

W181

DIETZGEN
TRADE MARK

ENGINEERS'

FIELD BOOK

No. 404

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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A - Tabulation Cubic Yds. for Jam
of End Areas

60 m

7.75

MICROFILMED

JAN 8 1965

- #1 San Diego Harbor
- #3 San Diego County
- #4 City of San Diego
- #5 Lower + Upper Otay
- 6 Mission Gorge # 2 4 3
- 7 Street Car Systems
- 8 Topography Balboa Park ^{naval Hospital} Topography
- 9 City Farms ^{Plain Island Sand Filter}
- 10 University Hts. Res.
- 11 Telephone Rate Maps
- 12 State of Calif. Irrigation
- 13 L. M. L. Co. + Spring Valley Irig. Dist.
- 14 Cuy. Water Co. Complete System
- 15 Cleveland National Forest Reserve
- 16 San Diego River
- 17 Water plans + designs
- 18 Narrow Valley
- 19 Crown Point Sub.
- 20 Pt of Way over ^{Porton of National Parks} City Hall site
- 21 Balboa Park
- 22 Colorado River + Boulder Dam
- 23
- 24 Freeman Report
- 25 S.D. + Ariz. Ry ^{Dalyana summit to Chulavita}

MICROFILMED

JAN 6 1982

- 26 Savage Cou. ^{Bonnett + L. Otay}
 27 El Capitan Raucher ^{Top of Cabinet}
 28 Tia Juana valley + River
 29 Henshaw Dam (plans of) J. W. Lippincott
 30 Cuyamaca Water Company
 31 Sweetwater Res. Lucks (Covert)
 32 Cuyamaca Water Co.
 33 Bonnett dam + reservoir
 34 Rainfall Charts
 35 San Diego River
 36 San Vicente
 37 Chollas Res.
 38 Colorado River
 39 Pueblo San Diego ^{Hayes - make Case - Top}
 40 ^{Pasco - City Prop. map}
 41 City of San Diego
 42 Encinitas
 43 La Jolla - Del Mar Pape Lind
 44
 45
 46
 47
 48
 49
 50 El Capitan Dam + Reservoir
 51

- 52 San Diego System (see 54)
 53 Lower Calif - narrow valley Res
 54 San Diego (continued)
 55
 56
 57
 58
 59

number

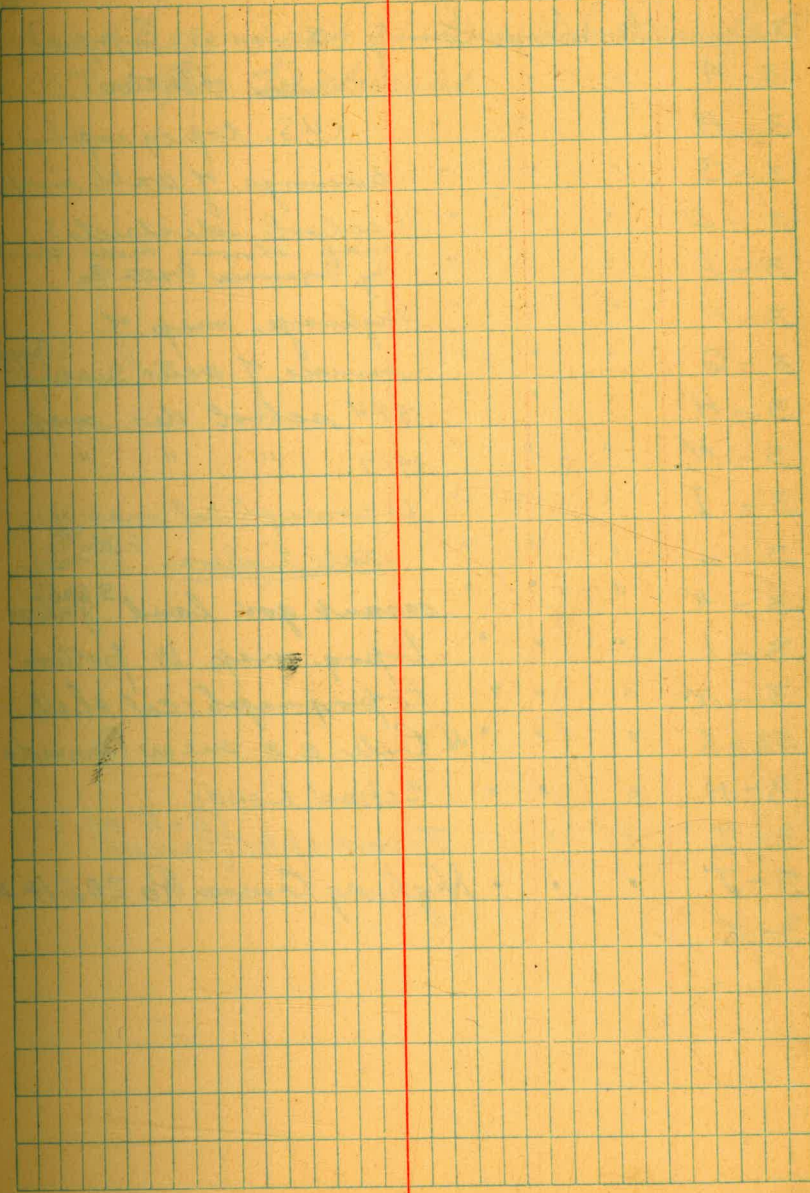
- | | |
|-----|---|
| 1 | San Diego Harbor (U.S. coordinate) |
| 1-A | " " " map of 1851 |
| 1-B | " " " Resurvey by Coy S. D. |
| 1-C | " " " off. mean high tide line |
| 1-D | " " " Map of key to Tide Land Reclamation |
| 1-E | " " " Tideland's So. of Market |
| 1-F | " " " U.S. West Coast Map. |

number

7

San Diego Municipal Water District

2



number

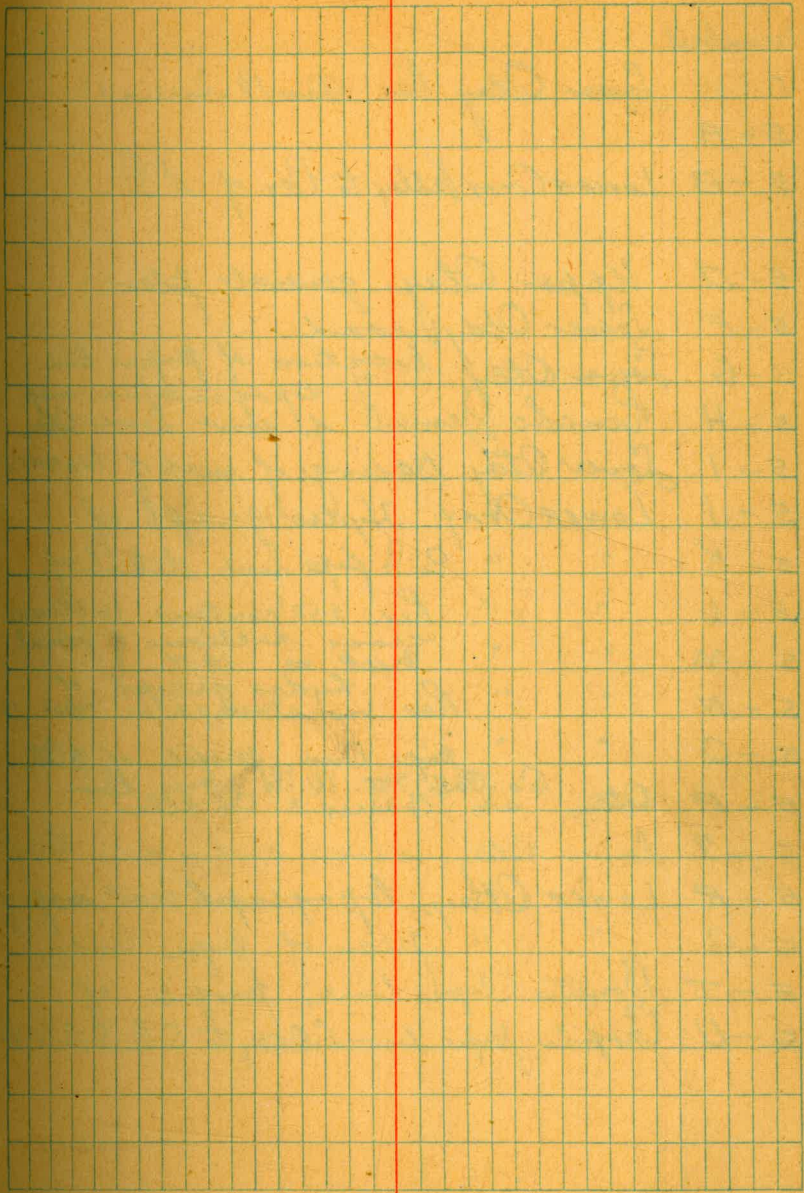
- 3 San Diego County (Edwin M. Capps)
3-A " " " (Geo Butler)
3-B " " " (U.S. topography)
3-C " " " (tracings of wall maps)
3-D " " " (school districts)
3-E " " " map showing areas served
by Cuyamaca Water Co.
3-F " " " Highways, map of
3-G " " " sources of water supply of (Capps)
3-H " " " 1924 school dis. map
3-H " " " 1917 " " "
3-I " " " topographical map of
3-J " " " state highway, ^{Edley to} ^{Palmer}
3-K " " " vacant gov. land ^{S. Water} Julian
3-L " " " topoq. map W. portion
3-M " " " topographical sheets
52-X " " " H. Route # 3 near Bernardo
3-H " " " School Lands
3-I " " " Topography (N+E of) (Campo)
3-J " " " Highway Comm. Po 20214
3-K

3H

San Diego Plot of Annual Rainfall
1851-1940 Inclusive

number

- 4 City of San Diego Map 74 x 74
- 4A Charts showing Ave. & Max. Daily Consumption City of S.D.
- 4B Topography Pueblo S.D.
- 4C City of S.D. Water Systems
- 4D Map of Portion of La Jolla
- 4-E Bond Issues



- number
- 5 Lower Otay Res. (Gen. B. Harris)
- 5-A
- 5-B LOWER OTAY Valley to Bay of S.D.
- 5-D Upper Otay, general plan
- 5-F Lower Otay, road
- 5-G Lower Otay, location of pipe line
- 5-H Rancho Jamul ^{topographic map} of above Lower Otay
- 5-I Lower Otay, tracing of map of (HARRIS)
- 5-J LOWER OTAY, Hydro graph of
- 5-K " " S. D. pipe line, details of
- 5-L " " Res. 250' contours (H.E. Green)
- 5-M " " cross sections of Jamul Creek in 1917
- 5-N " " Res. no storage in, 1905-16
- 5-O " " pipe line, profile of to City
- 5-P Otay, So. Cal. Mt. W. Co. pipe line at Barrett's Ch. dell
- 5-Q Lower Otay, cross section dam below
- 5-R LOWER OTAY, topographical map of
- 5-S " " plan of pipe line
- 5-T Bonita Pipe line, profile of
- 5-U Profile pipe line L. Otay to S. D. S. C. M. W. Co.

Numbered

- 6 Mission Gorge contours (Fletcher) #3
6-A M. Gorge #3 radial cone (Eastwood)
6-B " " " (T.H. King)
6-C " " " cap. & flooded area curve
6-D " " #2 " " " "
6-E " " #3 map of 310' contour
6-F " " #2 156' dam net safe yield
6-G " " #3 map of 330' contour
6-H " " #2 enlarged maps of
6-I " " #2 N.S. Y. 156' dam
6-J " " #2 " " 116' "
6-K " " #3 " " 230' dam
6-L " " #3 " " 210' dam
6-M " " #3 " " 230' dam
6-N " " #2 & 3 390' contour (Savage).
6-O " " #2 156' dam no draft
6-P " " #3 complete topog. of dam site
6-Q " " #2 contour map of below Lakeside
6-R " " #3 complete topog. of tracing
6-S " " #3, plan of 230' dam (Jorgensen).
6-T " " #3, reference partition map. Ex. Mission
6-U " " #3 topography of (Haler)
6-V " " #2, El Cajon Valley, (Alverson)
6-W " " #2 & 3 " " " showing
location of S. & A. Co.
6-X " " #3 Res. Basin showing proposed location
proposed pipeline

- 6-X Mission Gorge #3 picture map
6-Z " " " " topog. (hard copy)
6-(a) " " #2 core borings
6-(b) Map from U.S.G.S. Water Supply
Report #446, Lakeside, El Cajon M. Gorge
6-(c) map S.D. Cons. G. El Co. lines
three Res. site
B6 Moreno Spillway Report & Inketal File
C6 Mission Bay maps of prop. location of Sea Wall

Number

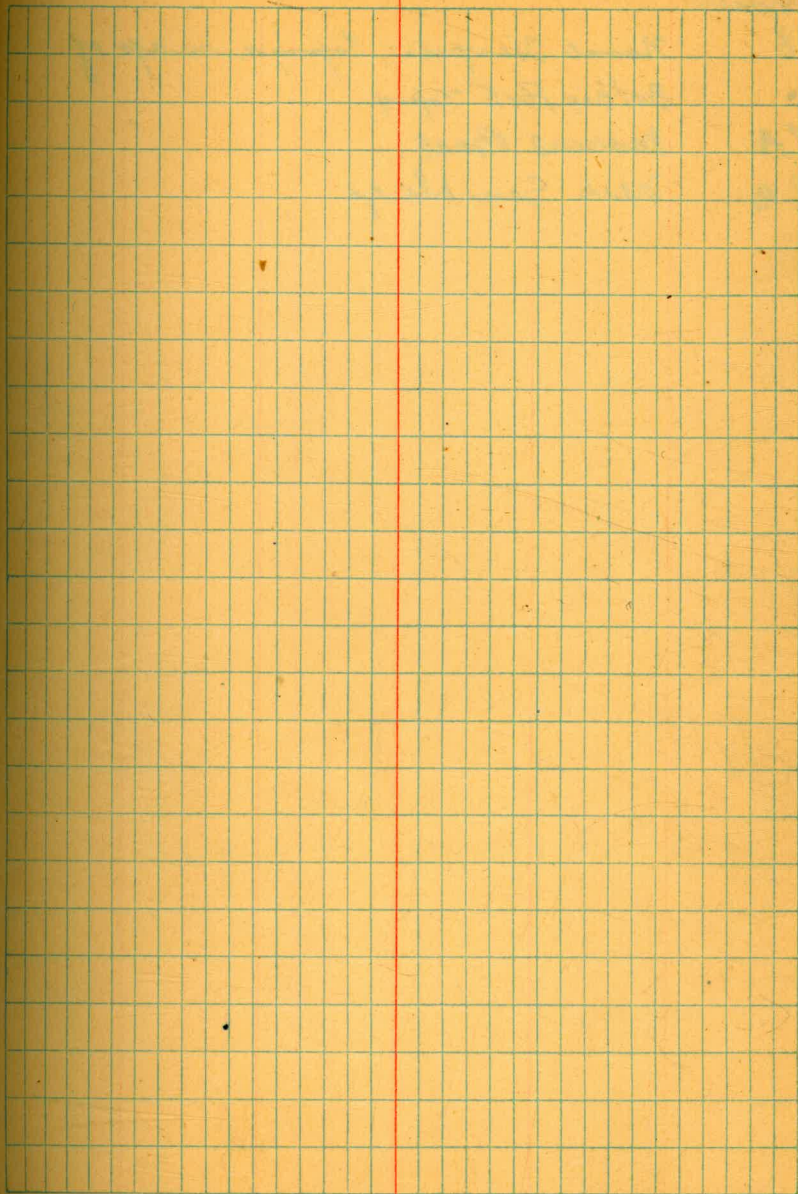
7

Street car system City of SD

7-A

Ocean Beach abandoned lines

7-



Number

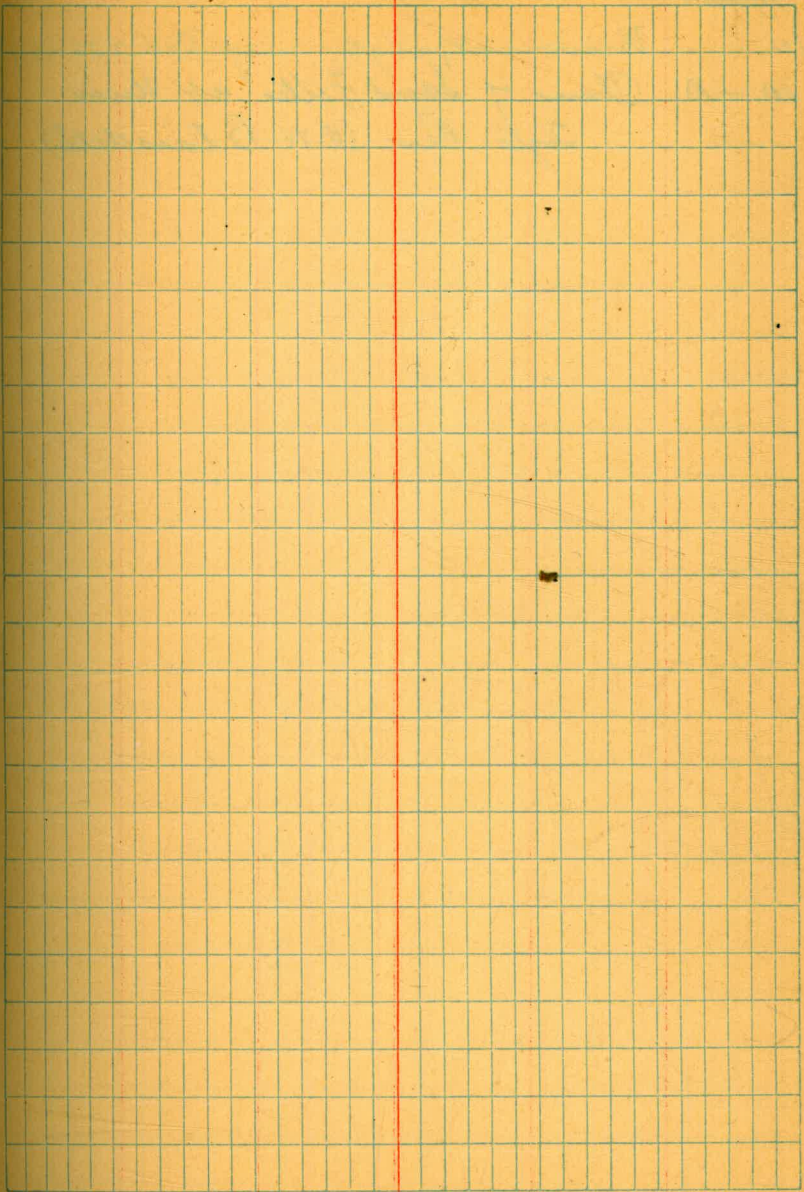
- 8 Naval Hospital, topogr. map of
Balboa Park Topog.
8A. Marine Base
8B New San Diego

number

9

City Farms, map of

9



number

10

University, Nyto, map Sat 336-37

10 - A

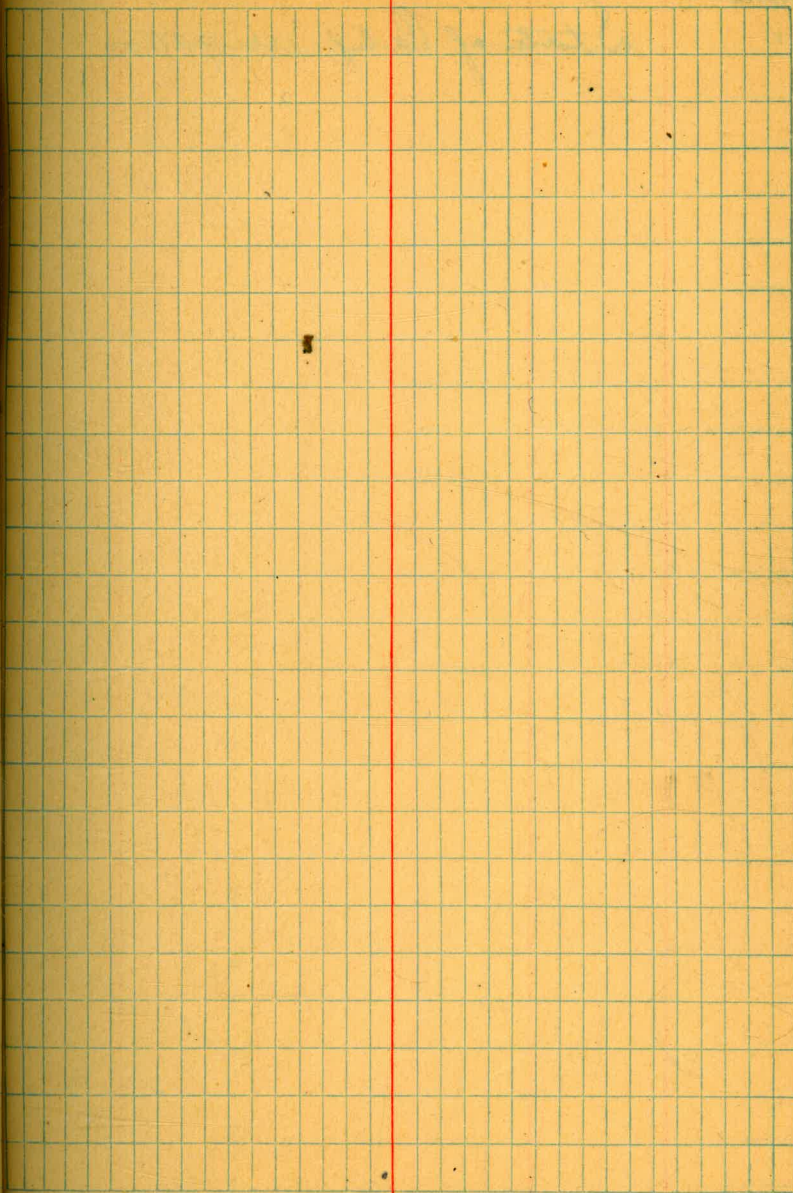
Plans of Land Filter at Univ.

Nyto Rev. (H.W. Blaisdell)

to number

11

Telephone Lat. maps used in

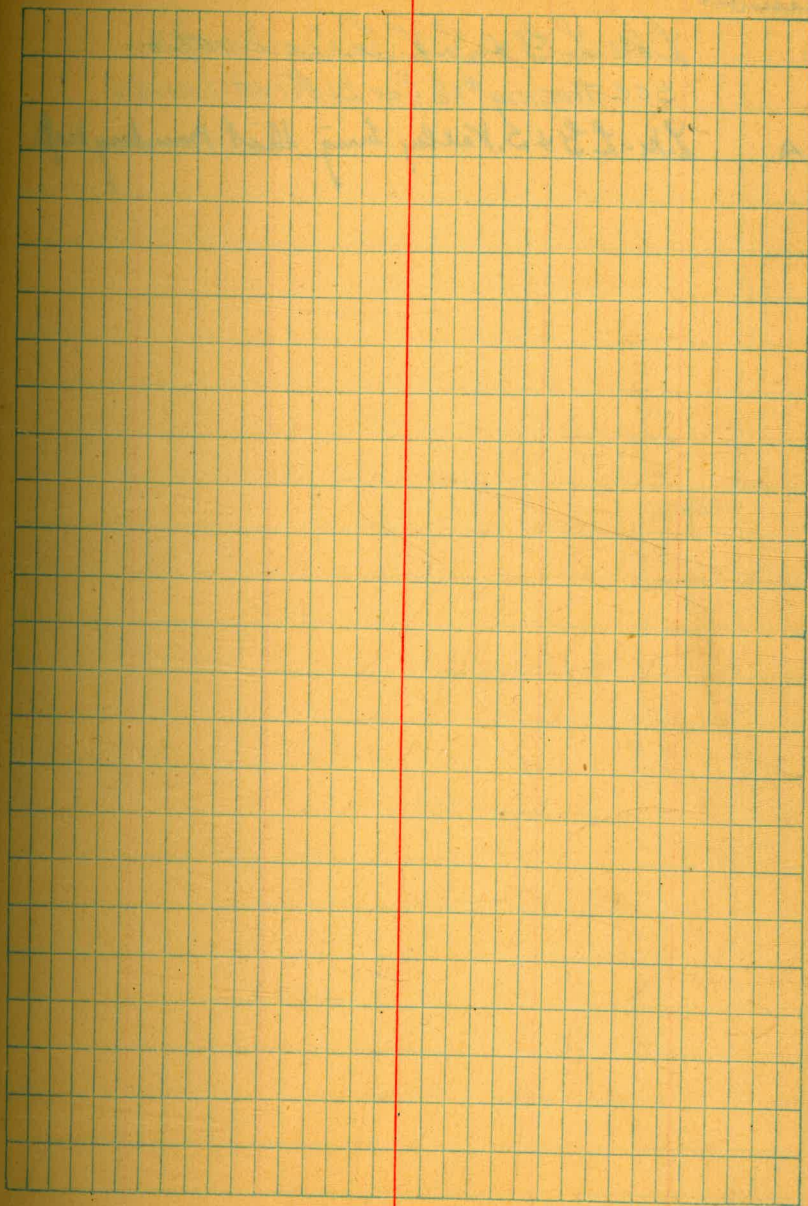


number

12

State of Calif. irrigation

12



Number

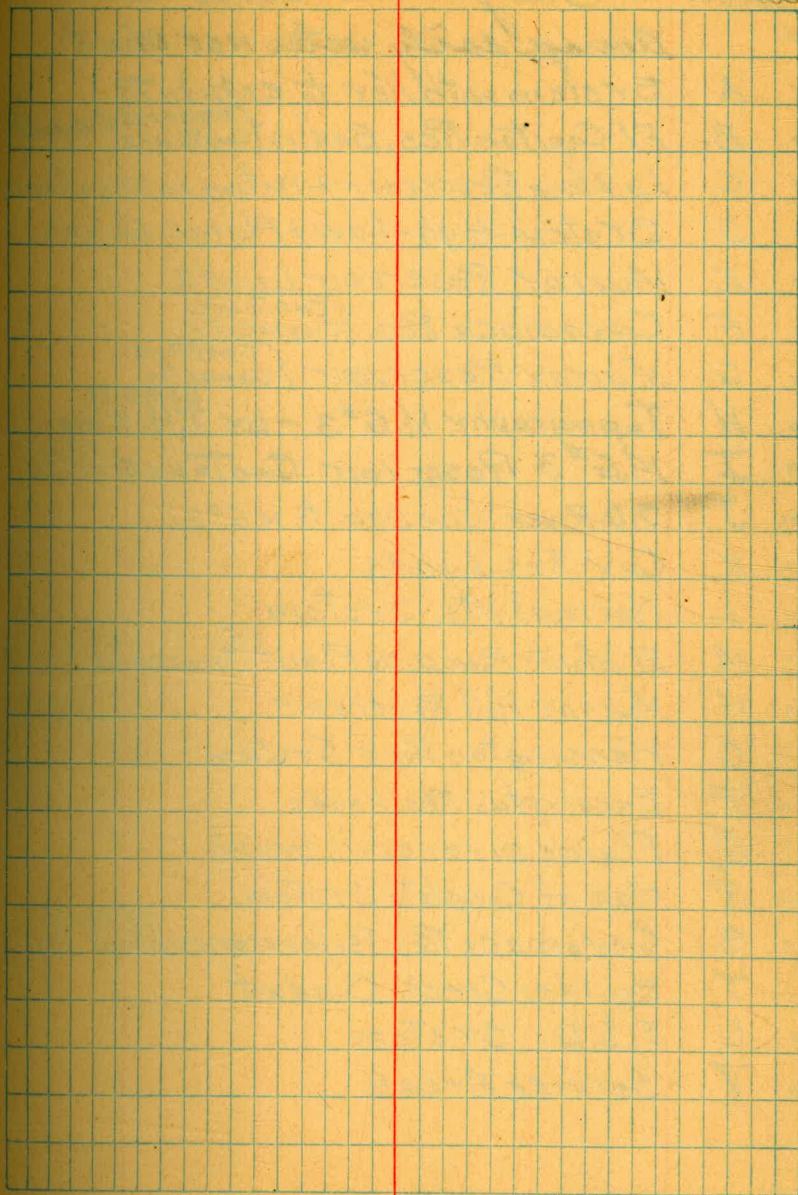
13

L.M.L.G. + S.V. Long Maps
see Tracing #16 for District Lands

13A

L.M.-L.G. + S. Valley Long Dist Boundary Maps

13



- number - Cuyamaca Water Co.
- 14 - Average daily water use chart
 - " A System with Key to exhibits
 - " B El Capitan Res. Basin {^{ownership} contours capacity
 - " C La Mesa Reservoir + Portion La Mesa Colony
 - " D System - High - Low + Flume Areas
 - " E Murray Reservoir Lands
 - " F Cuyamaca Res. {^{contours} capacity
 - " G Murray Reservoir {^{contours} capacity
 - " H Topography M.G#3 - by ^{Dam site.} T.H. King
 - " I M.G#3 Reservoir Contours {^{Two} Maps
 - " J J.D. River (Div. Dam to M.G#3)
 - " K Cuy. Res. Lands
 - " L Normal Hts. System
 - " M El Monte Pumping Plant (Two maps)
 - " N Murray Hill Reservoir
 - " O Kensington Park System
 - " P Eucalyptus Res. Lands
 - " Q Flume Diversion Graph
 - " R Map of Complete System
 - " S Cuyamaca Res. Performance {^{El Monte} Plant 1921
 - " T Boulder Creek Conduit
 - " U E.S.D. System
 - " V Service Areas

Number Forest Reserve of Cleveland Natl.
S.D. County

15. With El Capitan Ind. Res. Spotted

The right page of the notebook features a large grid of graph paper. The grid is composed of small squares, with a red vertical line running down the left side of the grid area, serving as a margin. The grid is currently empty.

number San Diego River

- 16 Tracing Pumping Land (city) and L.M.L.G. + S.V. Property
" A Riverview Pumping plant
" B " Wells (Alverson) Two Rolls
" C S.D. + Coronado W.Co. (old Town Res. + Pipe Line)
" D Old Town City Wells + Pumping Plant (see old Book for wells)
" E Profile + wells
" F Resources (Savage)
" G Property of Fitzherbert West
" H Reservoir Performance
" I S.D. River from Old Mission down to Lakeview

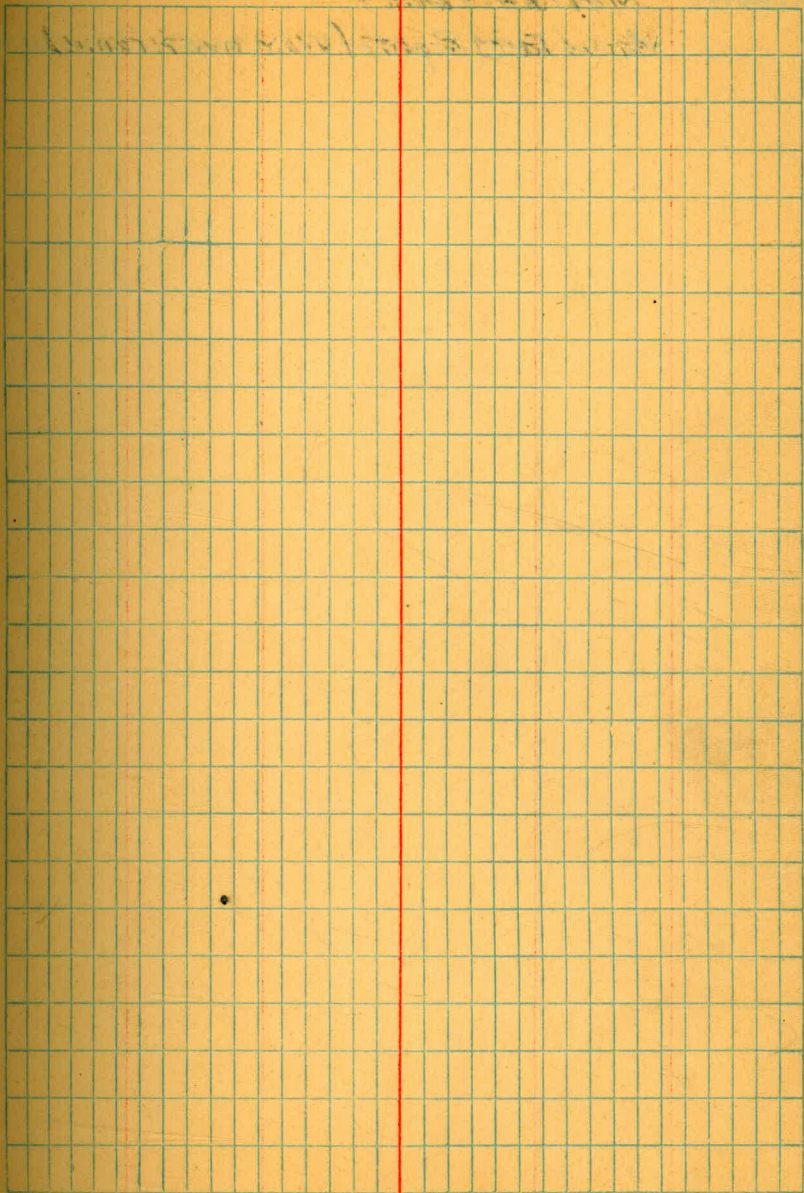
Log of Wells

Number

Dam Designs

17

Minidoka Project (U.S. Recl. Service)



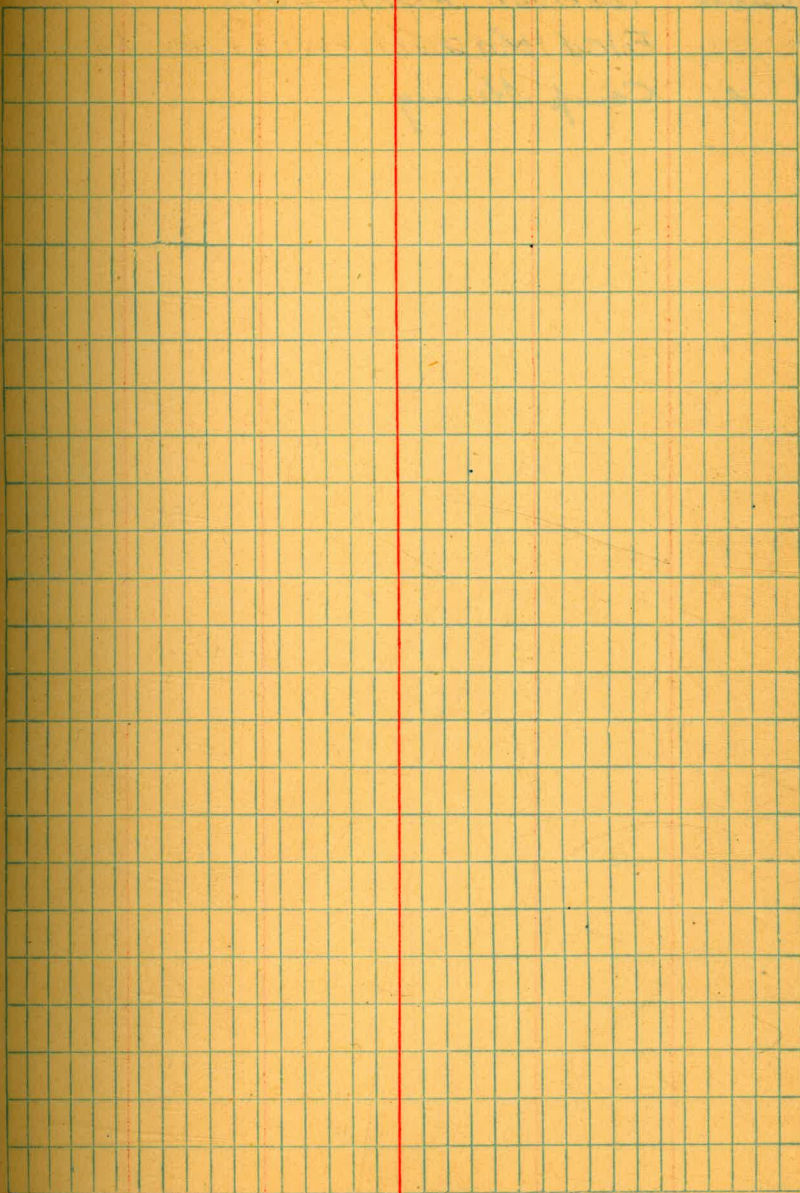
number

Marron Valley

18

Map of Res. (Right of Way over Public Land)

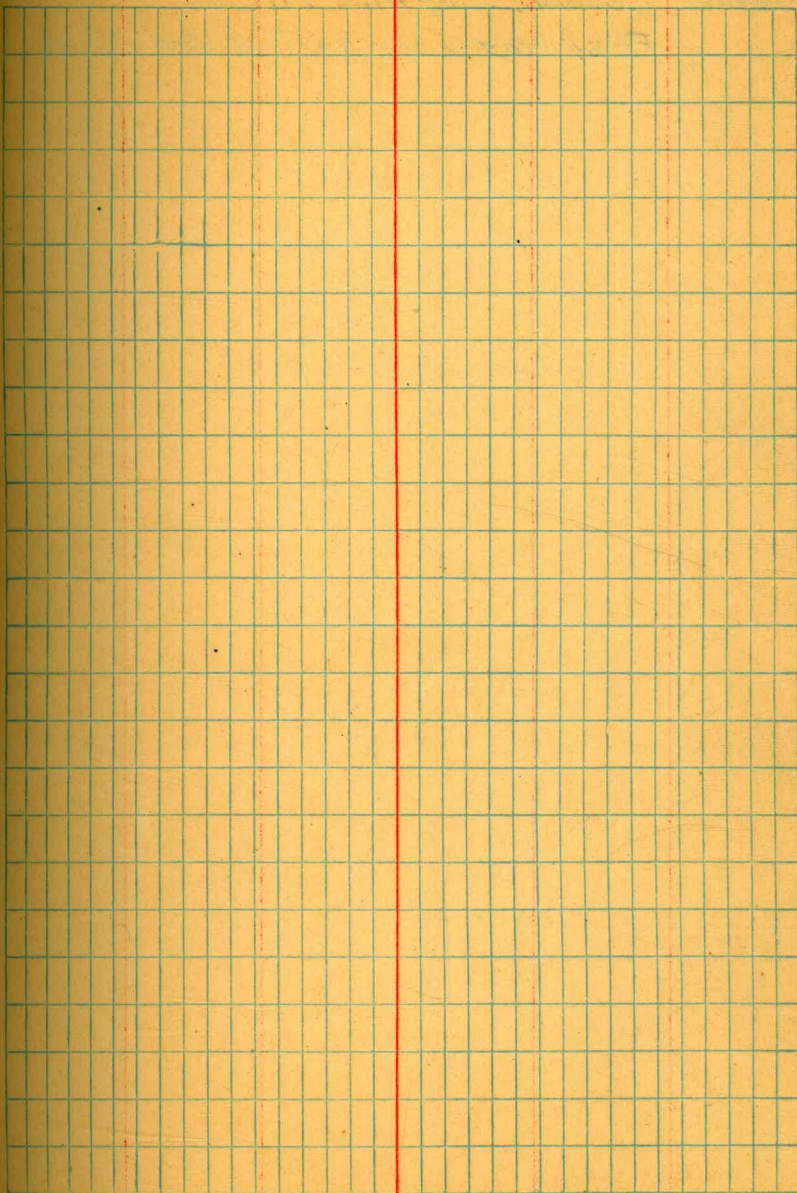
18



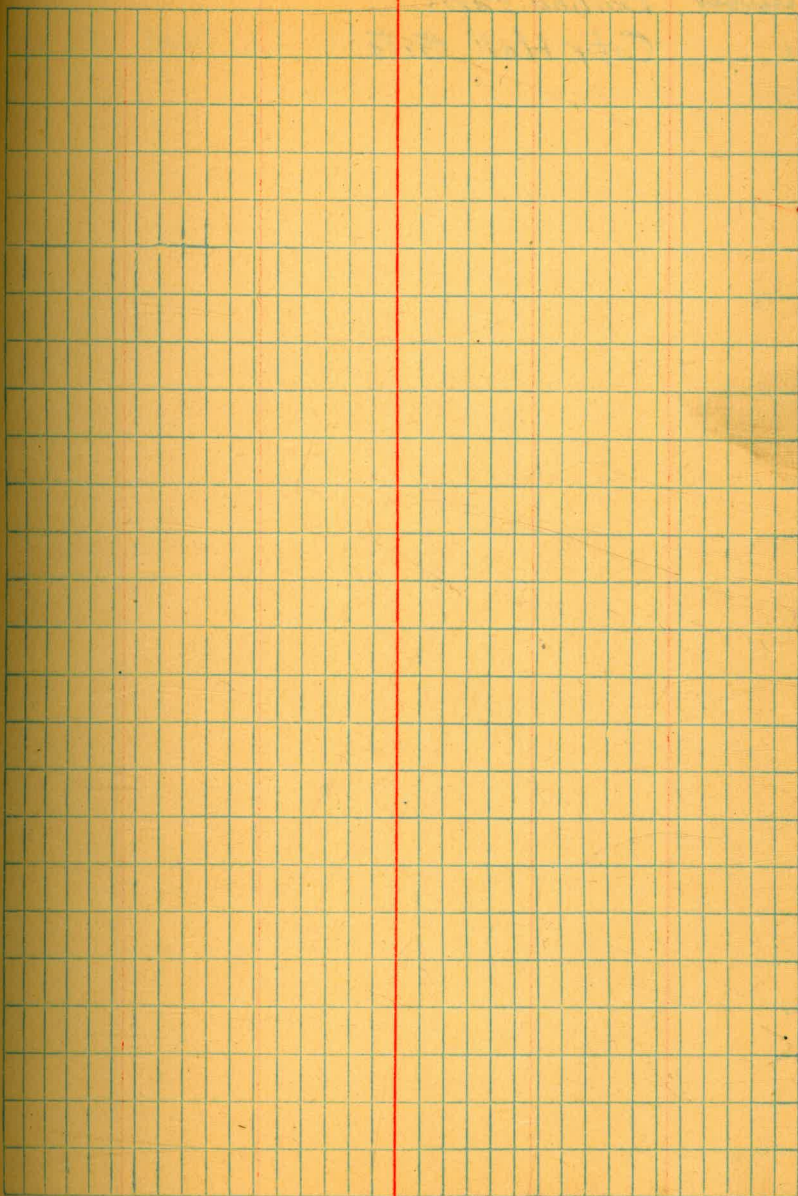
Number Crown Point Sub.

19 Filed Map.

19 A Camp Herney



number Southern Calif Mtn. W. Co
20 Rt of Way over portion Natl. Ranch

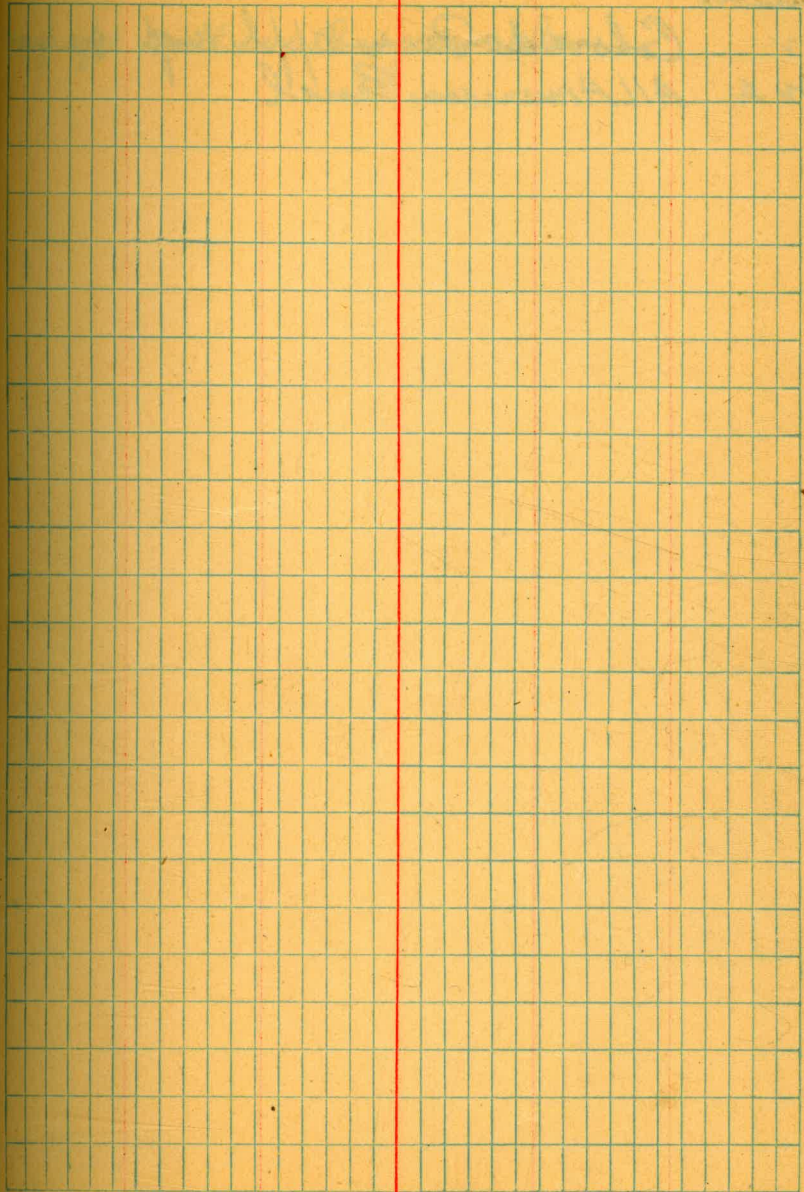


number

Balboa Park

21

City Hall Site



Number

22

Colorado River appl. map. See wall

22 A

All American Canal

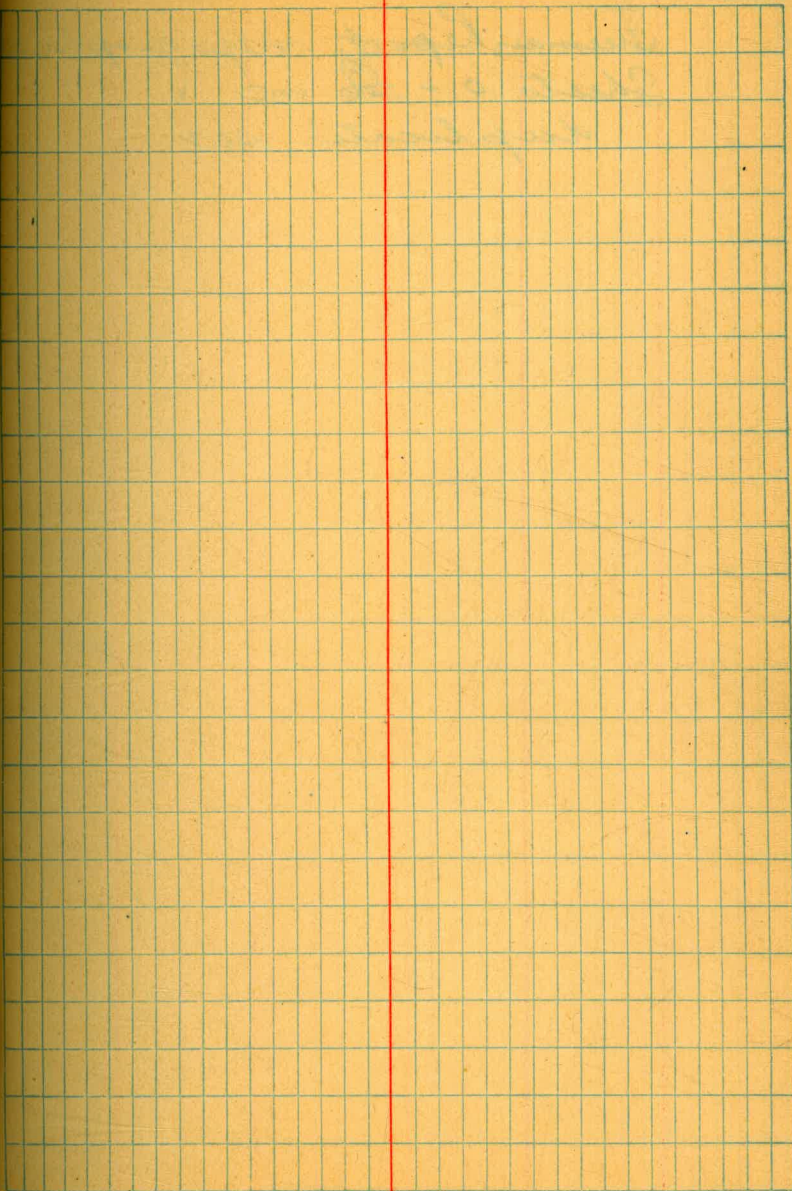
map for Boulder Canyon Dam

number

2 23

2

23



Number

24

Freeman Report, maps, graphs, etc.
Sheets 0 - ~~76~~⁷⁹ inc X
duplicate set

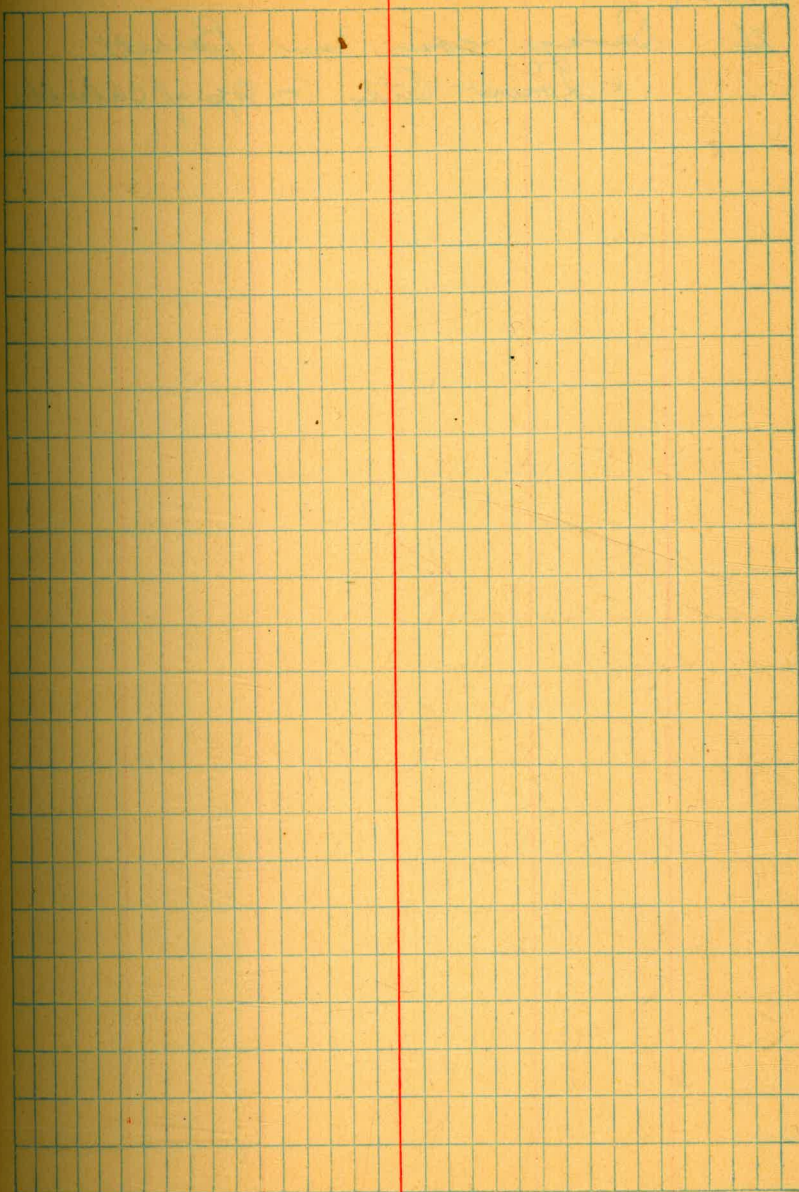
24

December

25

S. O. & Ariz Ry to from Dolans
Summit to Chula Vista

25

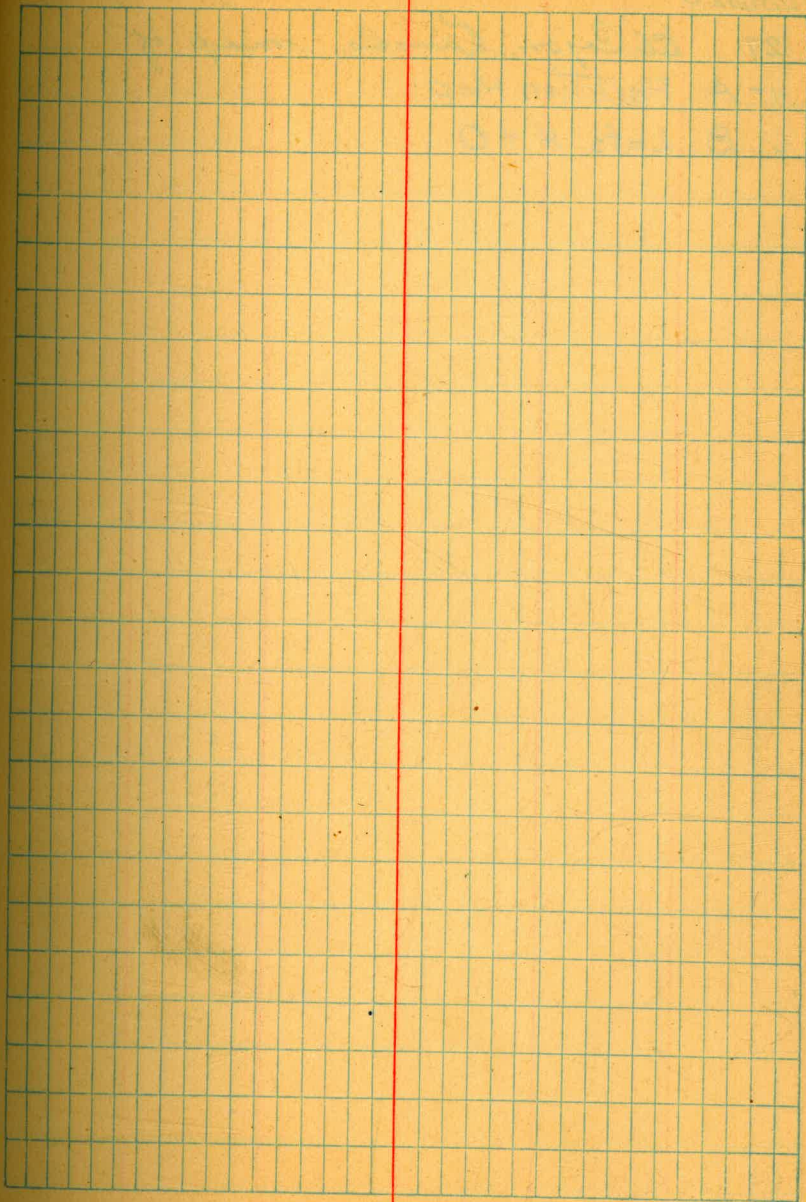


NUMBER

26

Savage cov. on Barrett
x Lower Otay (on top of cabinet.)

26

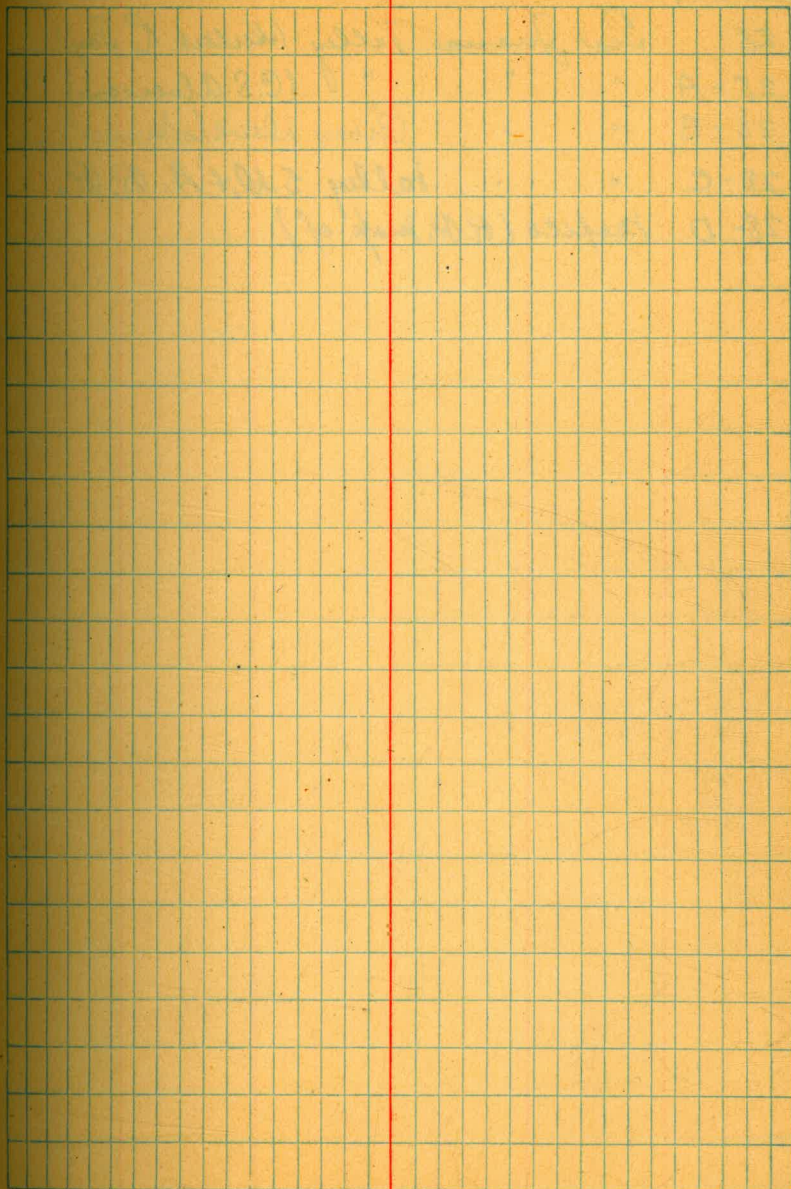


NUMBER

27 El. Cajon, Rancho, map of

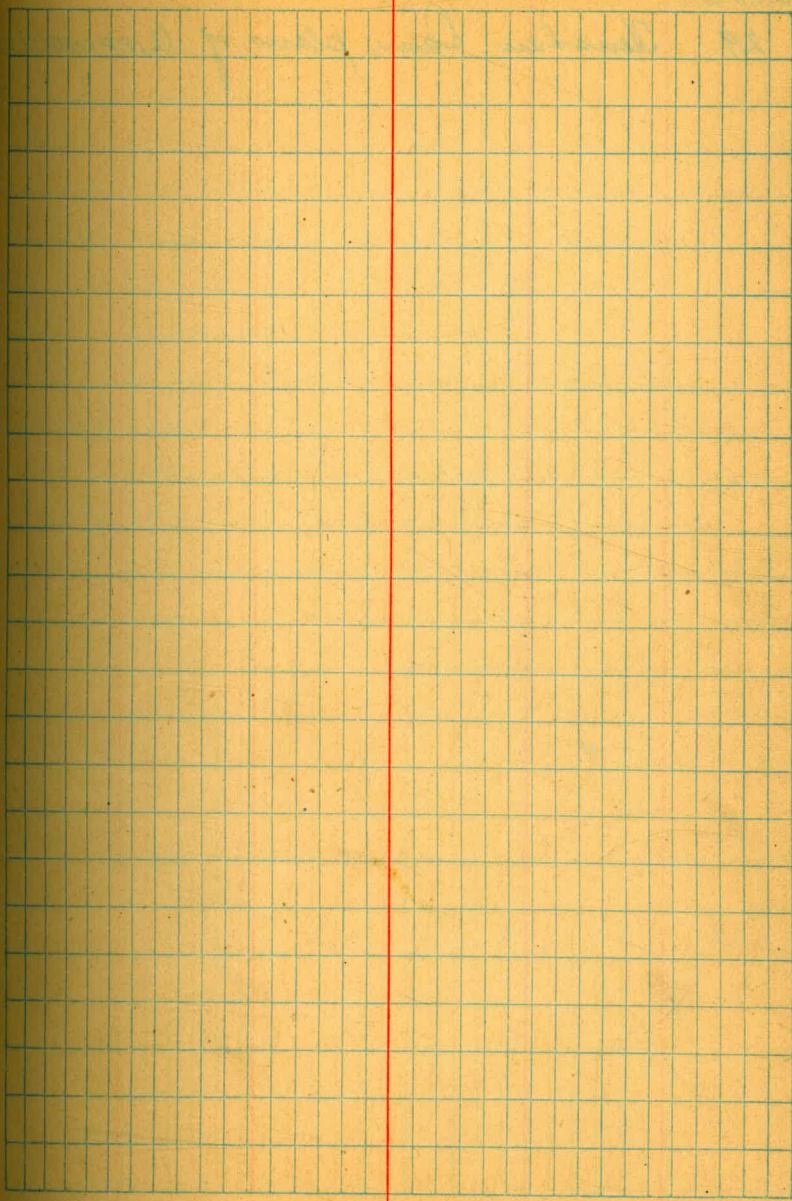
ii-A Partition Map

ii-B Lots H + O



NUMBER

- 28 Dia Juana Valley (Herbert C. Fay)
- 28-A " " " (C.S. Alverson)
- 28-B " " River development
- 28-C " " Valley S.N. & A. R.R.
- 28-D Mexico (R.R. map of)

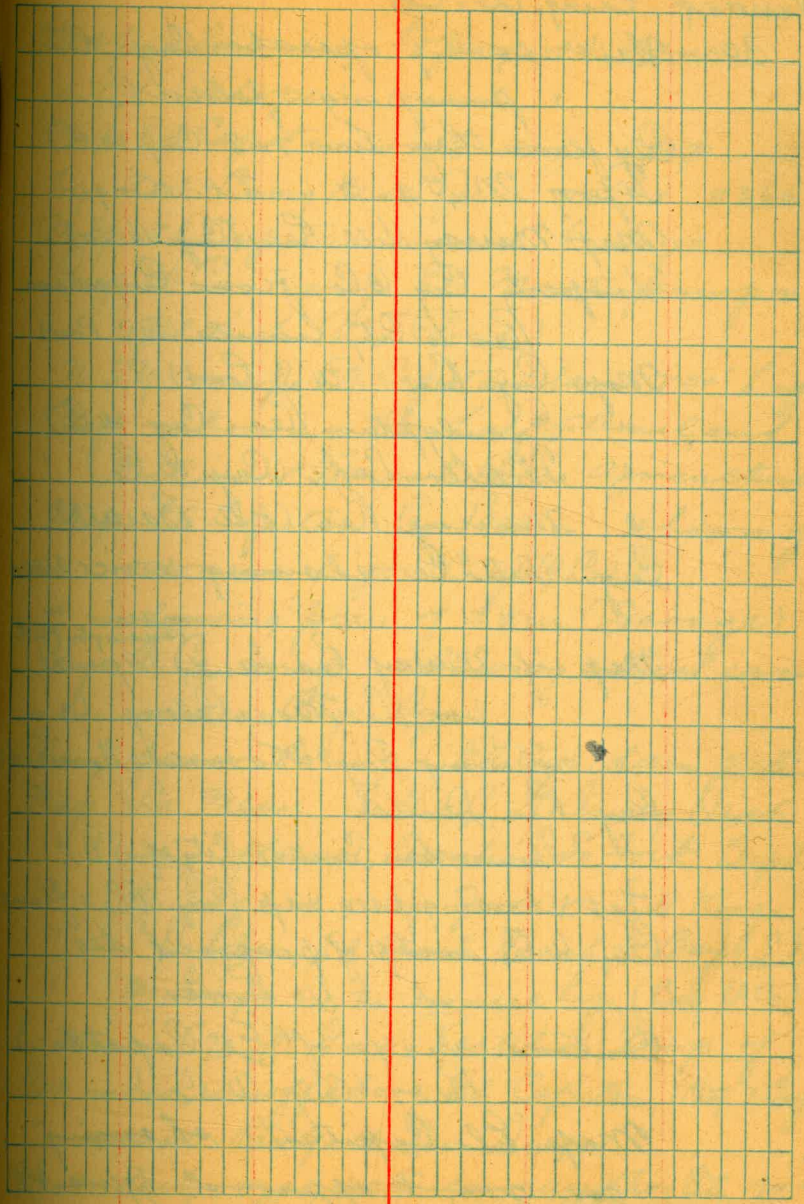


NUMBER

29

Henshaw Dam, plans of (LIPPINCOTT)

29



NUMBER Cuy. W. Co

30 Chart showing operation Cuy. Res.
x pumping plant

Cuy. flume thru Secs 7 & 8 (Cuy. W. Co)

Topog M. G. # 3 (T. H. King)

Map Murray Hill Res. (Cuy. W. Co)

Property Cuy. W. Co from Cuyamaca
Res to City limits (W.S. Post)

Map Cuy. Res (W.S. Post)

" Eucalyptus Res. (Cuy. W. Co.)

" Fletcher Lake (Cuy. W. Co.)

" Murray Res (E. H. Bartold)

Cuy. Water Co showing service areas

" " " " ^{main in}

Map of Murray Res. lands ^{Pennington Park} (Apr. '75)

" for La Mesa Colony L. 9

" showing Cuy. W. Co main ^{Norman}

Cuy. Res. Lands

" Flume thru Secs 7 & 8 (City of S. D.)

Plot showing pres. cap. Cuy. W. Co's flume

Cuy. W. Co. map of proposed des.

of S. D. River

Contour map of El Capitan

Res. (Cuy. W. Co.)

Map El Capitan showing

gov. grant approval June 26

1924 Case 036648

map showing topog. at dam
site (Hoopes)

Map El Capitan with sigs app.

by Act Congress June 26 '24 036648

Map El Capitan core borings

Cuy. W. Co. map El Monte pumping
plant (E. L. Post)

N. S. Y. map El Capitan dam 200' high

Map showing So. half Cleveland
National Forest (Sec. Agriculture)

Map El Capitan Res Basin showing
owners hips (Cuy. W. Co.)

" showing plan of dam (Savage)

Cuy. W. Co. map showing actual irrig.
use under Cuy. App

Plan of core borings El Cap. dam site

Map La Mesa. S. V. & L. J. Irving Dist

" orig. flume location So Fork Siphon

" Mr. George # 3 Dec. June '21 T. H. King

" S. D. River, El Monte Ranch to Bay L. S. D.

" Mr. George 2 & 3 owners hips (Cuy. W. Co.)

Ex Mission # 70 M. G. # 3 Partition Map of

Plot mass runoff above El Capitan (City & Cuy)

" annual Rainfall San Diego

Chart daily mat water consumption City 1910-24

" " " " water consumption 1912-24

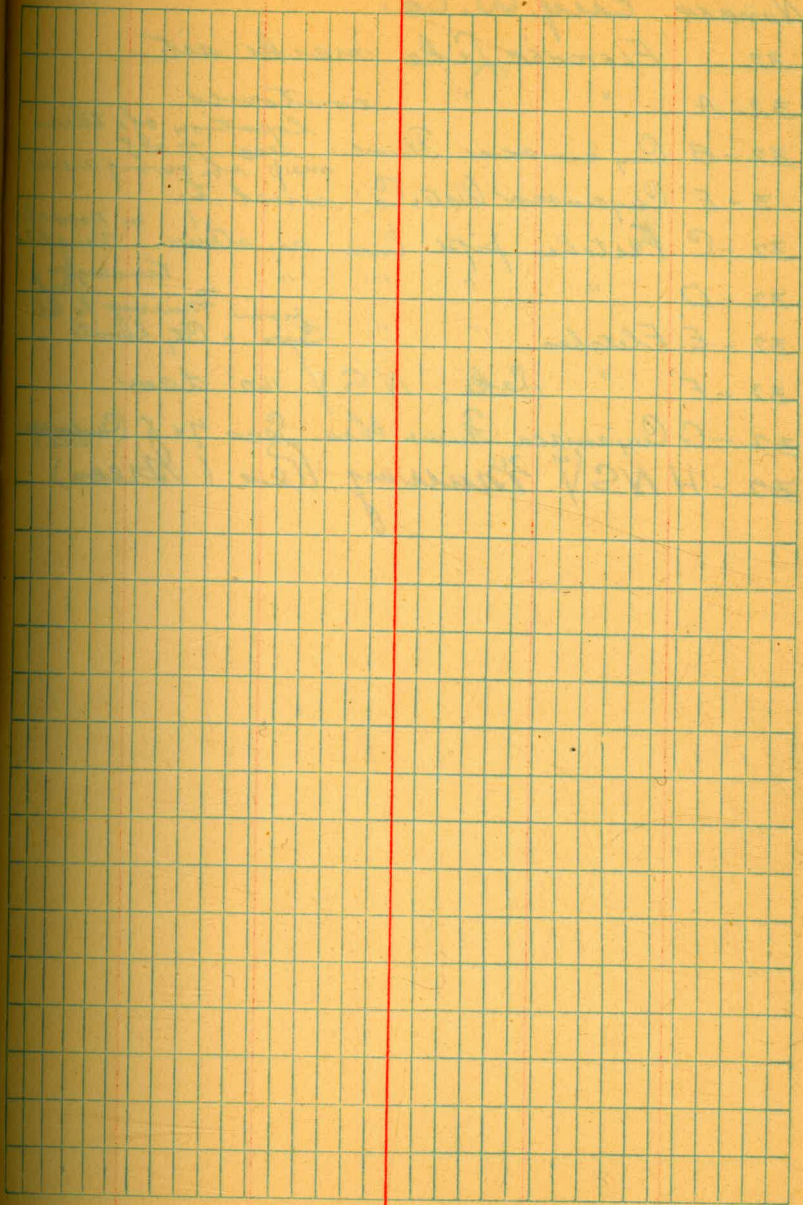
" " " " " Cuy Water Co. 1909-24

NUMBER

31

Sweetwater Res lands (Covert)

31



NUMBER Cuy. W. Co.

- 32 FLETCHER Lake marks site
- 32-A " " contours
- 32-B Cuyamaca Flume ^{location of, thru} Secs 7 & 8 ^{map showing areas}
- 3-E Cuyamaca Water Co. served by
- 32-C Fletcher pipe line system ^{in normal} ^{high tide}
- 32-D " " " " ^{in Kensington} ^{Park}
- 32-E Fletcher " " ^{from Murray to El} ^{Cajon " City limits}
- 32-F " Lake, N.S.V. 160' dam
- 32-G Cuyamaca Flume thru Secs 7 & 8 (Cuyamaca ^{W. Co.})
- 32-H N.S.V. ⁽⁷⁰⁾ Murray Res (Green)

NUMBER

33

Barrett Muni Res. Aldin

33-A

" " " moena Res. maps showing
and existing roads

33-B

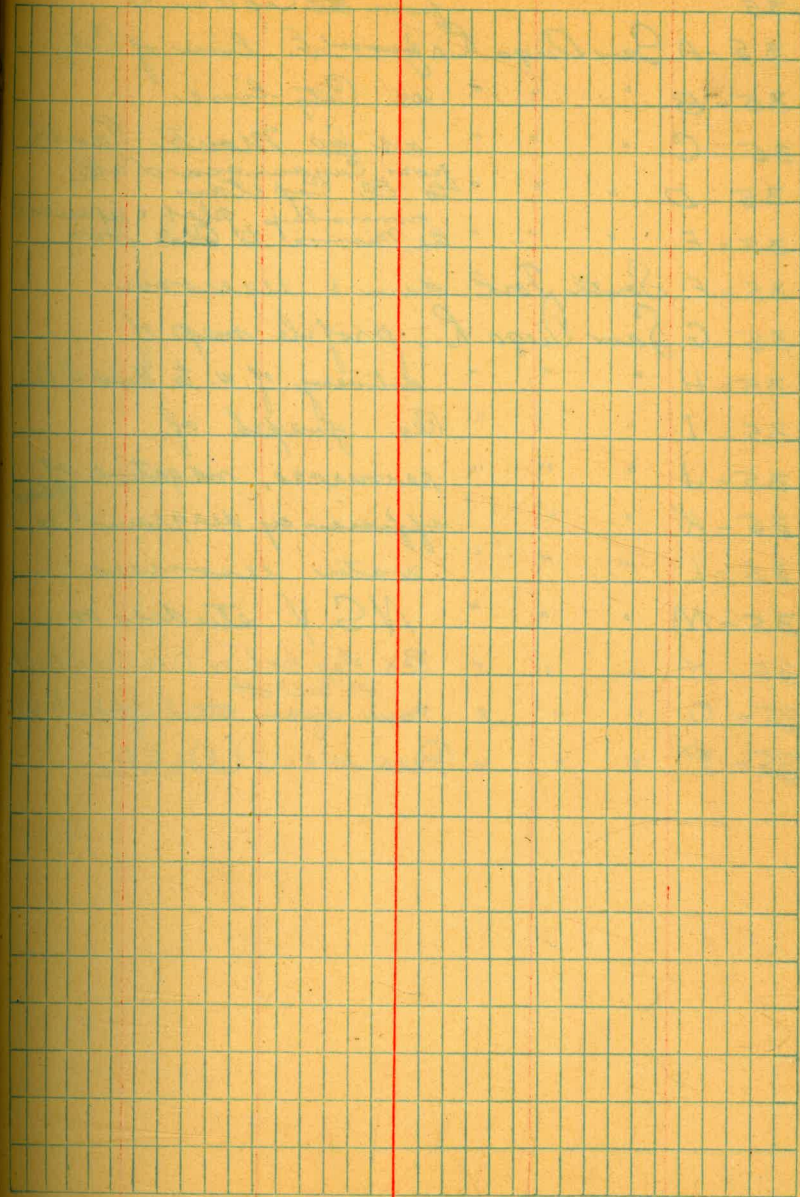
" Res. showing lands owned by City

33-C

" (Bear Camp Res. / Resurvey 180' contour)

NUMBER

- 34 Rainfall charts S. D. County
- " A City S. D. Rainfall 1851-1870
- " B Relation of Altitude to Rainfall



Number

35

- 35-A San Diego R. ^{from El Capitan to} from E. line of City
- 35-B " " " at City line
- 35-C " " " at El Monte Ranch
- 35-D " " " ^{from Cuyamaca Lake} to El Capitan
- 35-E " " " ^{ownership plot & riparian R.} Ex Mission to Old Town
- 35-F South Fork dam & reservoir
- 35-G San Diego R., profile map of
- 35-H " " " delivery of w. to Univ. H. Res.
- 35-I " " " Res. graph of,
- 35-J " " " resources, negative of
- 35-K " " " efficiency diagrams ^{of dams} on,
- 35-L " " " water resources
- 35-M " " " N.S.V. studies on
- 35-N " " " Res. Map. below Div. Dam In Me ^{by Sackett} tal File
- 35-O " " " Four span steel girder bridge
- 35-P " " " Reservoir Wells

35

NUMBER

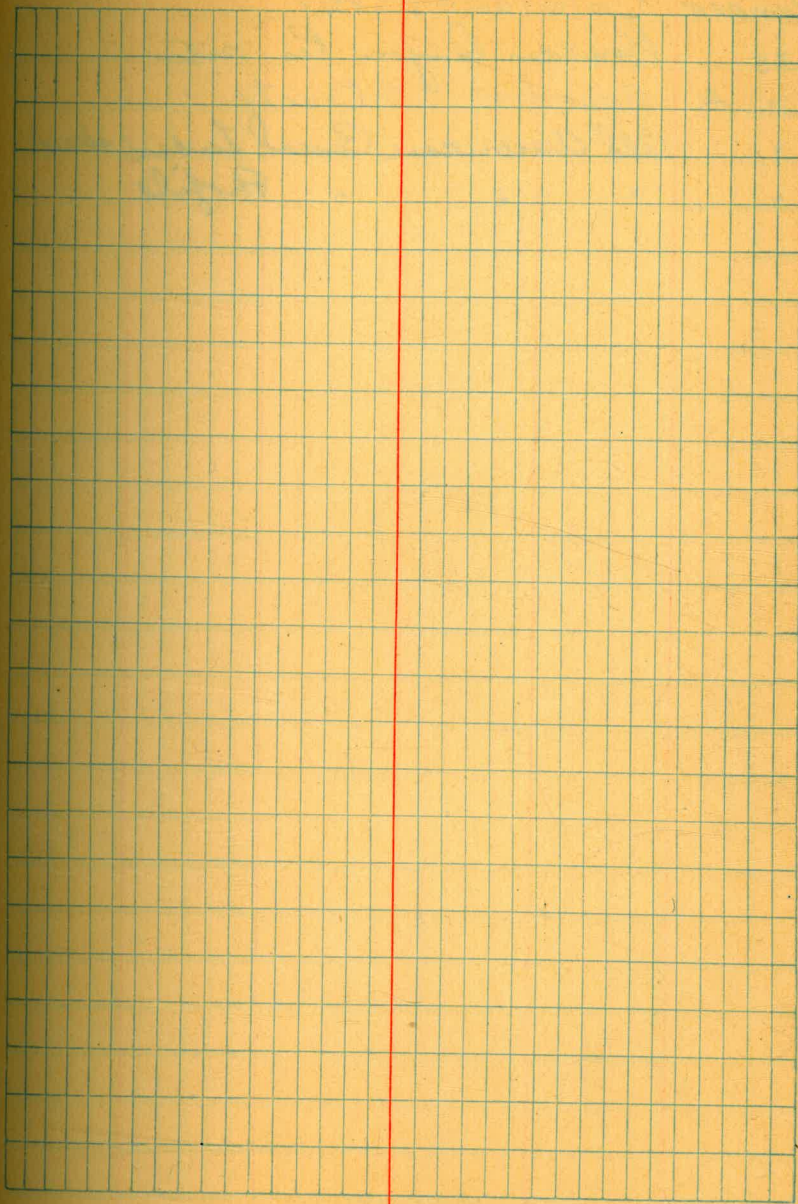
- 36 San Vicente Res. & Appl. map
 36-A " " , map of, 150' contour
 36-B " " topography of dam site
 36-C " " , amended application
 36-D " " , hard copy map of
 36-E " " dam plans (JORGENSEN)
 36-F " " map of, (W.M. ROMSEY)
 36-G " " Res. County Highway thru
 36-H " " map of material pits
 36-I " " Ranch, survey 1890 (SCOTT)
 36-J " " Res. field notes on (HOOPER)
 " - K " " Res. Contours
 " - L " " Ownership Map

NUMBER

37

Chollas, gen. plan of dam & outlet tower

37



NUMBER Colorado River

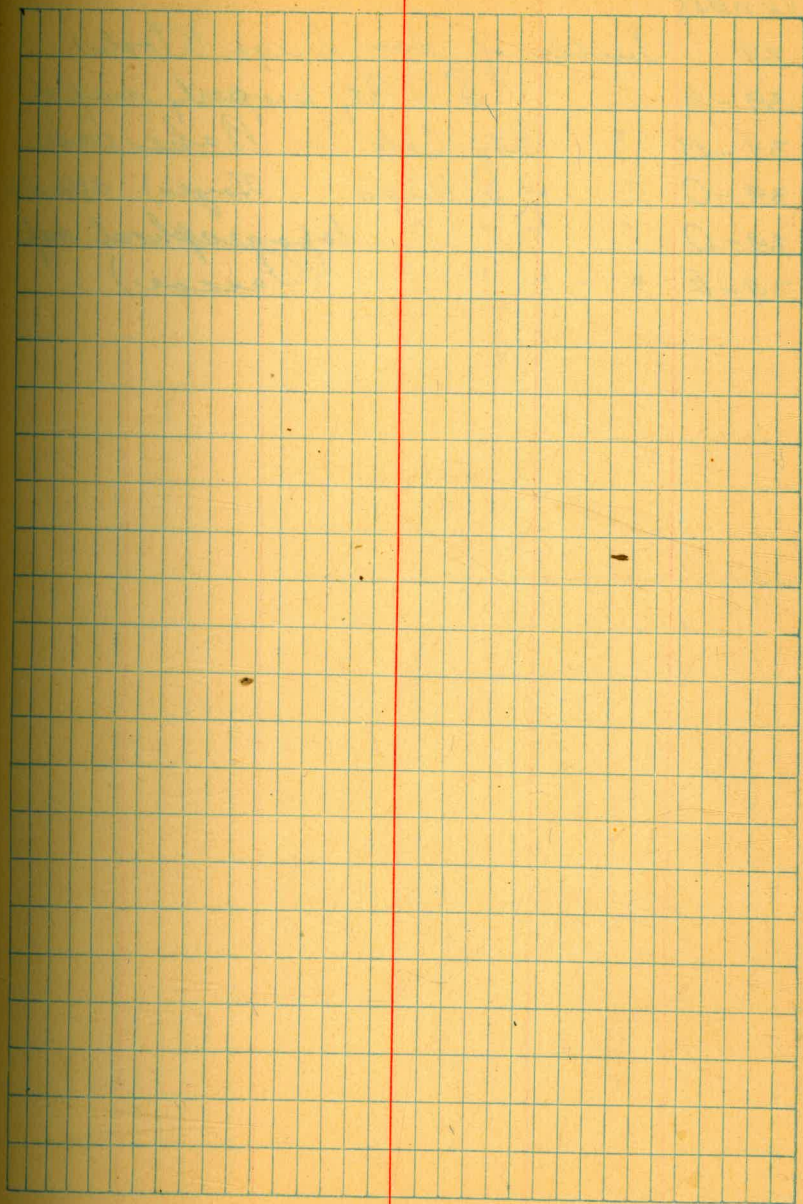
38 Boulder Canyon Res site

" A Aqueduct S.D. County

" All American Canal Index sheet

" " " " Profile

38



NUMBER

- 39 Pueblo of San Diego (Poole)
 39-A " " S.D. City property map of
 39-B " " City lots in Baker case
 39-C " " of S. Diego (Hayes) also Harbor
 39-D " " " " topographical map
 39-E " " " " (Pascoe)

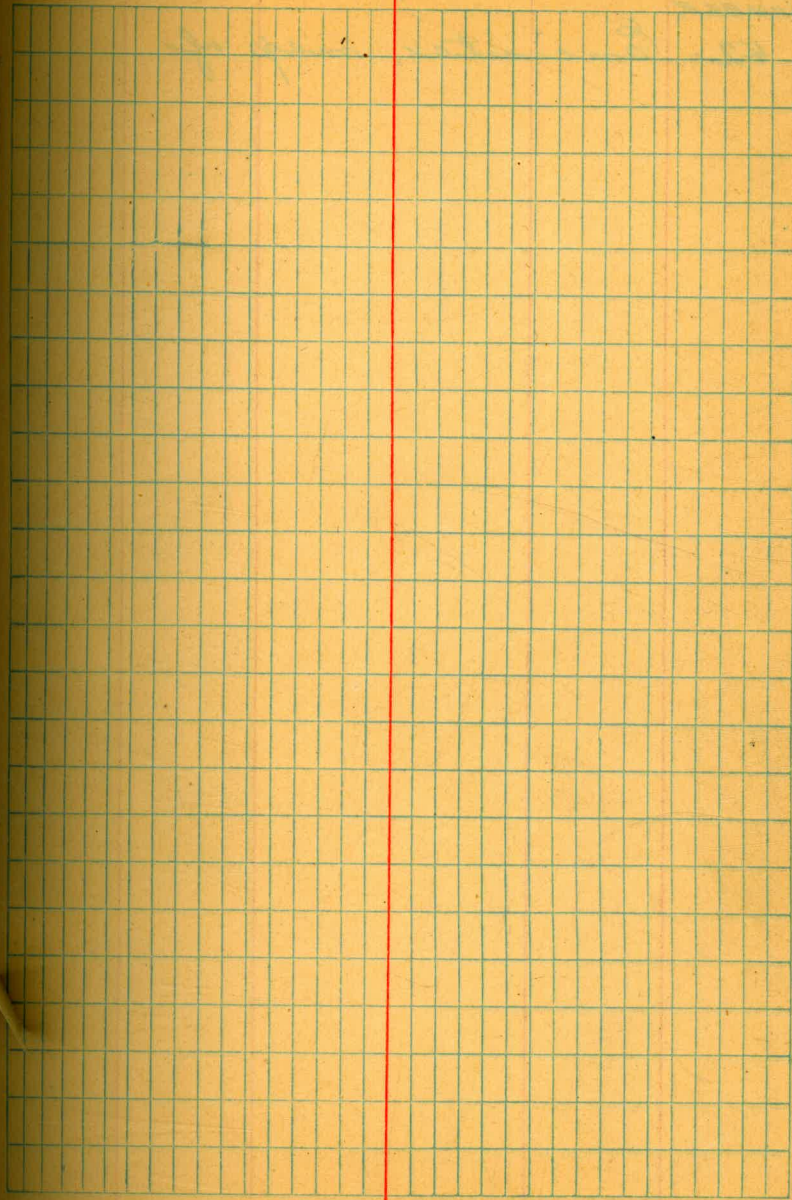
40

40

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NUMBER City of S.D.

- 41 City of S.D. Impounding & carrying system
- 41-A " " " S.D. Co. watersheds
- 41-B " " " water consumption
- 41-C " " " " (LIPPINCOTT)
- 41-D So Cal. Mt Water Sys trans. to Co of S.D.
- 41-E Present Water developement

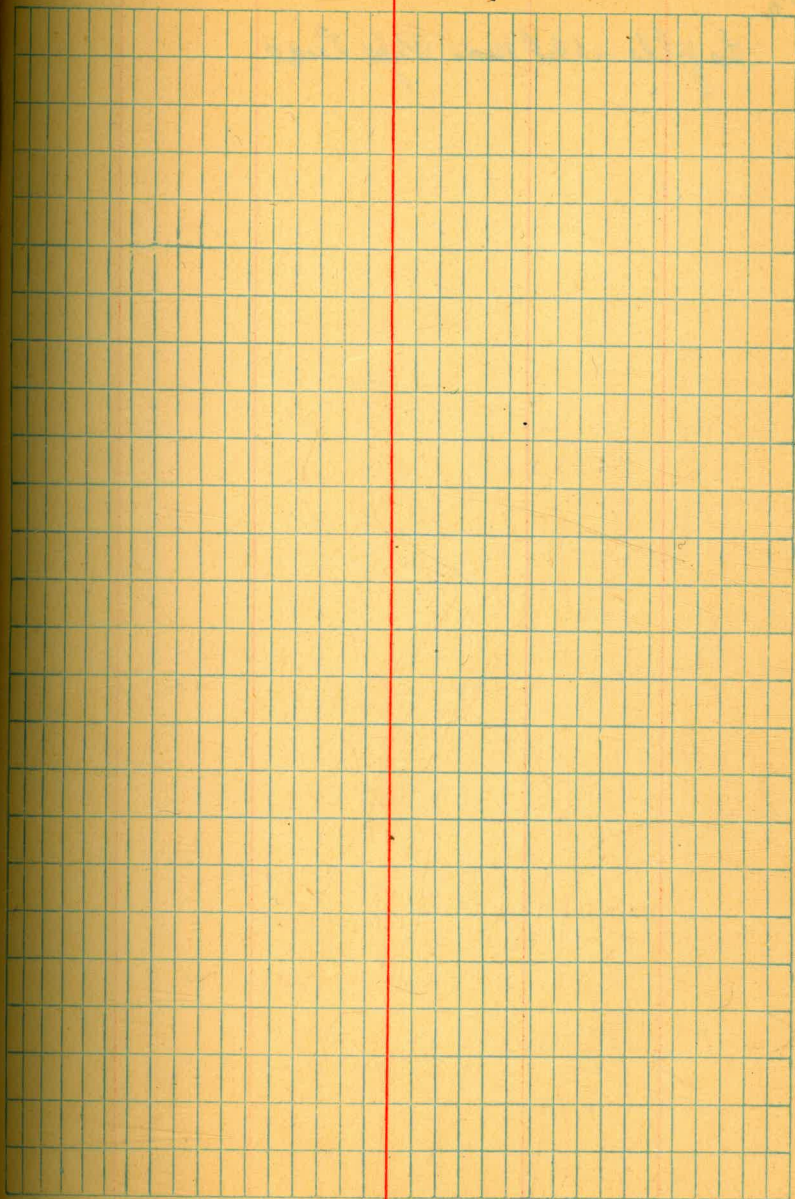


NUMBER

42

Encinitas, map of

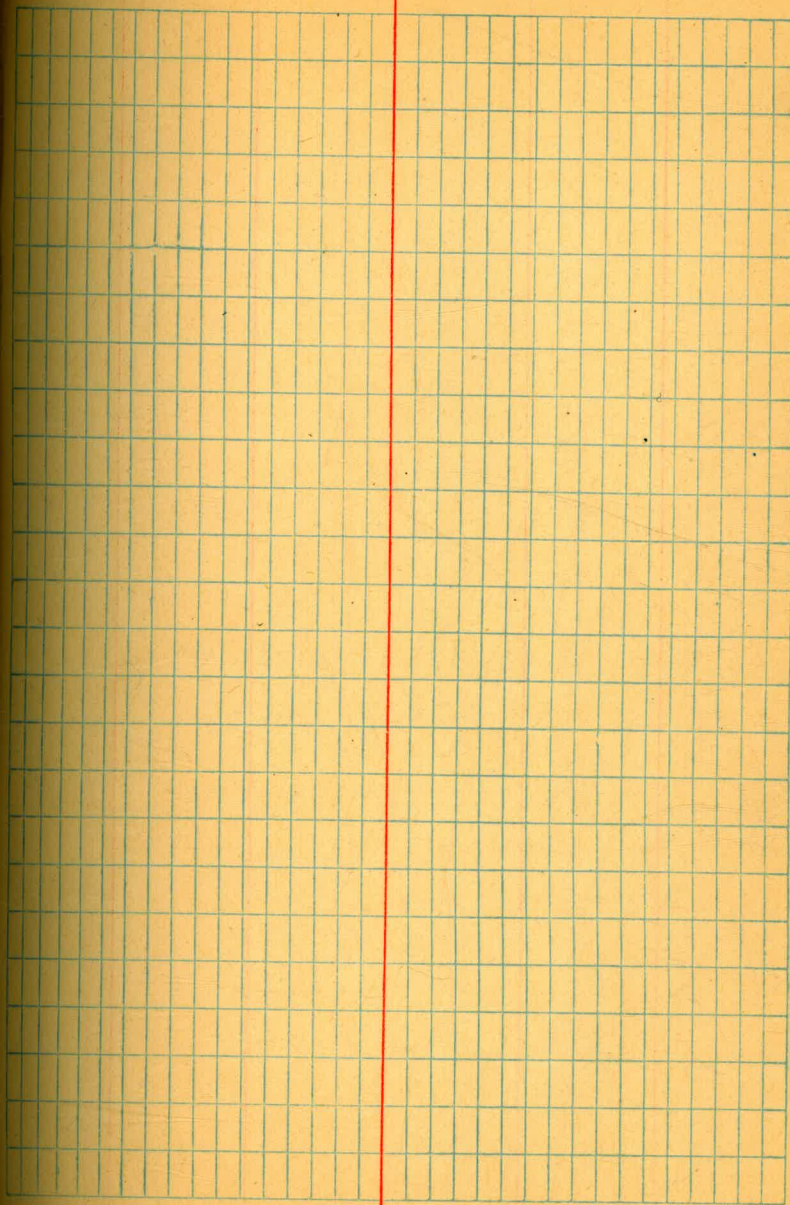
42



43

Lafolla - helmar Pipe Line

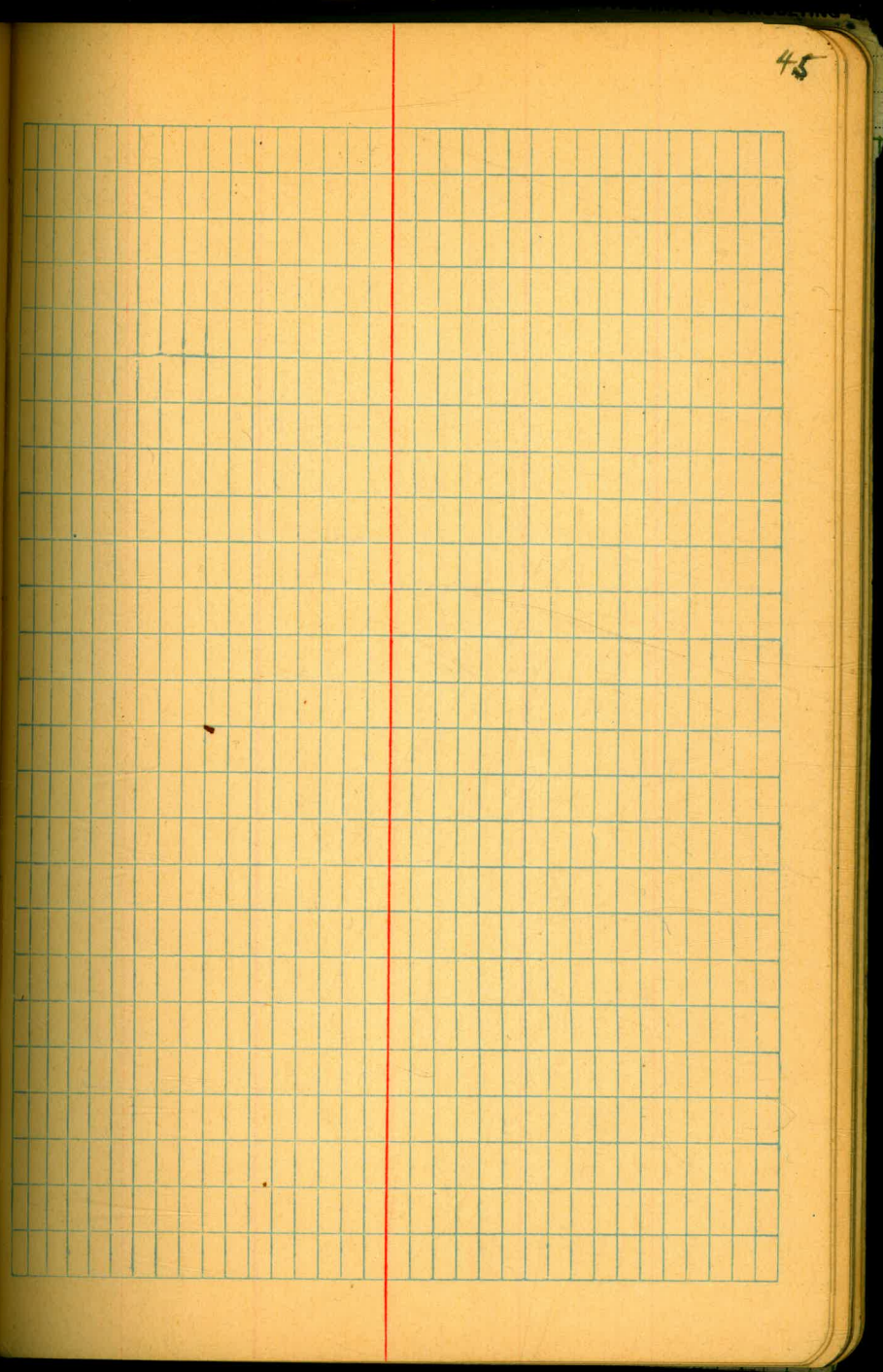
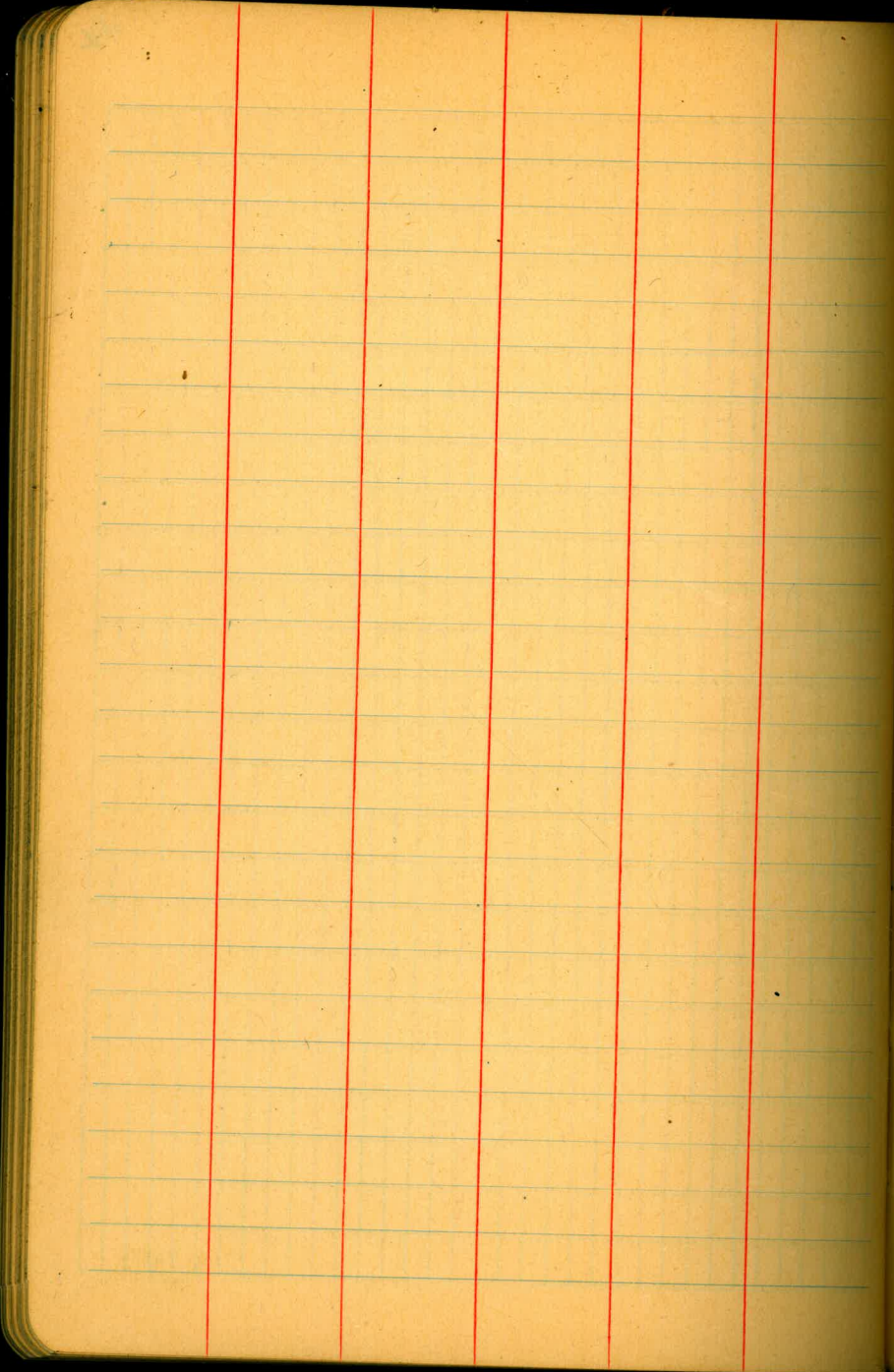
43

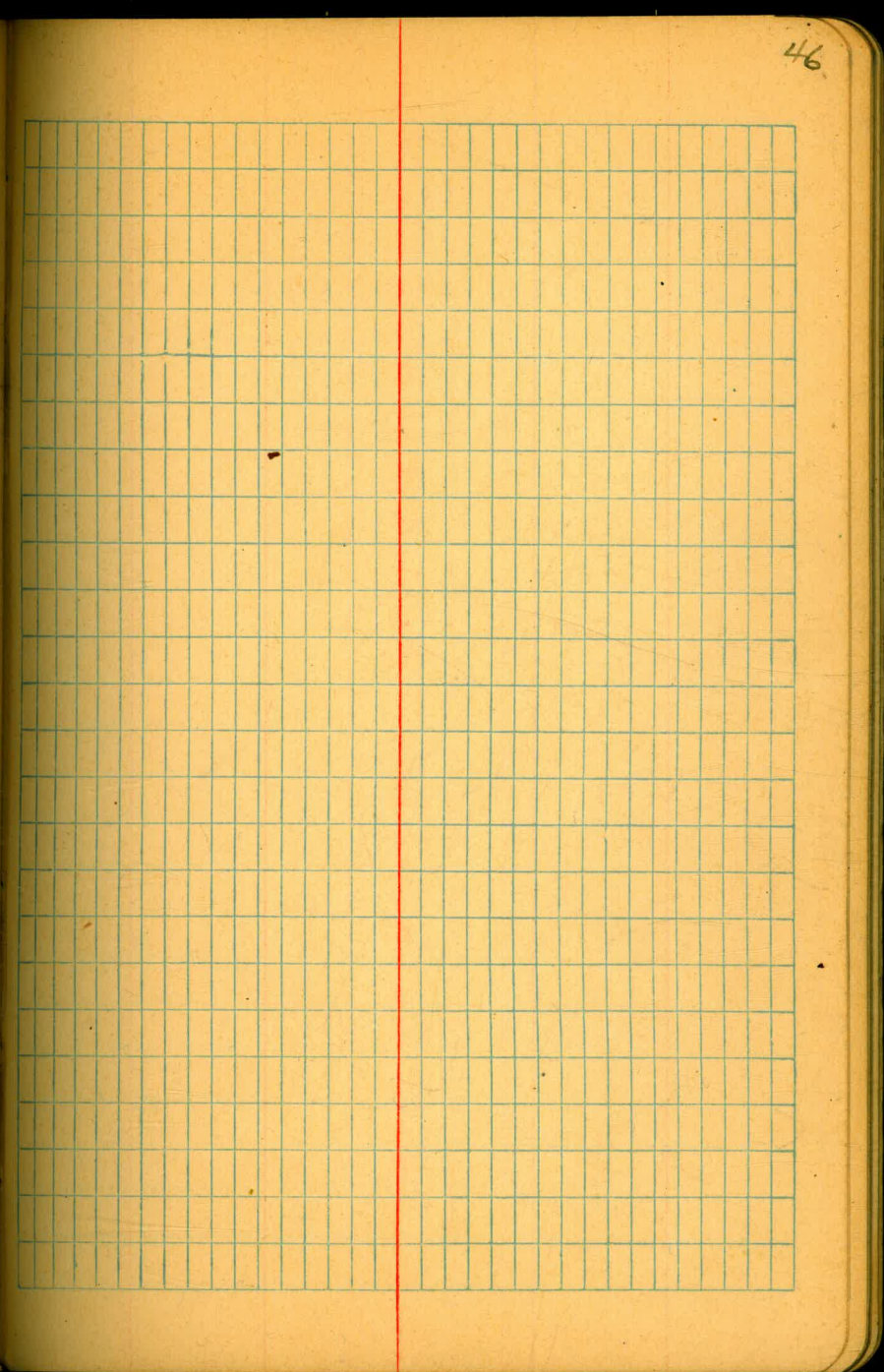
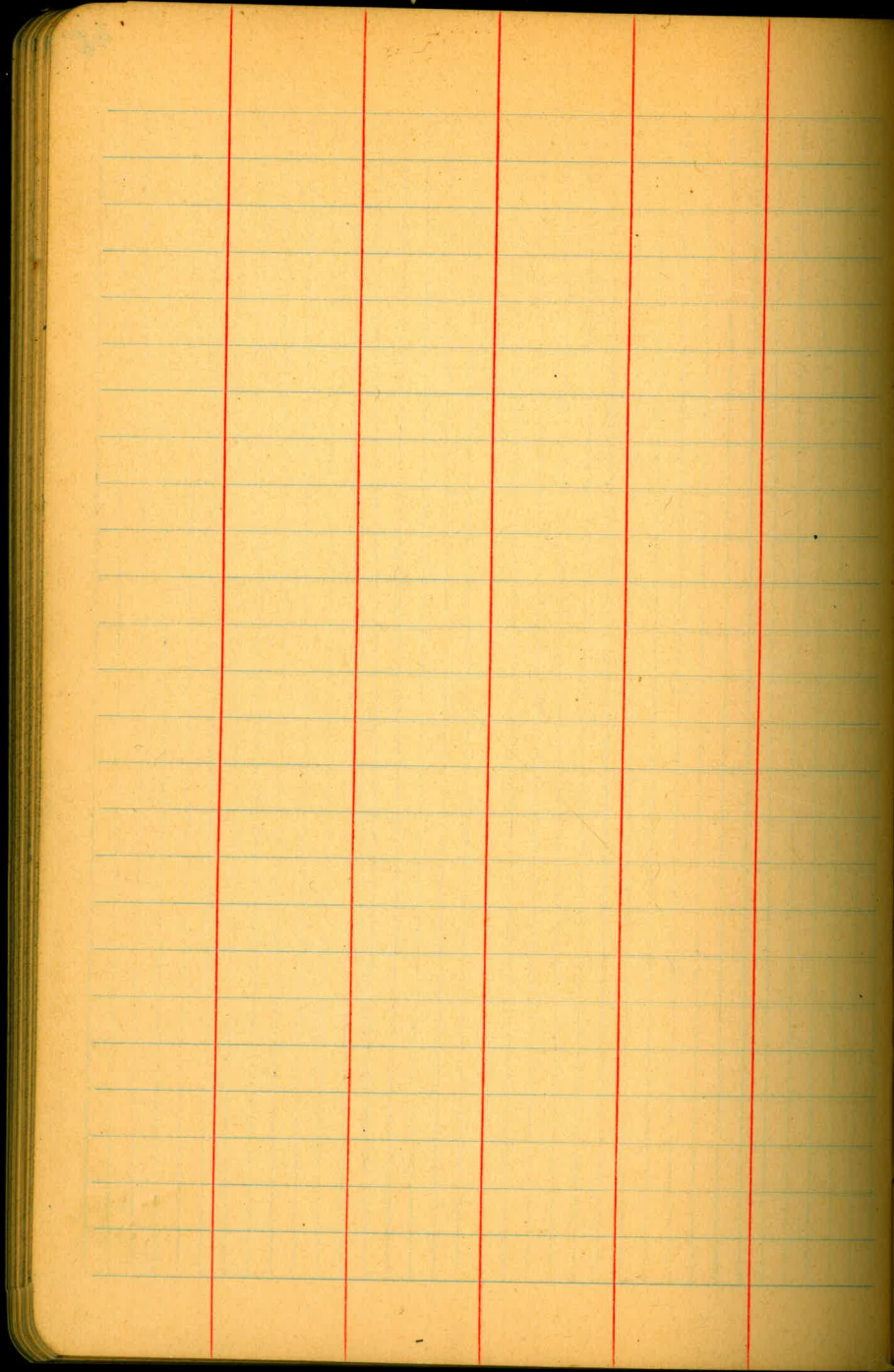


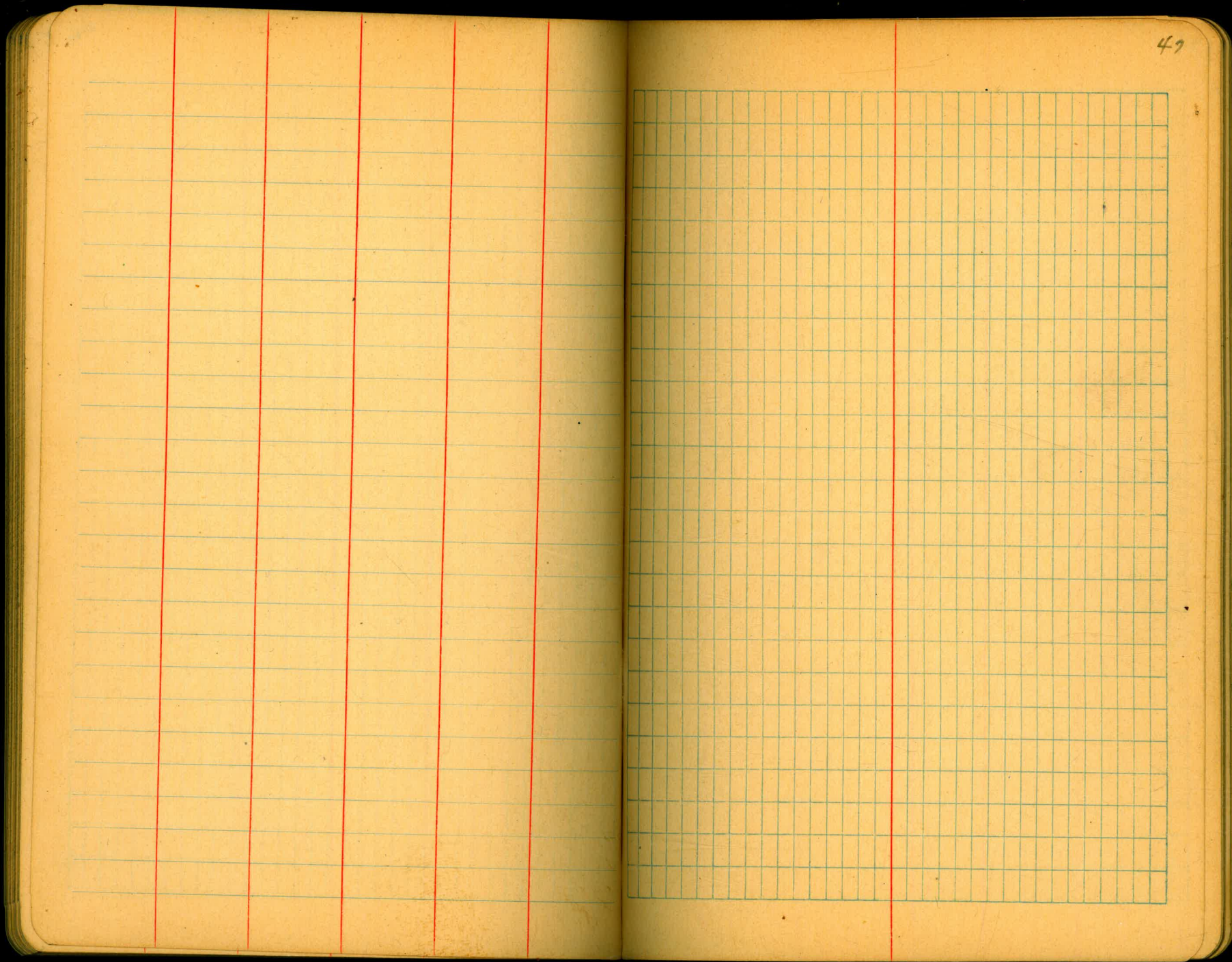
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- 50 El Capitan Reservoir ^(Williams) Traversal
 50 A El Capitan Indian Reservation - Lawson
 " B " " Map of amended application
 " C " " Topography at dam site
 " D " " Plans of dam (Jorgensen)
 " E " " Hard Copy
 50-E " " flooded area curve
 50-G " " Hamilton's map of
 50-H " " core recovery drill borings
 50-I " " tabulations of true causes
 " " of traverse of 160' per. contours
 50-J " " tracing of contour map
 50-K " " ownership plat
 50-A, Lawson Valley Road
 50-L El Capitan, map of N.S.V. 200' dam
 50-M " " plans gravity dam (Hoopes)
 50-N " " map of N.S.V. 160' dam
 50-O " " pipe line (Savage)
 50-P " " dam site, cross section of
 50-2 " " " plan (H.N. SAVAGE)
 50-R " " location for material for ^{earth} dam
 50-S " " Muni. Res. Addn, grant of 9th.
 50-T " " picture map of
 50-U " " Coolidge Mult. arch dam
 50-V " " plan of needle valve (Jorgensen)

- Valley - Barone Ranch and San Vicente Ro
 038815 F.M.N.
 50-W El Capitan, plan of dam (C.A. Turner)
 50-X " " map of (Sackett)
 50-Y " " gravity dam (Savage)
 50-Z Plan of Indian Farms within El
 50 (a) El Capitan, cap x flooded area curve
 50 (b) " " quantities x cost
 of earth filled dam
 50 A' Tabulation of bids received El Cap Pipeline
 April 1926 Also Tracing of Co Road Thru E.M. Lot 70
 50 A² El Capitan + San Vicente N.S.V. 20 M.G.D.
 50 A³ " " Drainage Area Topo Sheet.
 50 A⁴ " " Cleveland Natl Forest
 50 A⁵ " " Mass Curve Runoff S.D. River ^(City S.D. Cur. W.C.)
 50 A⁶ " " Pipeline ^(Dog Springs Canyon to University Hts. Res.)
 50 A⁷ " " (Sheet $\frac{31}{47}$)
 50 A⁸ " " Delivery Chart
 50 A⁹ " " to Oldmixon Blaw

57 - Cuy. W. Co.

Ed. Fletcher List of ownerships S.H.
River in metal file 51

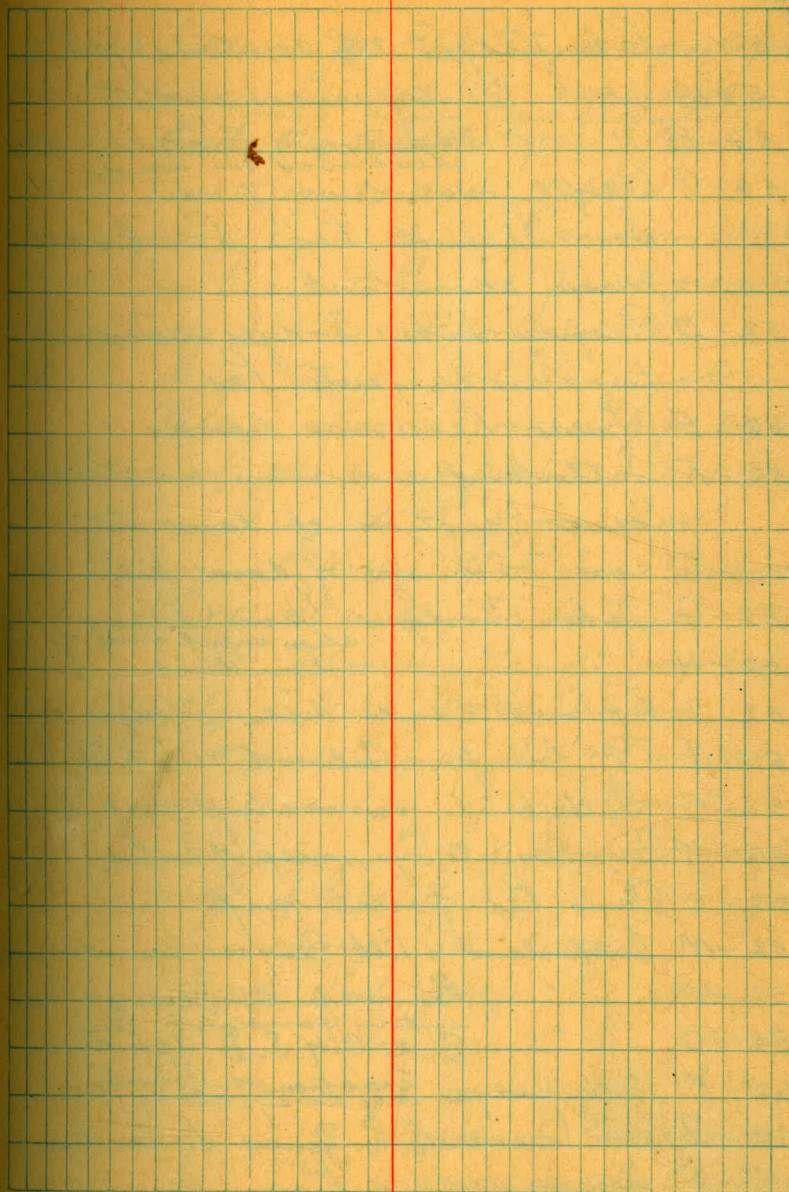
Ed. Fletcher Scheme for seven reservoir
system S.H. River metal file 51 a

Ed. Fletcher Hearing before R.R. Comm.
in metal file 51 B

*
Fletcher Dam Site Core borings 51 C

" " " Multiple wells 51-D

51



Number

- 5V Lake Hodges 355' contour level #20
- 5V-A " " riparian rights
- 52-B " " showing parcels described in deeds
- 52-C Profile - conduit from San Dieguito Res. - Lockwood mesa conduit
- 52-D Profile Lake Hodges conduit to San Dieguito Res.
- 52-E Pamo Reservoir lands
- 52-F Sutherland reservoir contains cross section of dam site, core borings of dam site
- 52-G Lake Hodges Dam Plans
- 52-H " " alignment map of conduit
- 52-I Riparian lands below Hodges
- 52-J Pipe line from Lockwood mesa to City limits
- 52-F Sutherland, ownership map of
- 52-K San Dieguito Sys., map of entire
- 52-L Pamo Res. parcel map Tracing
- 52-M Sutherland & Blk Canyon, amended map
- 52-N " Res map by Dessery & West entire conduit line
- 52-O " S. to C. of S. D. App #4127
- 52-P Lake Hodges, location of County Highway along F. H.
- 52-Q San Bernardo R. Zenas by les tract
- 52-R Topography of Roden dam site

- 52-S Sutherland & Blk Canyon topographical
 - 52-T Volcan Ld & Water Co. ownership map, along San Dieguito R.
 - 52-U Santa Fe Route
 - 52-U San Dieguito dam plans
 - 52-V N.S.Y. Sutherland Reservoir (J.W.W.)
 - 52-W San Dieguito Res as per agreement Santa Fe F. Co. & Newshaw 1917
 - 52-X Dup. map San Pascual Valley showing ownership valley
- IN FILE dom wells, pump plants & test holes.
- FOHO OF San Dieguito R. from San San Dieguito
- San Dieguito cultural features & ex. river 1917
- Water Co. Do. showing lands owned by S. D. Co. Water Co. also.
- Riparian rights of sd. co.
- Map relocation of S. D. County Highway R. 3 near Bernardo
- Map of Soft Realty Co holding below 395' contour Lake Hodges.
- Graph Lake Hodges Res storage
- " San Dieguito Res. flooded
- area x capacity curves
- " do. of Hodges Reservoir
- " do. " Pamo, Sutherland and San Vicente Res.
- (Cont'd Page 54)

NUMBER

53 LOWER California, map of (R.W. Semon)

53-A Maroon Valley Res.

53-B LOWER ~~copy~~ tracing of map (L.B. Harris)

53-B LOWER Calif. map of (Sec. Agri. L.C.)

53 Map City developed system + drainage area
of Mexico + international boundary
survey

Topography north + East of Camp

52-X

Tabulation of classification
rip. lands in S. Pasqual Valley

Tabulation of riparian rights
in San Pasqual Valley

Report of Chickering & Gregory
as to rip. rights

Transfer of water rights from
Ed Fletcher to San D. W. Co.

Hodge Res. Runoff 1882-1921

N.S.V. Sutherland & San Vicente

Gen. Index San Dieguito System

Study of Sutherland - San V. report

Descript. of San Dieguito

Water Co. properties.

52-Y

Sutherland - Pamo - Roden Accml. Runoff

52-Z

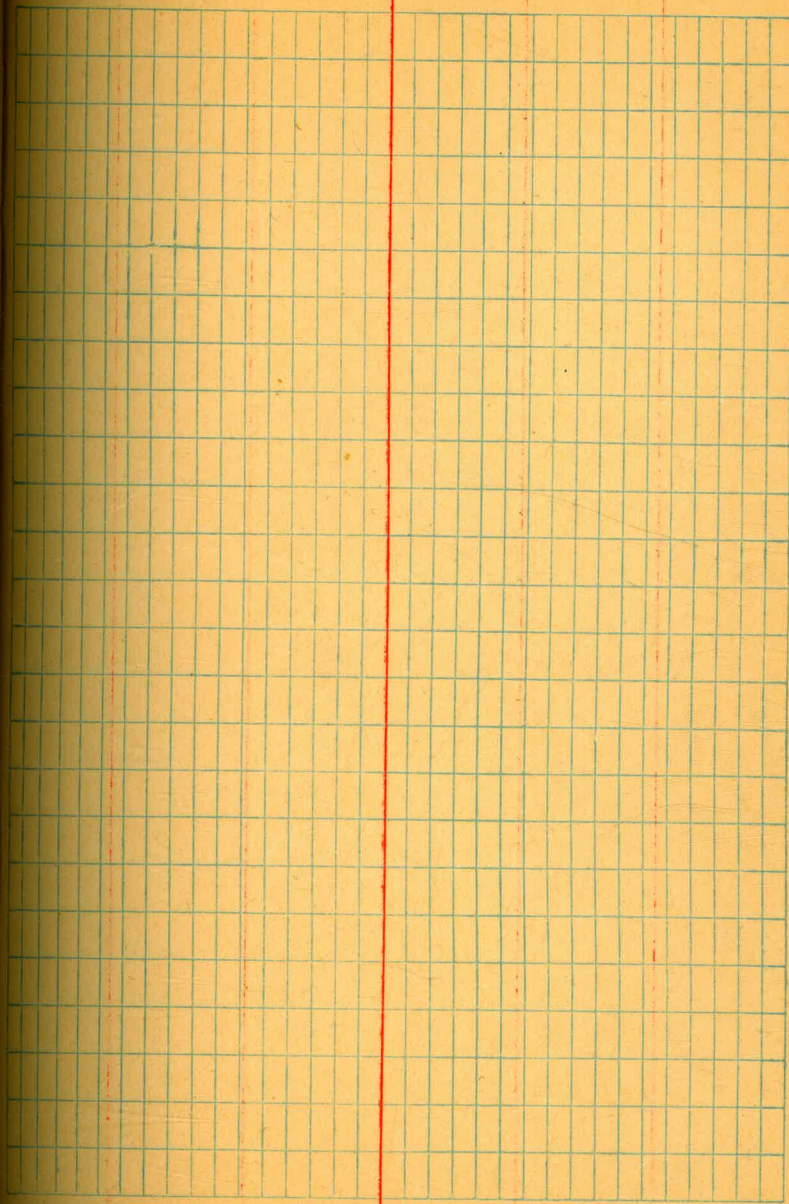
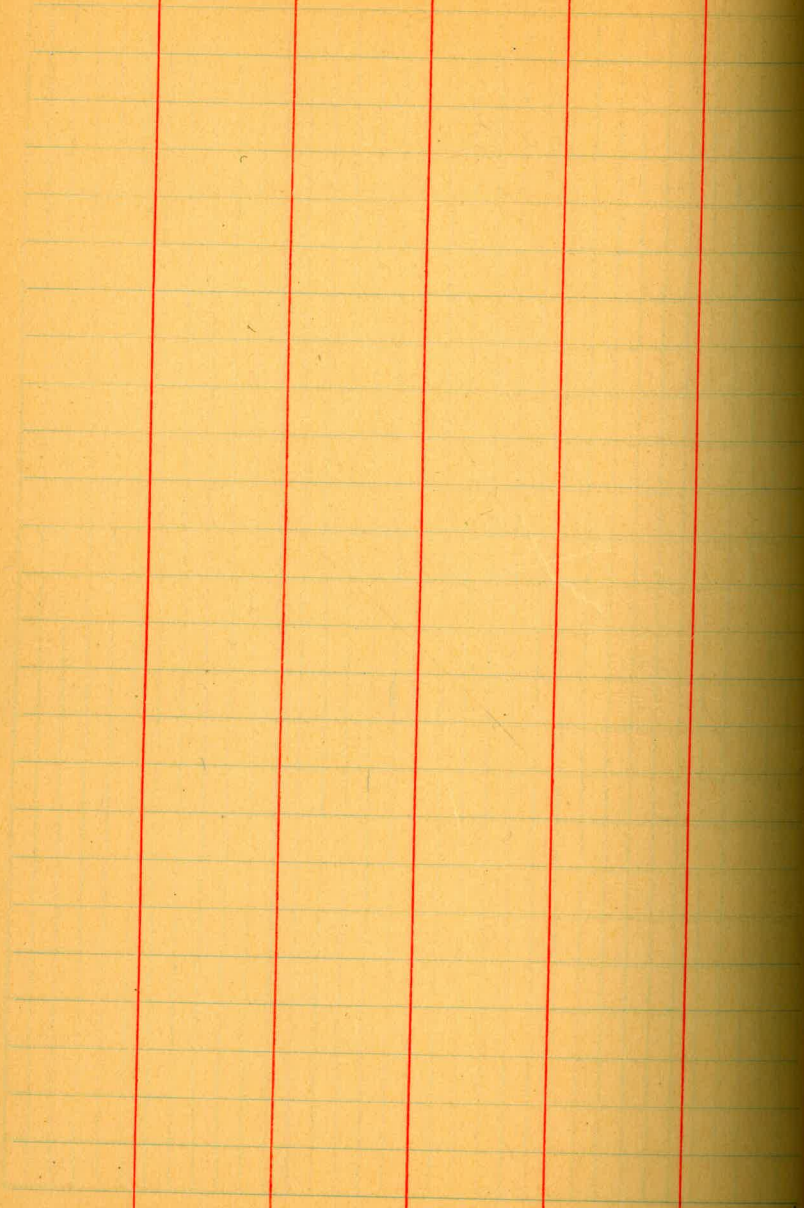
Sutherland - Power Appl. #252

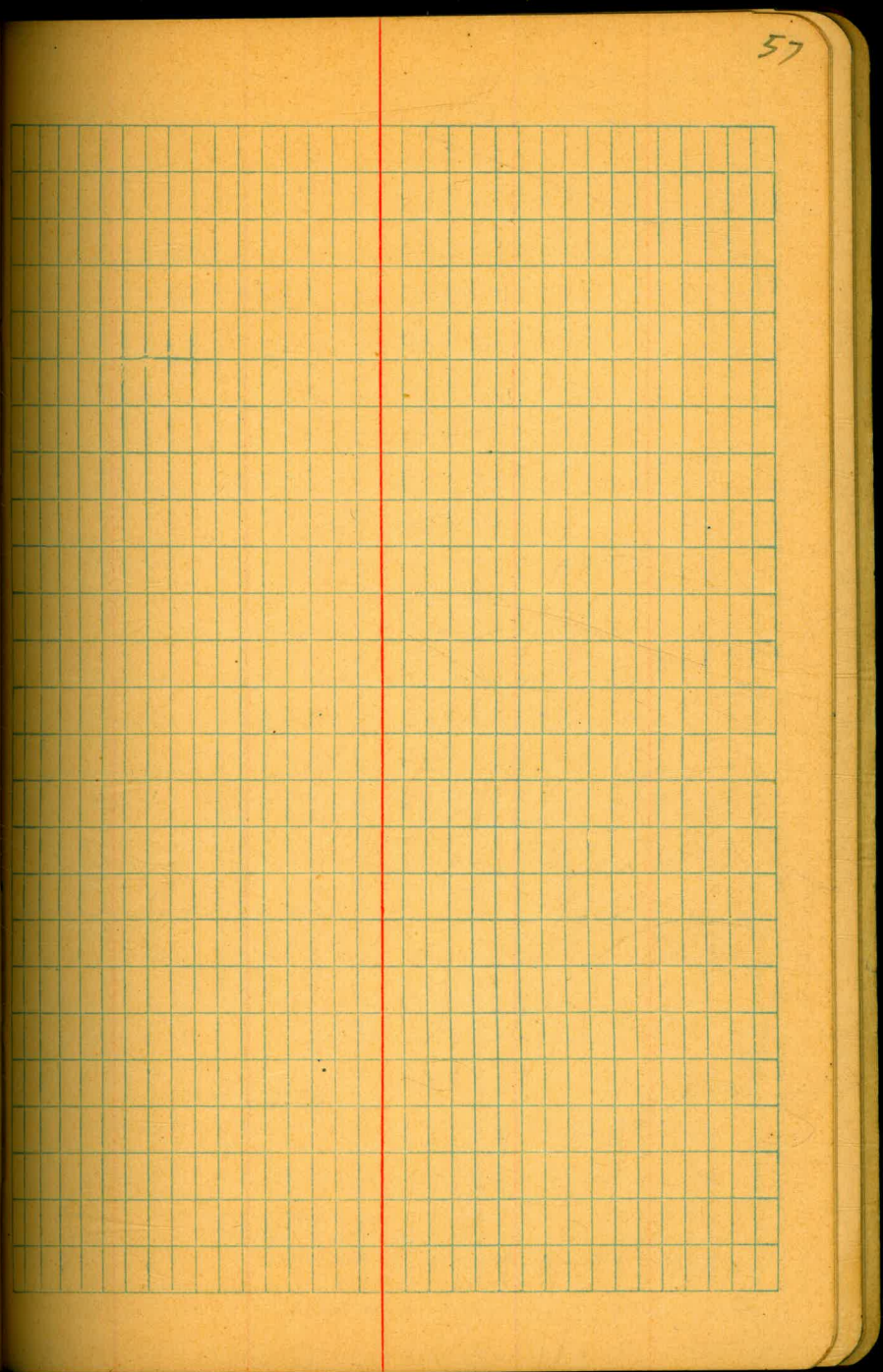
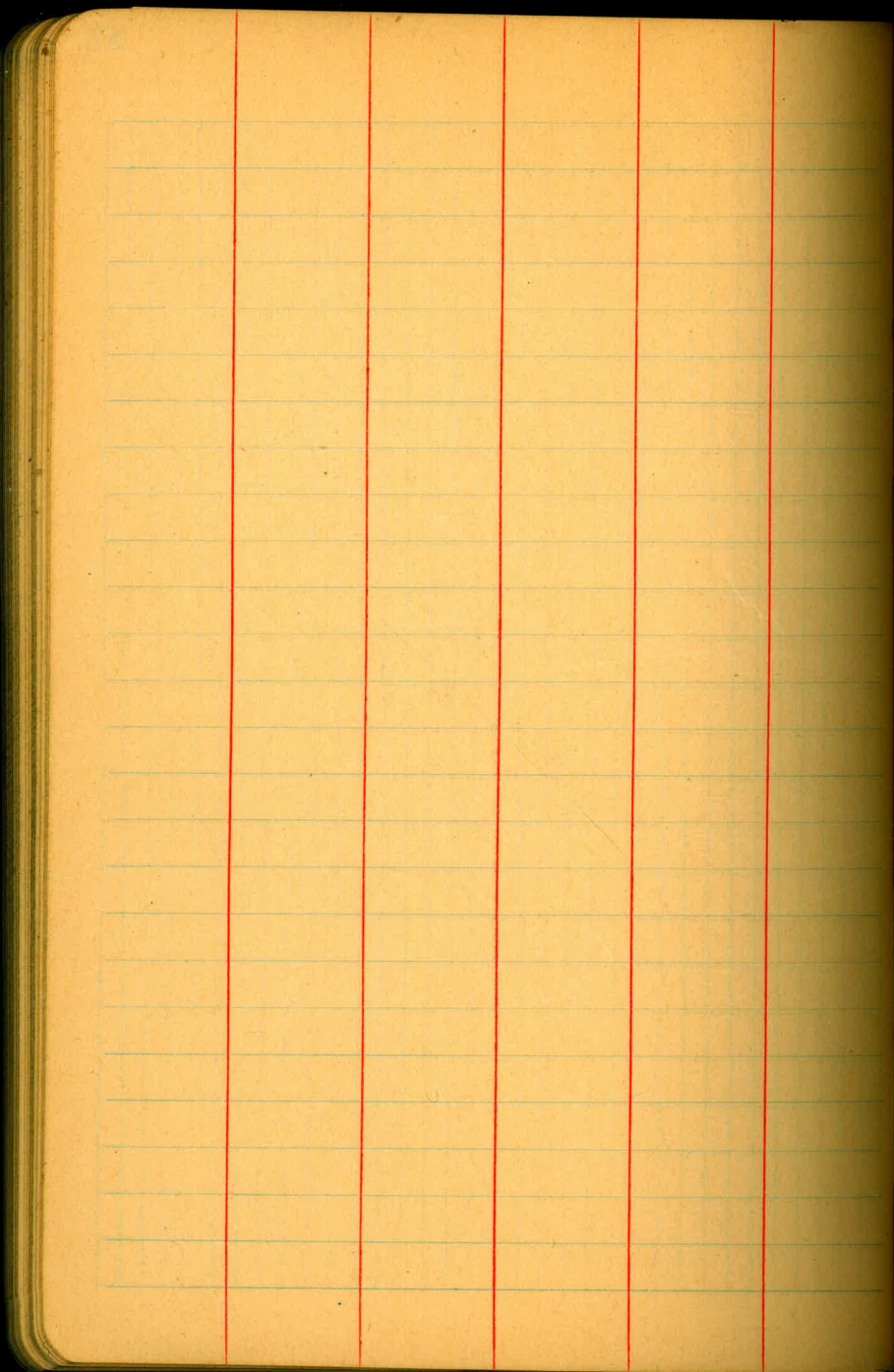
52-Z'

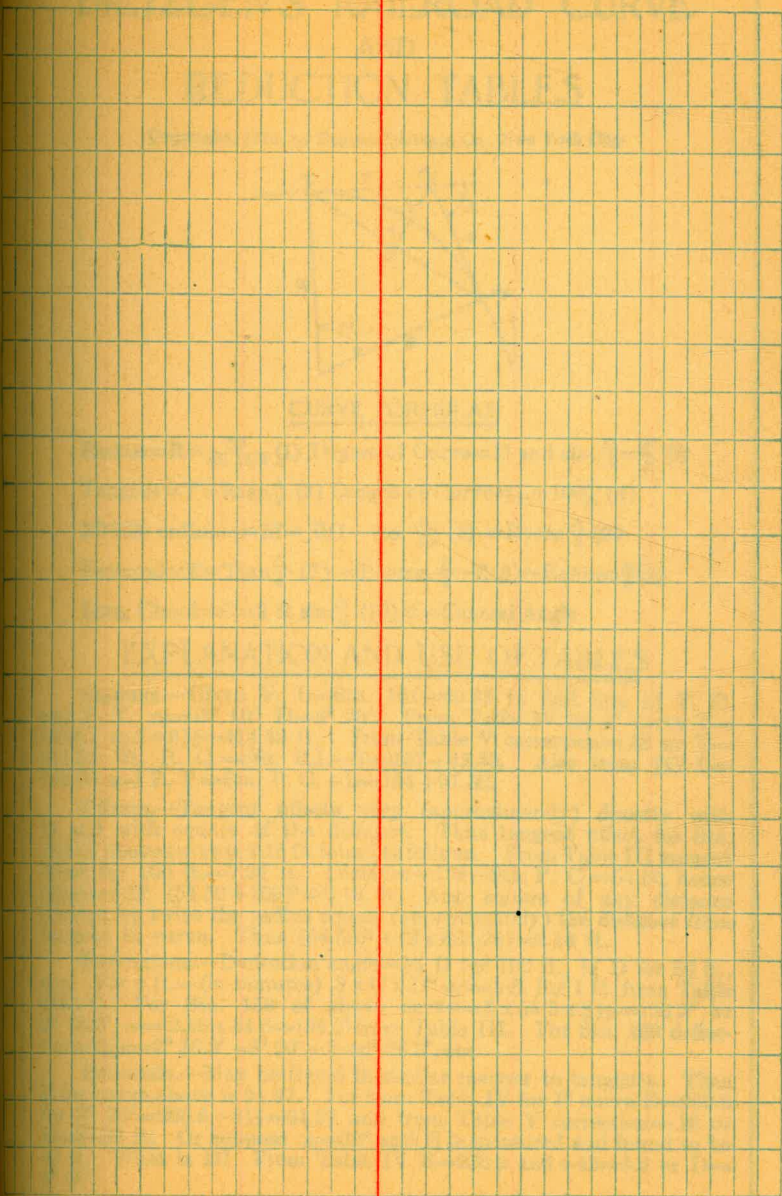
Sutherland Res. Two different scales

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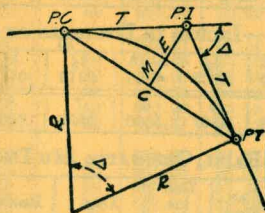






DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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



CURVE FORMULAS

Radius = $R = \frac{50}{\sin. D/2}$ (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) Δ = Central Angle

EXPLANATION AND USE OF TABLES

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

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

Deflections.—Deflection angle = $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft. = (in minutes) $.3 \times C \times D^\circ$ 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 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8 \frac{1}{2} = 91.27$ and from Table V correction = .10 or $E = 91.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

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	25.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct 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.

Made in Germany.

NO. AND FILE TITLE

FOR OTHER REFERENCES SEE

10

Map El Capitan lands condemned,
 " S.D. County, location watersheds
 " Cleveland Natl Forest & El Capitan
 Topographical sheet

9

Copy subpoena served Fletcher & Lee

8

7

6

5

4