-2	299-30		
	42.2	314-0		
	46.7	314-15		
	51-0	314-0		
	54-0	312-0		
490°	53.0	311-45		
	50.0	313-30		
	47-0	313-30		
	42.5	313-0		

Platted 8/6/19

6/26/19

4

A36	12.88	98.48	85.60
T.P. - Rock		355	94.93
	8.95	503.88	
AT P 36 Sight A-36 90°0'			
Az - Right			
Rad 11.88 492°		(494°) 43.7	354-30
	72.3	157-30	8° Vertical 47.5 354-30
	66.2	157-0	42.1 359-0
	48.3	148-45	37.7 8-30
	32.0	130-0	35.8 12-0
	29.7	129-30	33.8 15-45
	26.0	118-45	33.5 17-30
	22.7	110-0	33.4 24-45
	20.3	100-30	32.5 29-30
	20.6	71-0	28.2 40-30
	24.6	49-45	22.9 53-0
	28.9	40-0	19.1 75-30
	32.7	31-0	18.7 92-0
	34.4	23-0	21.9 113-30
	33.4	17-15	27.3 123-0
	38.4	9-30	32.4 131-0
	42.6	2-45	35.0 137-45
vertical 80°	44.6	2-45	41.2 145-30
	38.8	356-0	60.9 159-15

Platted 8/6/19

6/24/19

64.9	159-30 ✓	31.2	29-30 ✓	
61.3	156-30 ✓	29.8	35-30 ✓	
72.3	156-30 ✓	25.2	44-15 ✓	
^{Road 496} 7.9	60.8	161-15 ✓	20.3	59-15 ✓
50.5	148-30 ✓	16.9	86-30 ✓	
38.9	143-0 ✓	22.2	119-0 ✓	
33.5	137-15 ✓	28.5	127-45 ✓	
29.7	127-30 ✓	31.3	136-45 ✓	
27.3	123-0 ✓			
22.5	116-15 ✓			
17.9	90- ✓			
24.0	48-30 ✓			
28.9	40-0 ✓			
31.7	32-30 ✓			
33-0	28-0 ✓			
33.3	23-0 ✓			
32.7	17.45 ✓			
33.7	15-45 ✓			
35.2	9-45 ✓			
38.9	3-45 ✓			
^{Road 495} 49.6	35.9-0 ✓			
38.7	35.8-30 ✓			
36.4	1-15 ✓			
33.8	10-30 ✓			
32-0	18-15 ✓			

Platted 8/6/19

5

Set on Sta 0+88.97 & Spillway
Sight 0+0 & Spillway - 90°

A-34 - 5.15	76.44	71.29		
^{Road 240} 45.0	115.45 ✓ (472)	32.9	146-15 ✓	
Conc. 44.8	117-0 ✓	38.3	133.45 ✓	
43.5	119-0 ✓	38.2	132-15 ✓	
44.5	121-30 ✓	41.4	127-30 ✓	
43.9	123-30 ✓	42.9	128-0 ✓	
46.3	126-0 ✓	45.4	125-30 ✓	
44.3	128-45 ✓	42.7	123-30 ✓	
42.0	127-45 (Conc.)	40.3	119-45 ✓	
39.8	132-0 (Conc.)	40.3	118-30 ✓	
35.8	145-0 ✓ (470)	38.6	120-30 ✓	
39.6	178.45 (P)	44.5	125-0 ✓	
30.5	186-30 ✓	43.0	127-15 ✓	
38.3	217-0 ✓	48.5	126-30 ✓	
45-0	226-30 ✓	32.2	144-15 ✓	
46.5	231-30 ✓	26.5	181-15 ✓	
⁴⁴ 47.2	44.9	232-15 ✓	34.2	214-45 ✓
41.0	229-0 ✓	36.0	222-30 ✓	
38.5	223-30 ✓	40-0	226-30 ✓	
34.7	213-0 ✓	42.0	232-0 ✓	
37.6	179-0 (P)			

Platted 8/6/19

T.P. 5.40 5.88 70.56

Set on sta 0+88.97 - & spillway

turn 252° for 61.7 to Avail pt.

Set on Avail. point from 0+88.97

Sight - 252° -

540 75.96 70.56

566
470.3 26.5 104.45 ✓ 19.6 127.45 ✓

18.2 120.30 ✓ 13.3 150.15 ✓

14.9 132.30 ✓ 12.4 165.30 ✓

8.8 182.0 ✓ 9.7 205.15 ✓

12.0 247.30 ✓ 12.1 243.0 ✓

concrete to
connect with
other -
Face
47.2 - 14.5 266.45 ✓ 13.6 242.45 ✓

17.6 255.15 ✓

20.2 255.15 ✓

29.0 264.45 ✓ 22.3 258.15 ✓

24.3 259.0 ✓ 26.9 261.0 ✓

21.6 257.45 ✓ 29.3 265.0 ✓

20.0 256.15 ✓ 30.0 267.30 ✓

17.8 258.0 ✓ 30.6 266.45 ✓

14.6 250.0 ✓ 29.2 263.0 ✓

12.9 250.45 ✓ 26.7 260.30 ✓

11.1 169.30 ✓ 22.9 258.30 ✓

18.6 126.0 ✓ 20.2 254.30 ✓

24.5 111.0 ✓ 17.6 254.0 ✓

474.96 24.4 114.30 ✓ 14.0 242.30 ✓

12.4 241.45 ✓

13.0 163.0 ✓

18.1 136.15 ✓

20.7 128.15 ✓

24.8 117.15 ✓

Plotted 8/7/19

7/30/19

F-B-M. Section A 33 Sight 7:00
 4:00 for Zero Az. Right
 H.I.

A 33	490	8636	8146
Rod 1236			
474.0	11.6	239.45	18.9 309-0
Face Ground	14.2	264.15	28.2 315-0
	21.1	303.15	33-2 321-0
	28.4	312.15	39.9 328-15
	32.0	316.45	41.4 324-30
	39.0	316-30	40.8 319-30
Rod 1036 47.6	40.0	317.45	18.35' 333°-19'
	36.3	322.30	
	29.1	315-30	
	22.0	309-0	
	16.2	298-0	
	10.9	267.30	
R.F.C.	9.5	235.15	
F.F.C.	9.6	231-0	
Rod 836 478.			
F.F.C.	17.3	124.30	
R.F.C.	16.0	124.15	
	11.6	143-0	
	8.1	225-0	
	13.1	295-0	

Plotted 7/17/19

Set on Armit point from A 33
 Sight A 33 Az 153° 19' Rt

A.33	828	89.74	8146
Rod 924 480.			
	24.1	140.15 (452)	11.1 295.15
	25.5	147-15	6.9 236-0
	25.9	155-30	7.3 187-45
	19.6	171-45	17.4 169-30
	17.4	174-45	17.3 165-30
	6.6	236-0 (484)	11.1 168-15
	7.5	268-15	5.7 218-0
	11.3	294-30	11.0 297-30
	21.6	326-0	12.0 311-0
	24.9	316-0	19.3 325-30
	24.8	313-30	26.0 329-45
	29.9	307-30	27.3 333-0
47.9 482.	30.3	311-0	21.9 335-45
R.C.	26.9	315-30	15.7 346-45
RC	29.5	321-30 (486)	11.0 338-15
RC	38.1	314-15	RC 17.1 325-0
924	39.5	318-15	RC 9.6 301-15
	29.8	330-45	RC 5.5 284-30
	27.7	330-0	RC 3.8 335-30
	19.4	325-0	RC 5.5 31-0

Plotted 7/17/19

5.74					
484 R.C.	39.2	308-0 ✓			
R.C.	31.8	313-30 ✓			
R.C.	32.7	315-30 ✓			
	38.0	313-30 ✓			
	43.7	308-15 ✓			
	46.4	308-15 ✓			
gap	49.5	313-30 ✓			
	46.2	314-45 ✓			
	41.0	320-0 ✓			
	38.4	326-0 ✓			
	56.5	355-0 ✓			

Plotted 8/6/19

Set on A 33 - Set A 31-505

A33	305	84.51	81.96
T.P. Rock		0.31	84.20

Set on A 31 Set Aux 1

270° dist 61.14 = N 31-11.14 E

Sight A 31-90° Set on N 31-11.14 E

T.P. Rock	5.37	89.57	84.20
-----------	------	-------	-------

5.5					
984	19.2	92-0 ✓	3.8	358-0 ✓	
--	16.0	88-15 ✓	8.3	325-43 ✓	
	14.2	88-15 ✓	10.3	314-0 ✓	
	4.8	51-30 ✓	14.9	309-30 ✓	

Plotted 8/9/19

484.	21.3	304-15 ✓	27.2	283-45 ✓
	22.3	301-0 ✓	44.7	286-0 ✓
	29.6	297-45 ✓	46.6	281-0 ✓
②	37.7	297.45 ✓	51.1	279-45 ✓
	40.4	295-0 ✓	52. ✓	273-30 ✓
	43.2	294-30 ✓	52.2	271-30 ✓
	43.6	293-30 ✓	52.0	271-15 ✓
	39.5	292-15 ✓	51.6	273-30 ✓
	35.6	290-45 ✓	49.2	276-30 ✓
	25.1	289-30 ✓	46.5	281-0 ✓
	24.0	288-30 ✓	37.3	282-0 ✓
	15.4	290-30 ✓	26.7	279-30 ✓
	7.3	294-15 ✓	25.3	271-15 ✓
	12.0	104-0 ✓	16.8	272-30 ✓
	20.2	108-30 ✓	14.2	273-15 ✓
	25.9	107-30 ✓	13.5	275-0 ✓
gap-			11.0	271-0 ✓
	17.0	115-30 ✓	2.4	217-30 ✓
	12.0	115-30 ✓	8.9	134-0 ✓
	3.8	140-15 ✓	17.4	121-30 ✓
	10.5	274-15 ✓	28.2	114-30 ✓
	15.3	279-15 ✓	32.7	114-0 ✓
	19.5	281-0 ✓	26.0	106-0 ✓
	26.3	285-0 ✓	22.4	108-0 ✓

Plotted 9/18/19

gap

48.2	13.4	103.45	28.1	275-30
	6.9	95-30	45.8	280-0
	9.2	295-0	5.1.2	273-15
	13.6	295-30	47.5	51-0
	15.15	293-30	48.2	272.45
	21.6	292-0	48.2	275-0
	29.6	291-30	34.8	275-30
	31.4	296-30	27.3	270-30
	23.2	298-15	25.3	275-30
	14.5	305-30	21.1	267-
	3.6	350-30	19.1	270.45
	3.9	40-0	13.8	255-30
	11.9	90-30	5.9	186-30
	15.8	96-0	10.8	151-0
	24.9	97-30	22.7	124-0
	26.4	100-0	26.0	121-30
	31.6	116-15	33.1	121-0
	26.6	119-0	39.3	121-0
	18.2	125-30	33.4	123-0
	8.5	141-30	23.8	124-15
	4.3	192-30	17.1	149-0
	11.1	258-30	9.2	172-30
	17.1	272-15	7.5	230-
	19.2	272-30	14.1	251-0
	25.8	277-0	19.6	264-30
			22.2	264-0

Plat'd 8/5/19

Red 757
490

25.6	272-0
27.7	269-30
32.3	273-30
37.1	272-30
42.1	276-0
47.0	276-0

Plat'd 8/5/19

Set on Auxil point N-31-11.14 E
 Sight A 31- for 90° - Turn 90°
 for 25' = N 32-11.14 E
 Set N-32-11.14 E -
 Sight N 31-11.14 E For Zero -
 Turn 90° for 13.86 = 0-32

T.P. Rock	5.37	89.57	84.20
T.P. Rock		12.92	76.65
	0.26	76.91	
		5.12	71.79
		343	75.22

Set on 0-32 - Sight
 Q 32 for 270°

Red 50	46.6	125-45	15.6	262-30
470.3	34.8	122-0	24.3	273-0
	31.3	123-0	28.5	274-0
	28.0	121-0	30.0	276-0
	14.1	140-0	40.0	280-0
	9.9	247-0	42.0	282-0

Plat'd 8/5/19

Continued on page 11

7/26/19

B-F-N Sections for July Exco.
Grade = 85.2

A 36 10.55 96.15 85.60
85.2

00.

+14

+32

+48.5

+55

Lt

00

Grade 85.2

L

00

Rt. 10

00

				End Area	C.Y.
				00	
		10.05		00	358
		<u>00</u>			
		3.3	7.2	00	1380
	12	<u>92.9</u>	<u>89.0</u>	00	
		00	13	2.2	
					1190
		18	3.1	5.5	
	00	<u>92.9</u>	<u>90.7</u>	00	218.0
	10	6	00	15	32.5
					1500
		2.9	1.7	2.2	
	00	<u>93.3</u>	<u>94.5</u>	00	2750
		9	4	0	28.2
					37.1
					330
	<u>00</u>			<u>00</u>	<u>00</u>
					3380

3380 Cy
to deduct from
total Spillway

Continued from page 9.

1 set on 0-32 Sight @ 32 fm

5.08

470.3

T.P. Rock

Red 5.0

3.51 75.30

71.79

46.2 283-30 ✓

15.2 17-30 ✓

42.7 303-30 ✓

17.8 341-30 ✓

24.9 317-0 ✓

23.9 328-0 ✓

23.4 328-30 ✓

26.1 321-30 ✓

12.6 47-0 ✓

44.4 305-30 ✓

36.0 85.15 ✓

45.5 295-30 ✓

45.0 91-30 ✓

48.3 282-0 ✓

51.4 94-30 ✓

53.9 283-30 ✓

52.6 97-0 ✓

53.6 285-0 ✓

54.6 103-15 ✓

47.1 286-30 ✓

56.5 104-15 ✓

46.7 293-15 ✓

65.0 117-30 ✓

47.7 299-15 ✓

Red 33
472

56.9 100-30 ✓

44.4 307-45 ✓

54.3 99-45 ✓

40.1 313-15 ✓

52.6 92-30 ✓

34.4 317-0 ✓

48.0 85-0 ✓

33.5 320-15 ✓

43.9 82-0 ✓

25.0 330-0 ✓

42.2 87-30 ✓

23.3 337-0 ✓

37.9 82-30 ✓

20.0 350-0 ✓

28.2 71-30 ✓

17.8 18-0 ✓

20.0 58-15 ✓

19.5 28-30 ✓

21.3 54-15 ✓

20.0 42-45 ✓

16.8 22-45 ✓

22.6 53-0 ✓

474

29.1

58-0 ✓

33.4

73-30 ✓

38.8

78-30 ✓

40.3

83-30 ✓

42.5

84-0 ✓

43.6

81-30 ✓

48.0

84-30 ✓

58.7

92-30 ✓

55.0

96-30 ✓

62.6

106-45 ✓

68.0

113-0 ✓

F.C.

73.0

115-15 ✓

17/10/19
5/8/19

Set on Q 30- Sight Q 28
for zero AZ. Right

Rod
6.66

12

(496)

Rod 12.66
490-

	5.3	802.166	97.36
28.9	177-45	✓	19.4 147-30
28.5	166-30	✓	19.2 150-15
29.7	161-0	✓	21.8 158-30
25.1	155-30	✓	22.7 158-0
24.2	153-0	✓	24.2 165-0
22.3	153-30	✓	27.1 168-15
20.2	149-0		27.0 171-0
19.3	143-15	✓	24.6 181-0
20.4	128-30	⁸⁶⁶ 494	22.2 181-0
23.1	108-15	✓	24.9 169-30
23.9	107-30	✓	22.6 164-30
26.1	88-30	✓	21.7 158-0
33.6	73-0	✓	20.6 156-0
30.8	68-30	✓	17.7 138-0
25.6	50-30	✓	19.0 132-0
25.0	97-0	✓	19.8 120-30
23.7	88-15	✓	20.3 112-30
23.6	99-0	✓	20.1 106-0
21.5	105-0	✓	21.8 94-30
21.7	111-0	✓	22.8 84-30
19.3	131-0	✓	22.8 80-30
18.2	137-0	✓	30.1 62-0

Plaked 5/8

(466)

498

28.5	59-30
22.7	78-0 ✓
21.9	85-30 ✓
19.9	101-0 ✓
19.0	110-45 ✓
19.2	122-15 ✓
18.7	134-0 ✓
17.6	135-45 ✓
18.7	149-0 ✓
21.5	160-0 ✓
22.4	168-30 ✓
19.2	179-0 ✓
16.5	176-0
20.8	161-0
19.8	156-0
14.7	160-0

8/1/19

13

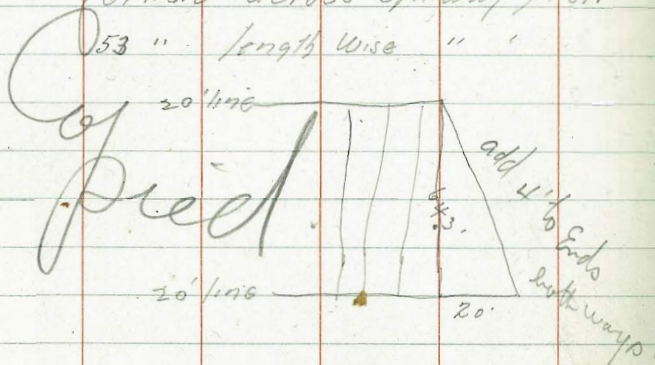
Reinforcing floor Spillway

$\frac{1}{2}$ "^A - 15" cts. c.

64.3' between toes of Slope

64 Bars across Spillway floor

53" length wise "



LAST Bar across channel at

Sta. 1+77⁵⁰

0+88⁹² = 2 S.F.O.9.

80
 $\frac{0-97.50}{7.827}$

$\frac{125 \times 15.00}{125} = 15.00$



8/4/19

RT Abut.

2' Final Topog

F.M.

N-1

7.10

512.25

495.15

Top Parapet.

6.05 496.2

Top Dam

10.05 492.2

Set on A - 0.0

Sight P-00 - for 270 - A2. Right

^{10.05}
492.2

10.3

190.15

↓ 492.0

9.4

186-30 ✓

9.7

165-45

↓

9.3

117-30 ✓

8.9

143-30 ✓

✓

14.3

90.00 ✓

8.0

133-30 ✓

✓

21.2

78-30 ✓

10.2

121.0 ✓

✓

25.8

77-0 ✓

13.2

103-15 ✓

✓

25.8

72-30 ✓

15.4

81-30 ✓

✓

28.2

74-0 ✓

21.7

79-15 ✓

✓

32-0

79-45 ✓

25.5

80-30 ✓

✓

20.9

95-30 ✓

26.8

74-30 ✓

✓

16.2

113-30 ✓

26.4

84-30 ✓

✓

23-0

107-0 ✓

24.4

87-0 ✓

✓

12.9

99-30 ✓

17.9

95-15 ✓

✓

18-0

83-30 ✓

14.6

112-0 ✓

✓

23.7

23-75-0 ✓

14.9

122-30 ✓

✓

26.0

72-0 ✓

13.7

150-0 ✓

✓

26.7

68-30 ✓

13.7

157-0 ✓

✓

14

26.2

69-30 ✓

31.8

77-30 ✓

34.8

77-30 ✓

Plotted 8/5/19

8/4/19
FM

Spillway
2' - Final Topog
Set on 1+20 @ Spillway
Sight 0-00 - for 90° - Az Pt

6.28 476.70 70.42

Red 6.4

RI 70.3

Red 7.0

	40.8	125.30	✓	68.4	49.7	117.0
P.C.	36.9	129.30	✓		45.1	120.30
R.C.	31.6	118.0	✓		35.4	121.0
	19.9	54.0	✓		32.0	117.30
	24.6	16.0	✓		27.3	109.0
	39.2	5.0	✓		30.5	103.30
	41.2	19.0	✓		22.8	18.0
	46.6	28.30	✓		36.0	9.30
	41.3	38.0	✓		38.6	23.30
	40.0	54.30	✓		42.0	19.15
	39.6	72.0	✓		42.6	32.30
P.C.	48.2	100.30	✓		40.0	52.0
P.C.	59.0	113.0	✓		41.6	87.30
P.C.	59.0	115.0	✓		55.2	113.0
	58.0	117.30	✓		55.1	114.15
	52.5	119.30	✓		55.7	118.0
P.C.	52.0	120.0	✓		55.5	119.15

6/18/19
Plotted
6/18/19
Plotted

15

Red 107.0

66.2	52.9	117.15	✓
43.2	115.15	✓	
34.3	59.0	✓	
30.8	57.0	✓	
36.6	27.30	✓	
39.5	45.0	✓	
35.0	65.0	✓	
37.5	80.0	✓	
43.8	100.30	✓	
55.7	117.0		

Bottom trench

53.0	116.15	✓
43.4	103.0	✓
34.5	78.30	✓
36.5	97.0	✓
39.1	31.15	✓

Red

11.0	=	65.7
11.8		64.9
11.8		64.9
13.3		63.6
10.8		64.9

8/5/19

B-F-10 2' Find Topog Spillway
 set on Q 28 Measure
 25' West - set P-28

Set on P-28 Sight Q 28
 fr 270° Az Right

Set Auxil Point 150°
 from - 45.55'

Set on Auxil Point Sight

330°

Nail in form	8.36	495.56	487.20
484°		488	
Rod 11.56	14.4	29.145	50.2
RC	16.0	291-15	29.6
RC	16.1	319-30	24.8
RC	14.0	319-30	17.9
486°	20.9	244-	19.7
Full Shot	25.5	227-0	17.2
	23.9	251-0	19.9
	18.7	328-0	20.1
	14.5	333-30	22.8
	15.9	29-0	26.5
	40.9	62-30	26.0
	55.0	69-0	25.6

Plotted 8/5/19

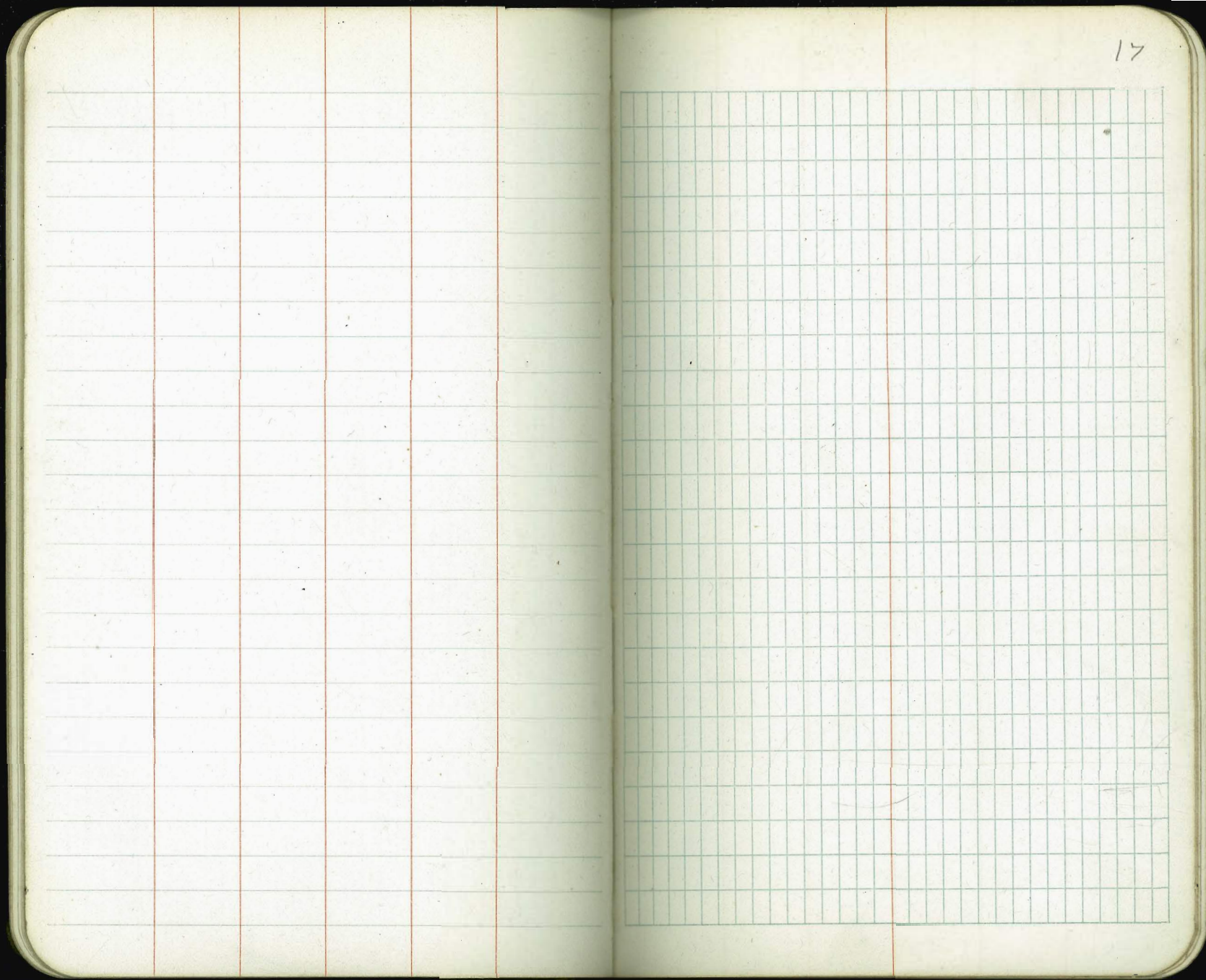
25.9

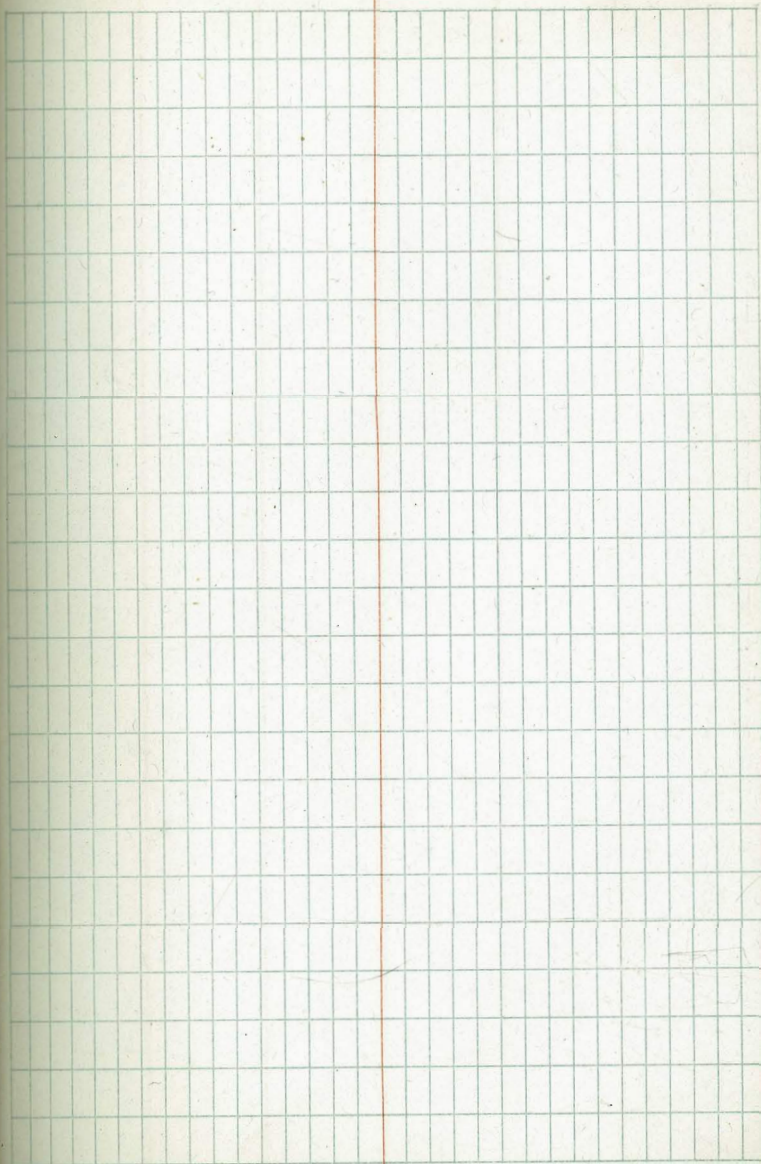
4

16

28.1	236-0	22.7	265-30
19.0 47556		24.4	253-0
29.5	237-0	26.4	252-0
27.9	240-15	28.3	250-15
25.1	246-15	27.1	246-0
27.1	250-15	25.5	241-0
26-0	252-45	44 186	
24.3	251-0	30-0	243-0
21.3	256-45	28-3	246-15
22.0	270-0	28.4	248-15
21.5	281-30	28.2	250-15
19.7	307-0	26.6	251-0
18.2	320-30	26.3	255-0
20.5	341-30	23.0	271-30
19.6	345-30	22.8	277-0
28-2	1-30	22-0	286-15
34.9	14-0	22.7	289-30
50.0	12-30	21.9	301-30
356 492	47.0	3-30	22.2
	31.9	4-0	22.6
	20.0	325-30	28.6
	21.6	311-30	
	21.8	286-0	
	22.8	276-0	

Plotted 9/1/19





A grid of 20 columns and 20 rows on a graph paper page. The grid is formed by light blue lines. A vertical red margin line is positioned to the left of the grid, and a horizontal red margin line is positioned above the grid. The grid is empty.

8/23/19

Mass Rock Recess.
Check on Ele.

Top old Core Wall.				4793.2
Q17 ^{about}	130	37457		373.27
T.P. Rock About Radius 203'			497	36960
	11.10	38070		36960
Sol. Nail in upper Whale 48"	85.33	019		380.51
T.P. Rock in Concrete	594	9030	097	84.36
Pencil X in West Wall	570	^{X on West Wall} 9600	00	9030
Check on Nail			9.79	80.51
		39030		
Bolt on Mixer	11.98	40174	054	89.76
T.B.M. Concrete Core Wall	967	40752	389	97.85
Nail in 12x12 Sand Bin	613	41365	00	40752
Bottom of 12x12 Stringer	713	42078		41365
A8-3'N.			519	415.59
Top Floor Look out House	^{Chain} 2103	441.81	00	42078

Top Core Wall	1.18	80.50		21	479.32
T.P. on old core Wall	193	70.11	1232		68.18
Old B.M. on Rock in old Concrete		11.04			59.07
	0.99	60.06			59.07
Top Steel in old Core Wall			12.37		47.69
	4.52	52.21			
	00	41.98	1023		41.98
	00	20.78	2120		20.78
A8-3'N			5.02		15.76
A8-3'N	4.98	20.78			15.80
Bottom ^{Sand Bin} 12x12		T.B.M.	7.10		13.68
T.B.M. Nail in ^{Sand Bin} 12x12			13.23		407.55
	00	407.55			
T.P. on old Concrete Core Wall			967		397.88

Correct El. for A8-3'N from Notes = 415.80
59

Error 10w. 21

8/25/19.

Mars Rool Recess

22

Hub - 193.70 Radius
 44.99 dist Nail in ^{upper} Whales
 Lower

438 238.69 Radius
 4.38

243.07 Radius 8d in 2nd Whale up
 3.21 ✓

246.28 Radius 8d in 3rd Whale up
 4.27 ✓

250.55 Radius 8d in 5th Whale.

256.70 = Radius 400²⁰

250.55

6.15 to Radius 256.70

Radius 256.70 - EI = 400²⁰

= 129 94.71

396.0

1549 400²⁰

TBM old Core Wall 9.75 407.63

397.88

7.43

256.70 / 17188.7 0000 | 66.960
 154020

178670

154020

246500

231030

154700

154020

0006800

256.70

EI R.
 398 = 25479-

1.91

1' = 0° - 6.696'

5' = 0° - 33.480'

10' = 1° - 6.96'

20' = 2° - 13.92'

661 = North Wall 0° - 44.26'

2816 = South Wall 3° - 08.56'

8/26/19 Mass Rock Recess

M-B

Radius 261.07 El. 406⁰⁰

250.55 Nail in 5th Whale

4.85 No Measure later to Nail in 6th

255.40 Nail in 7th Whale

5.67 to Hub in Concrete

261.07 — El 406⁰⁰

TB 77 Old Core Wall 960 407.48 397.88

Grade North Wall 1.48 406⁰⁰

" South Wall 1'-0" 2.48 405⁰⁰

~~259.28~~

261.07 / 17188.7 000 165.45 ²³

156642

152450

130535

119150

104428

147270

130535

261.07

255.40

5.67

1' = 0° 65.45

6' = 0° 39.270

18' = 3° 03.26

7' to North Wall 0° - 45.81'

28.69 to South Wall 3° - 7.78'

238.69 Nail in 1st Whale

5.44 to Kiel Mark

244.13

2.15

✓ 246.28 Nail in 2nd W. ^(2nd)

5.59

251.87 Nail in 4th Whale

3.54

255.41 Nail in 5th W.

3.67

259.28 Nail Stud at 406

8/27/19 Mars Rock Recess

17-B

R = 265.58

E1 - 412.00

~~250.55~~ Nail in 5th Whale

~~3.00~~

265.58

259.28 Nail in 7th W - 406

6.30

A8-3N

486 42066

41580

Grade on North & South Wall

866 41200

265.58 / 17188.70000

164.72²⁴

159348^{xx}

175390

265.58

106232

261.07

191580

dist = 4.51

185906

56740

1' = 0° - 6.472'

420.66

7' = 0° - 45.304'

406

28' = 3° - 1.21'

1466

6472

.05

33366

695 = 0° - 45.0

2931 = 3° - 96.7

6472

131

6472

19416

6472

847832

3 1.2

8/27/18
N-13

Radius 27010 E1418⁰⁰

~~559.78~~ Nail ~~7'~~ W

251.87

4.43

256.30 Nail mark 5th W

2.99

(7th)

259.29 Nail 6th ~~5th~~ W

4.12

263.41 Nail in 7th W

A 8-3' N

508 420.88

415.80

288 418⁰⁰

27010 | 17188.7000
162060 ~~2~~ ~~x~~ ~~x~~

98270

81030

172406

162060

103400

163.63²⁵

~~27010~~

~~26558~~

~~4.57~~

1' = 0° - 6.363'

7' = 0° - 44.541'

29' = 3° - 4.541'

27010

26341

6.69

693 to North Wall = 0° - 45.0'

1988 to South Wall 3° - 10.12'

6.363

.88

509.04

50708

5.59944

3° 45.2

10.12

8/29/19

Mar Rock Recess

263.41 Nail 7th W

3.97

267.38 " in 8th W

3.94

271.32

277.62

271.32

6.30

R = 277.62 = E1 428⁰⁰

1323

449.03

15.80

10.983

103

428.0

282

0.83 428.20

277.62 } 17188.70
65.72

L 6

26

440.20

29.03

411.17

dist to NW = 7.55 = 00

440.20

428.20

12

440.20

428.00

12.20

Spullway

Rail all in place on
Spullway

Washing finished on
Spullway 8/29/19 - 9 AM

8/26 / 5 sat.

✓ 8/27/19 - 7 sat @

8/28/19 - 5 sat

8/29/19 - 2 sat

8/28/19

27

Batches.

93 Batches @ 1.75

8/29/19

Duration average 1 -

Wetness good.

Sat. Date

16 - 28

16 - 27 ✓

16 - 26

Washing

8/30/19.

See Pommersbach about Repair
to #4 Crusher

See Al - ^{mine} photos & labors
on Ecca - Backfilling on Dam and
Set Batches ✓

17 day. Work. on Dam

Labels.

28

8/30 Steel door were put in
place to Entrance of Inspection
gallery on left about tank.

A. Hoek during continued work on
the rail - Slammay left about
5:30. on Tues. - etc.

New Zinc between Metal sheet

9/ Batches 8/30/ ✓

Concrete Pouring began on opening
left in Pt. about for Roadway

This page is a ledger-style page with horizontal blue lines and four vertical red margin lines. The margins are located at approximately 10%, 15%, 25%, and 35% from the left edge of the page. The page is otherwise blank.

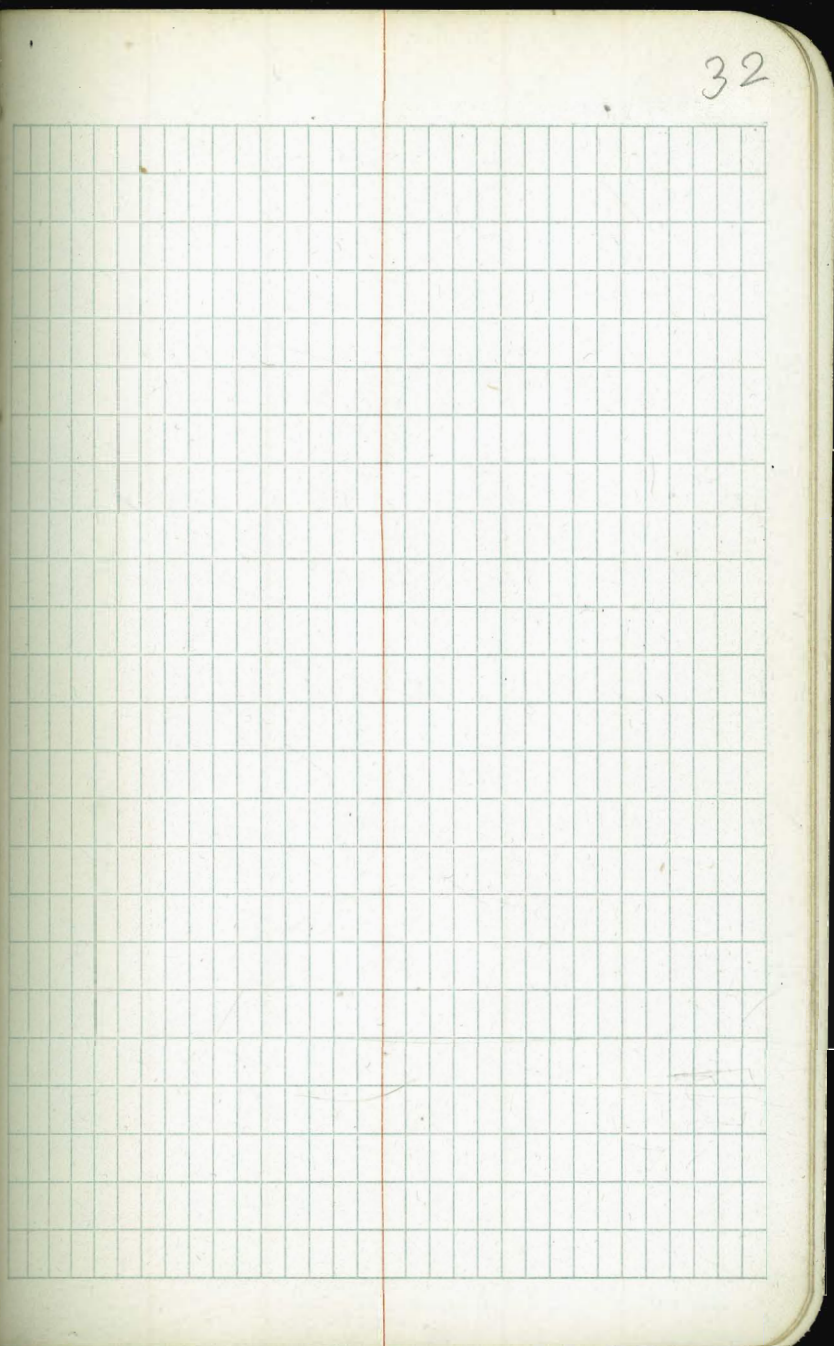
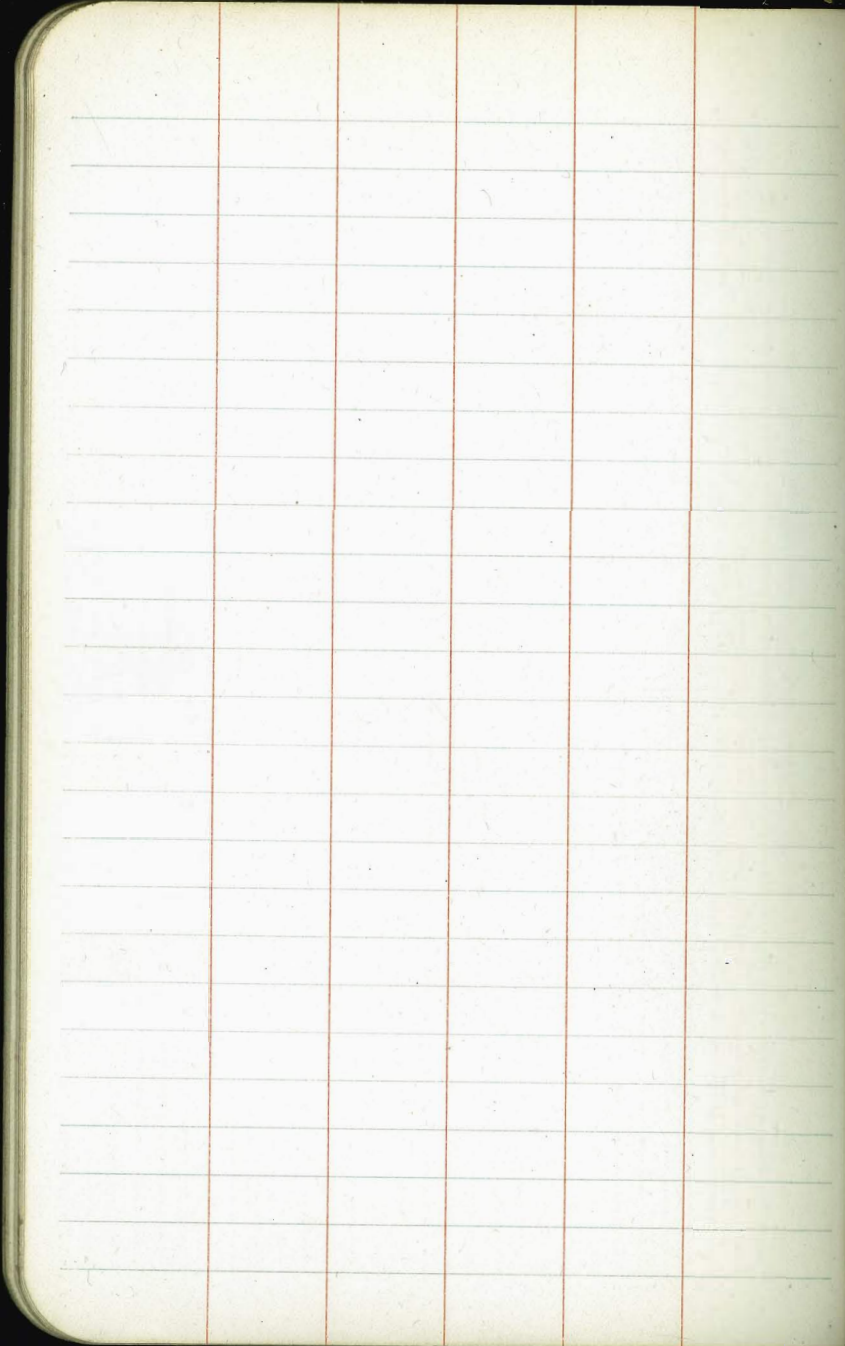
This page features a green grid pattern. A vertical red margin line is positioned at approximately 35% from the left edge of the page. The grid covers the remaining area of the page. The page is otherwise blank.

30

This page is a blank ledger with horizontal ruling and four vertical red margin lines. The margins are located at approximately 10%, 20%, 30%, and 40% from the left edge of the page.

This page is a blank grid with a vertical red margin line on the left side. The grid consists of 20 columns and 25 rows of green lines. The margin line is located at approximately 10% from the left edge of the page.

A grid of 20 columns and 20 rows on a graph paper page. The grid is formed by light blue lines. A vertical red margin line is positioned to the left of the grid, and a horizontal red margin line is positioned above the grid. The grid is currently empty.



A grid of 20 columns and 20 rows, drawn with light blue lines on a cream-colored page. The grid is rectangular and occupies most of the page's area. A vertical red margin line is visible to the left of the grid.

34

36

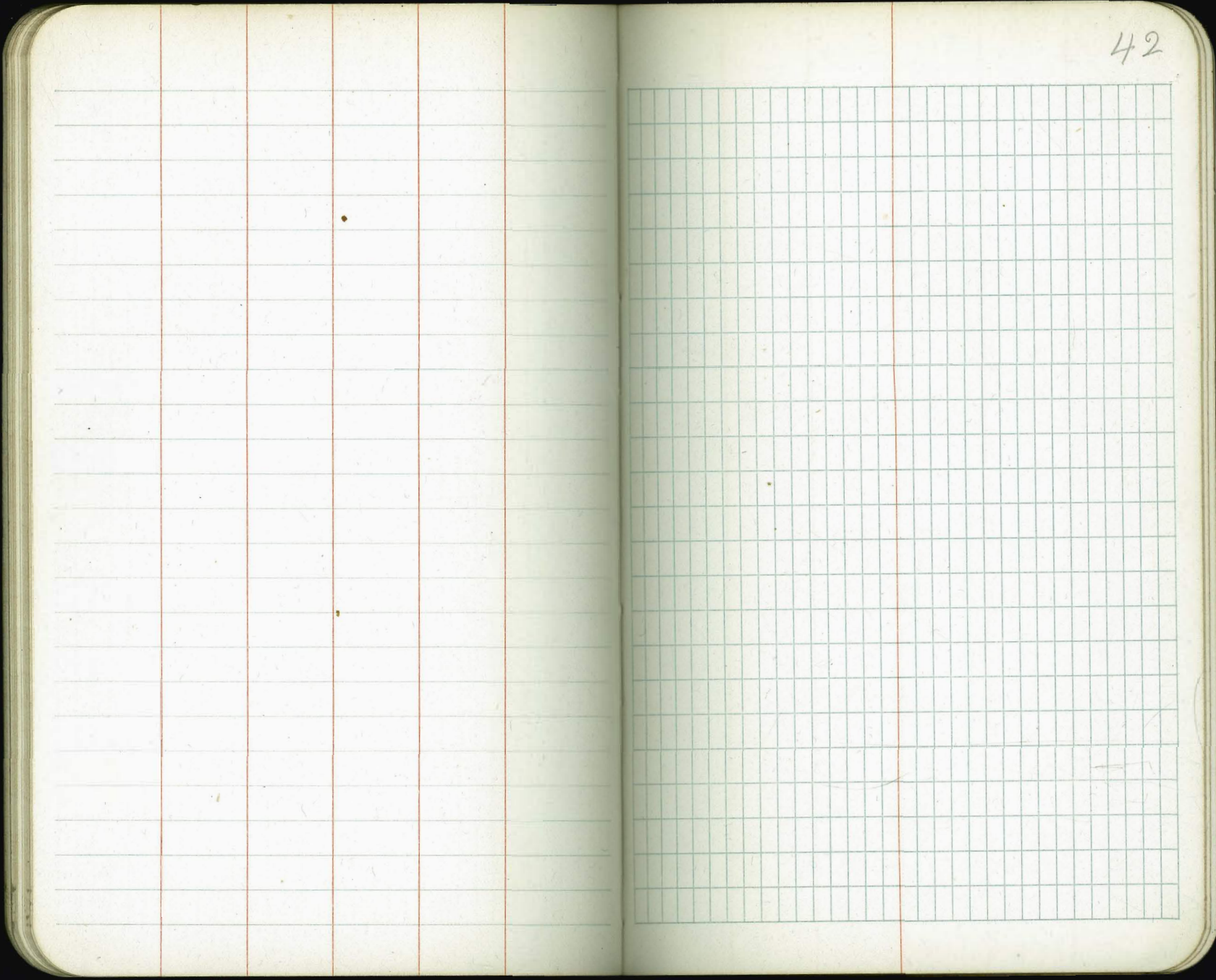
The left page of the notebook is a ledger page. It features a header section at the top, defined by two vertical red lines and a horizontal blue line. Below the header is a table grid with 10 columns and 20 rows. The columns are defined by vertical blue lines, and the rows are defined by horizontal blue lines. The page is otherwise blank.

The right page of the notebook is a ledger page, similar to the left page. It features a header section at the top, defined by two vertical red lines and a horizontal blue line. Below the header is a table grid with 10 columns and 20 rows. The columns are defined by vertical blue lines, and the rows are defined by horizontal blue lines. The page is otherwise blank.

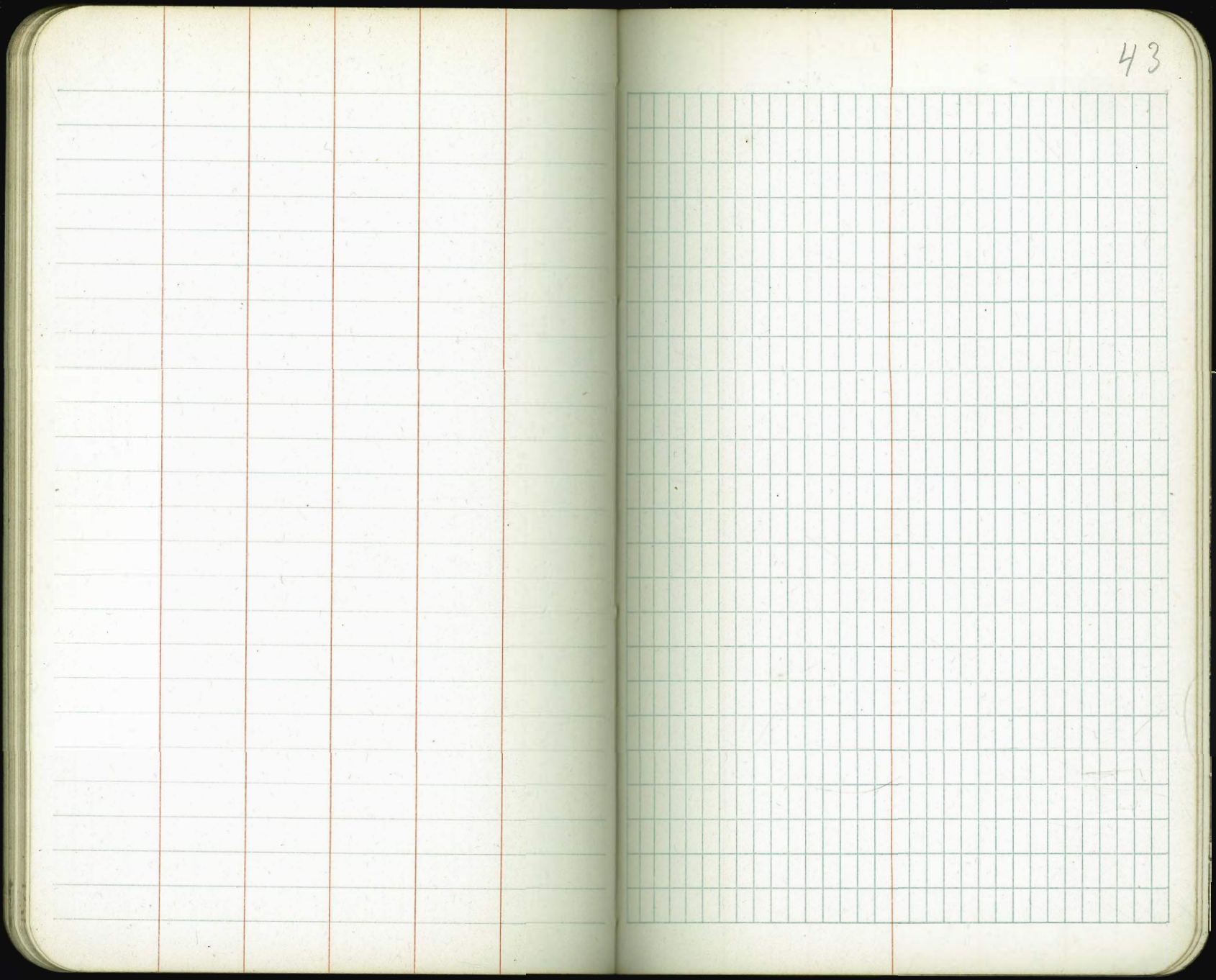
38

40

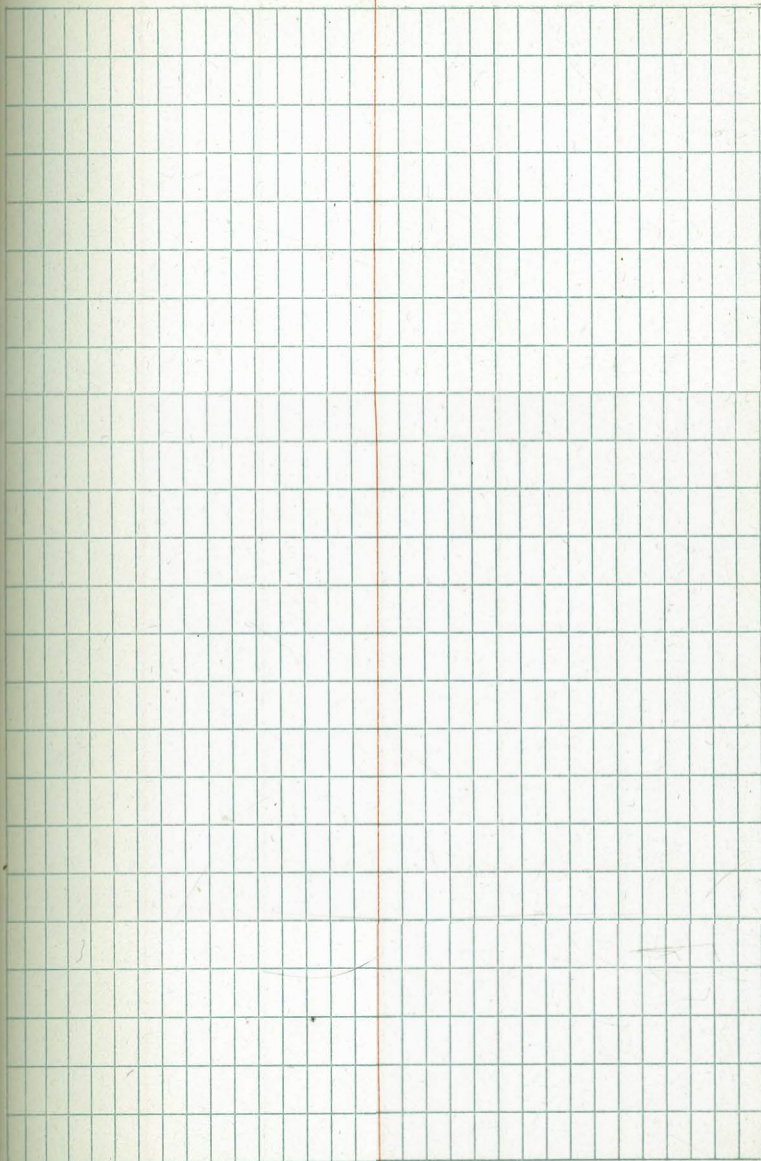
42



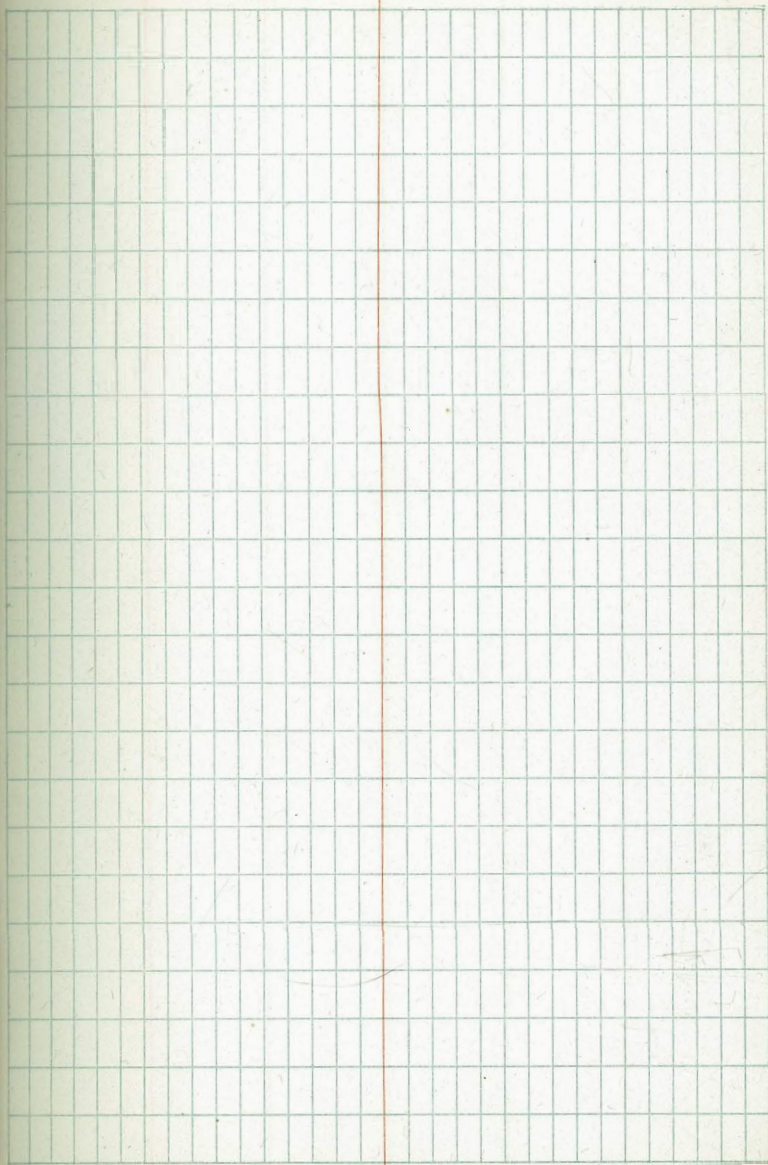
43



44



45

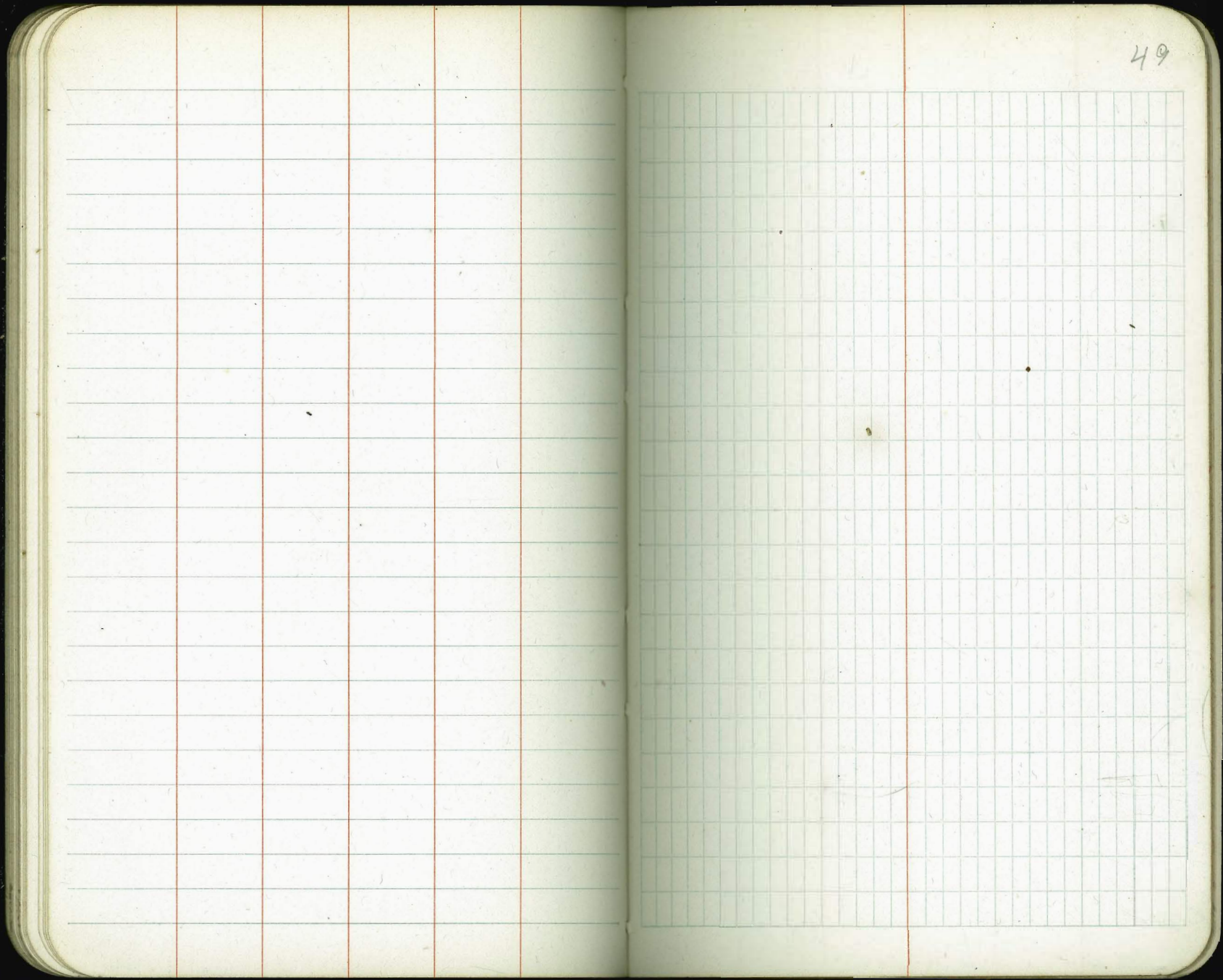


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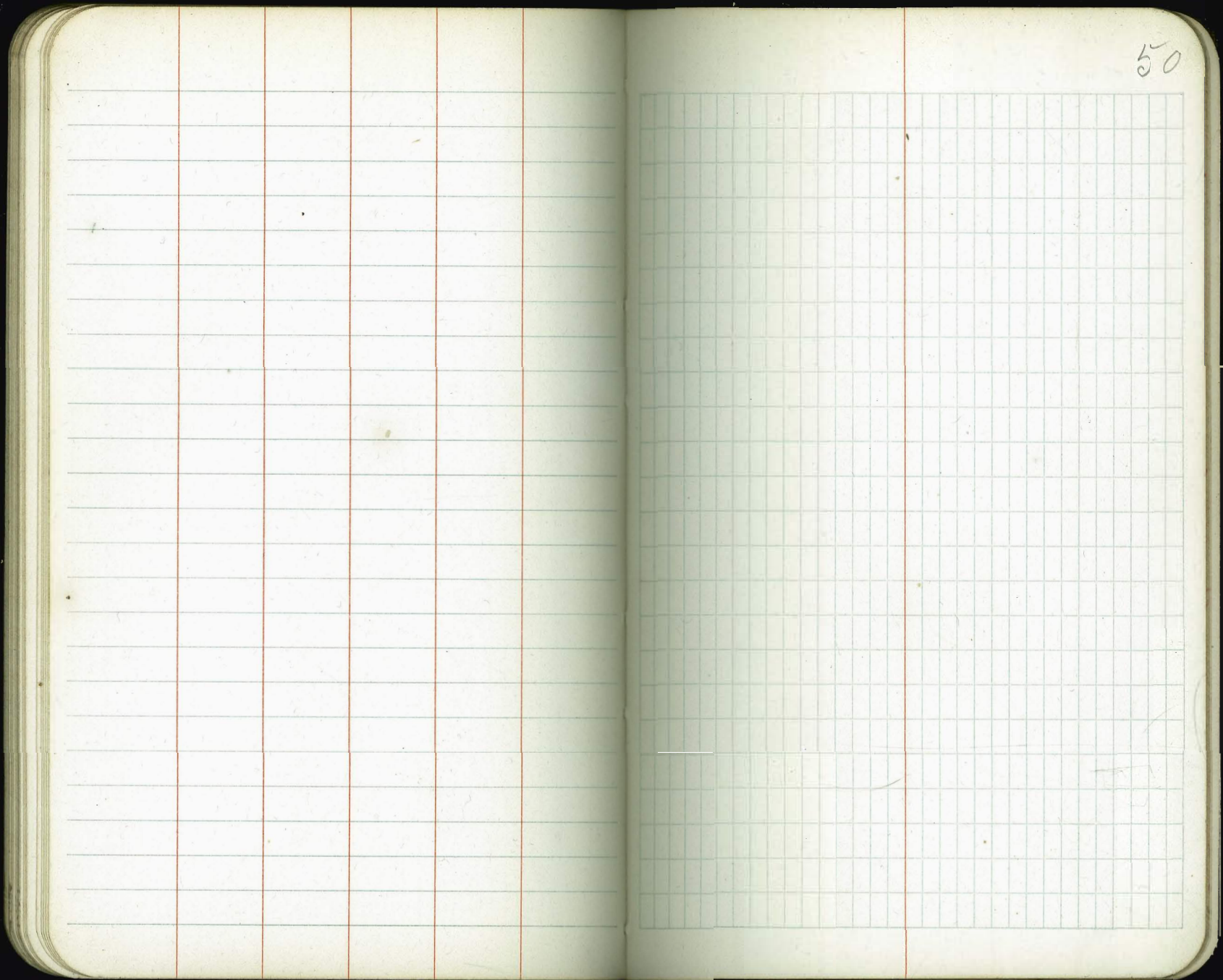


47

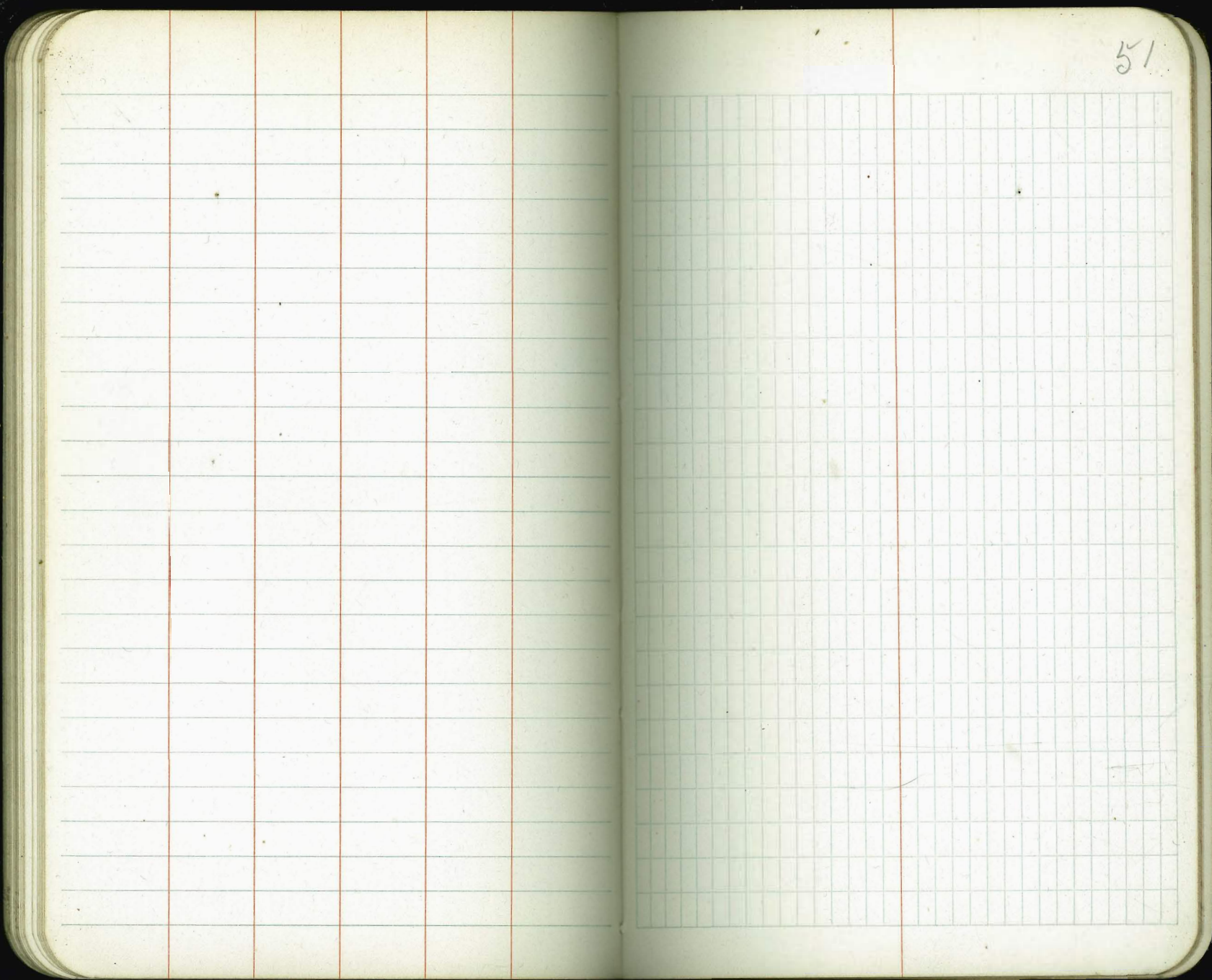
48



50



51



This page is a ledger-style sheet with horizontal ruling and five vertical red margin lines. The margins are located at approximately 10%, 20%, 30%, 40%, and 50% of the page width from the left edge. The page is otherwise blank.

This page is a ledger-style sheet with horizontal ruling and a single vertical red margin line on the left side. The right portion of the page is filled with a grid of small squares, typical of graph paper. The page is otherwise blank.

53

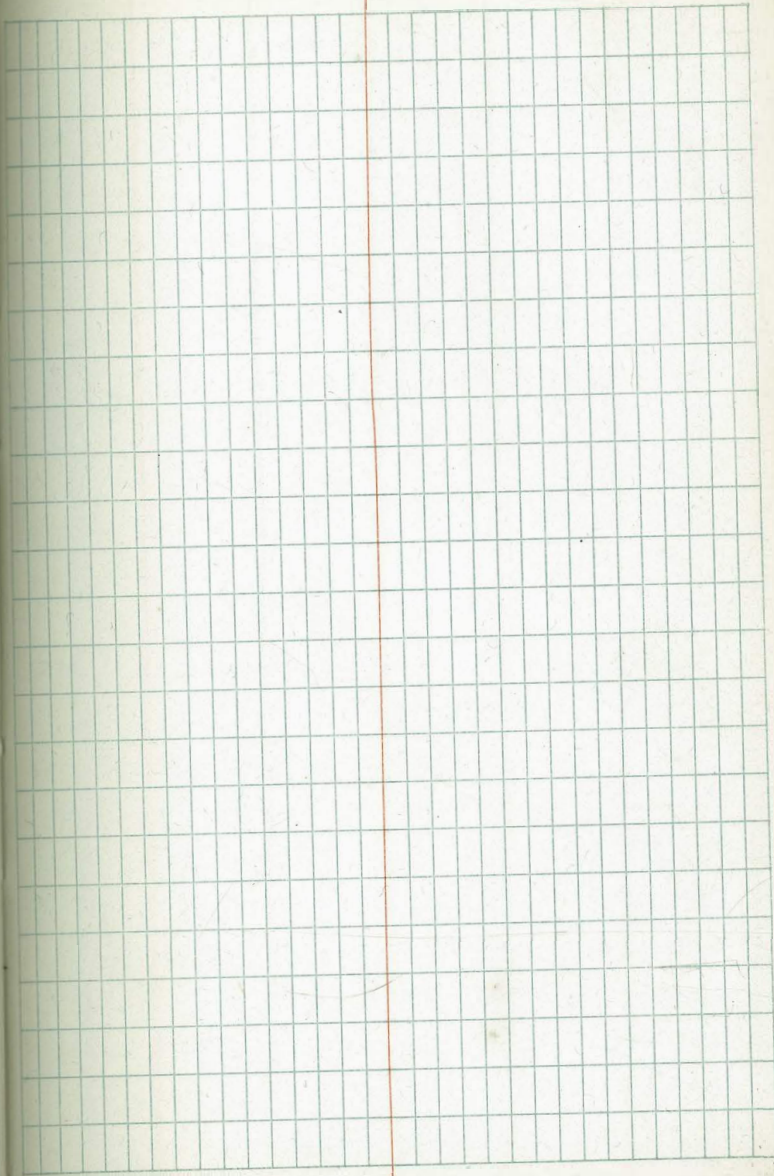
A grid of 20 columns and 20 rows, formed by light blue lines, covering most of the right page. A vertical red margin line is positioned to the left of the grid, approximately one-fifth of the way across the page.

54

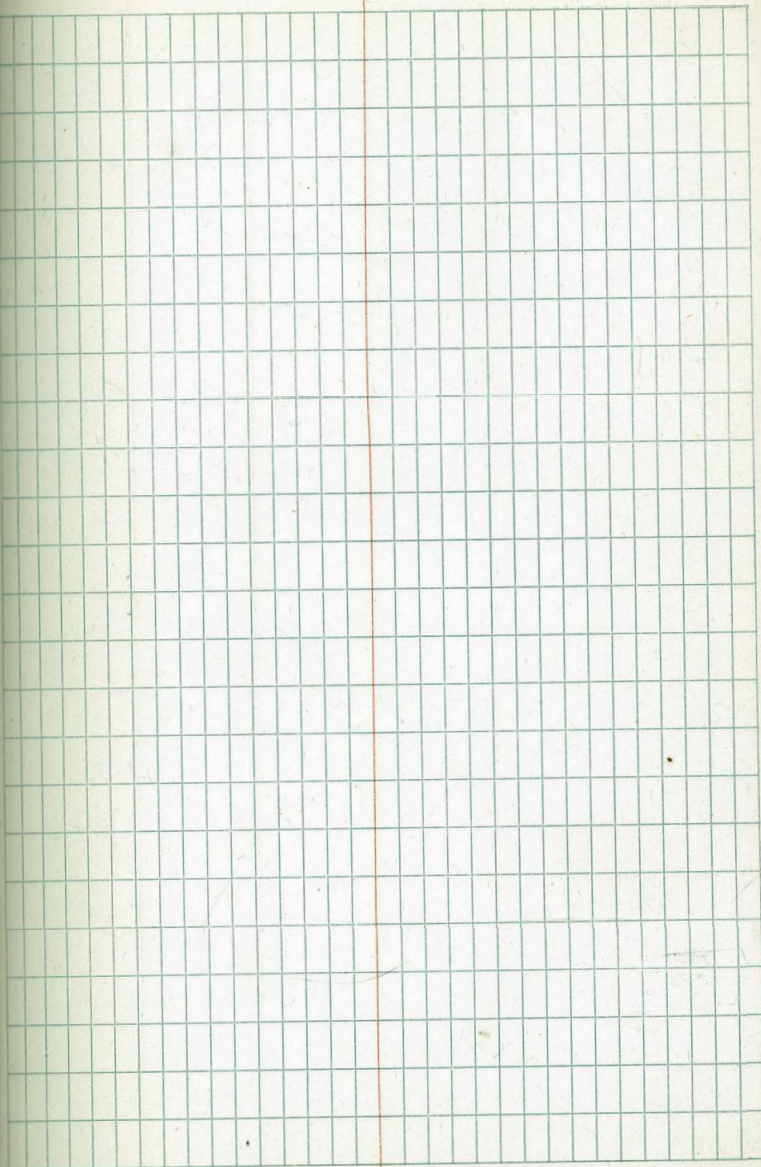
A ledger page with 5 vertical red lines and horizontal blue lines. The lines create 6 columns of varying widths. The columns from left to right are approximately: 1.5 columns wide, 1.5 columns wide, 1.5 columns wide, 1.5 columns wide, and 1.5 columns wide. The page is otherwise blank.

A ledger page with a grid of blue lines and a vertical red line. The grid consists of 10 columns and 20 rows. The red line is positioned between the 5th and 6th columns from the left. The page is otherwise blank.

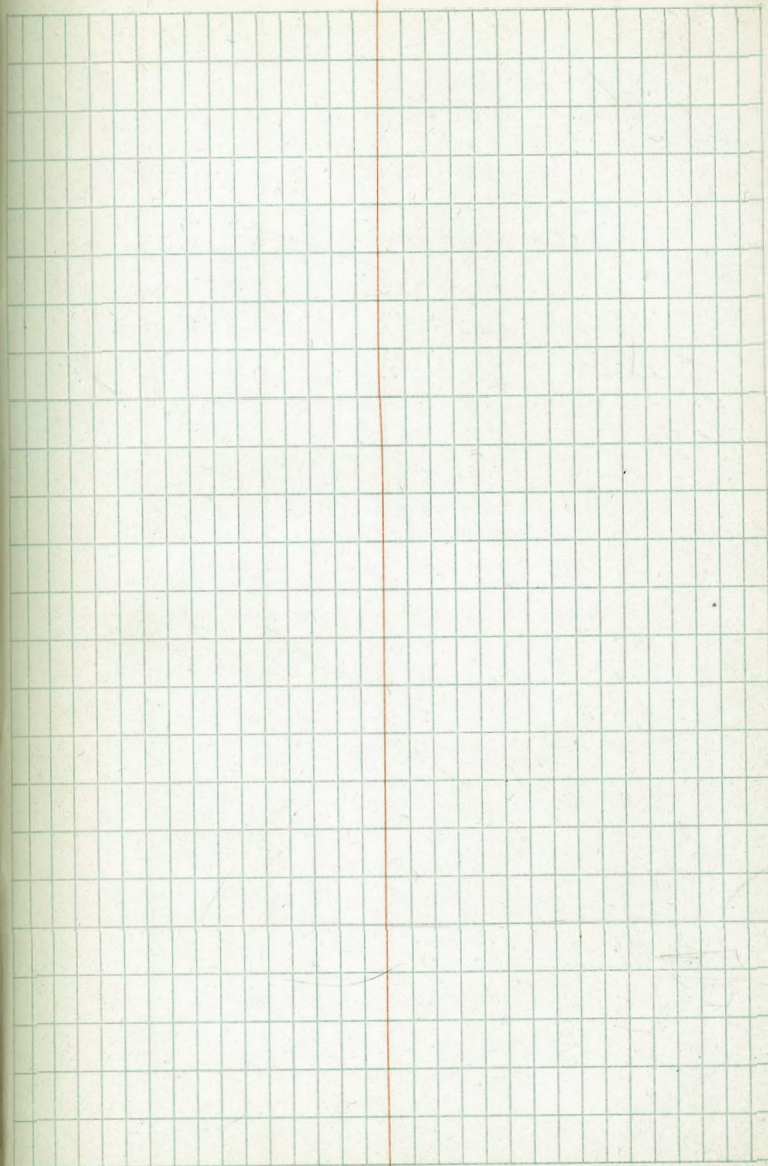
55



56



57



KEITH'S RAILROAD CURVE TABLES.

Published by KEUFFEL & ESSER CO., New York.

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HOW TO USE KEITH'S TABLES.

EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle
of Intersection or I. P. = $23^{\circ} 20'$ to the R. at Station
542+72.

Ext. in Tab. IV opposite $23^{\circ} 20' = 120.87$
 $120.87 \div 12 = 10.07$. Say a 10° Curve.

Tan. in Tab. IV opp. $23^{\circ} 20' = 1183.1$
 $1183.1 \div 10 = 118.31$.

Tab. V correction for A. $23^{\circ} 20'$ for a 10° Cur. = 0.16
 $118.31 + 0.16 = 118.47 =$ corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. $23^{\circ} 20' = 23.33^{\circ} \div 10 = 2.3333 =$ L. C.

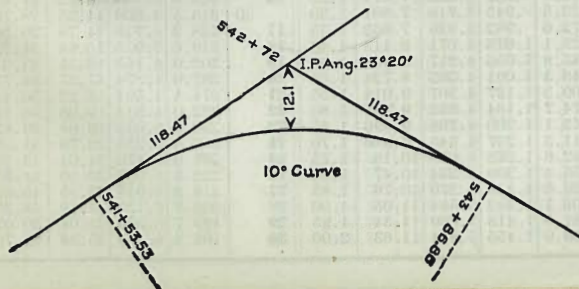
$2^{\circ} 19\frac{1}{2}' =$ def. for sta.	542	I. P. = sta.	542+72
$4^{\circ} 49\frac{1}{2}' =$ " " "	+50	Tan. =	1.18.47
$7^{\circ} 19\frac{1}{2}' =$ " " "	543	B. C. = sta.	541+53.53
$9^{\circ} 49\frac{1}{2}' =$ " " "	+50	L. C. =	2.33.33
$11^{\circ} 40' =$ " " "	543+	E. C. = Sta.	543+86.86
	86.86		

$100 - 53.53 = 46.47 \times 3' (\text{def. for 1 ft. of } 10^{\circ} \text{ Cur.}) = 139.41' =$
 $2^{\circ} 19\frac{1}{2}' =$ def. for sta. 542.

Def. for 50 ft. = $2^{\circ} 30'$ for a 10° Curve.

Def. for 36.86 ft. = $1^{\circ} 50\frac{1}{2}'$ for a 10° Curve.

(These tables are published in Field Books of
KEUFFEL & ESSER CO., New York, N. Y.)



2 + 00 00

85.97

17 11.05

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1½ TO 1.

FOR SINGLE TRACK EMBANKMENT.

	0	1	2	3	4	5	6	7	8	9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Jullen A. Hall, M. Am. Soc. C. E.