

GENERAL SPECIFICATIONS

covering

CONSTRUCTION PROPOSAL

for

WARNER-CARROLL-UNIVERSITY SUPPLY

as contemplated in the contract

VOICAN LAND & WATER COMPANY

with

THE CITY OF SAN DIEGO

GENERAL SPECIFICATIONS

The Volcan Land and Water Company proposes the following general specifications for the construction of the system described in its offer to the City of San Diego and requiring an approximate expenditure of \$1,500,000.

WORK TO BE DONE

The structures and construction required consist of

- 1. Warner Dam.
- 2. Warner Conduit.
- 3. Carroll Dam.
- 4. Carroll Pumping Plant.
- 5. Carroll Conduit.
- 6. Carroll-University Pipe Line.

The general arrangement and relation is shown on drawing No. 485.

1. WARNER DAM

The contractor will be required to construct an hydraulic fill dam of the general character of Drawing No. 467 attached herewith. The selected materials shall not exceed two-thirds of the total yardage and will consist of clays to be obtained within one-half mile of the dam mixed with the stream gravel near the Damsite. The proportion of clay to gravel will be determined by mechanical analysis and decided on later. The contractor will submit for approval, methods of securing the deposition of this selected gravel under water, or sluiced in by water to secure the result of thorough settlement and segregation of the finest material into the central portion of the mass with the coarser material remaining in the outer slopes of the selected material. The downstream portion of the dam will be constructed of convenient

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---oOo---

material such as gravel, loose rock or disintegrated granite. This will be deposited in layers but will not require the care of the selected material provided it is properly spread and brought up along with the remainder of the dam. Cement drain tiles will be placed in the lower third of the dam.

A concrete water tower will be erected immediately in front of and connected with the outlet tunnel now built. The construction required is shown upon Drawing No. 389.

The facing of the dam will consist of concrete four inches thick which will be divided by expansion joints as provided in details to be furnished later.

A spillway will be constructed of concrete on the south rim of the reservoir closing a small gap having a length of 275 ft. A second spillway will be excavated on the north end of the dam and paved with concrete. The excavated material from this spillway may be placed in the lower toe of the dam. An outlet basin will be constructed at the lower end of the tunnel in accordance with drawing No. 389 unless the same has been already completed by the Volcan Land & Water Company.

Contractor will be required to furnish all plant, materials, labor and furnish a completed structure.

The following table gives the estimate of quantities required:

WARNER DAM

(See Drawing No 467)

Height 85 feet. Top Elev. 2705. Depth of Water 80 ft.
Type - Earth Fill.

Estimate of Quantities.

Excavation -----	55,850	cu. yds.
Embankment -----	285,000	" "
Concrete facing 4 in. thick -----	16,900	sq. yds.
Concrete gutter -----	600	Lin ft
Drain tile 6 in. diameter -----	2,500	" "
Outlet tunnel, concrete lined -----	1,020	" "
Outlet basin and weir -----		See Drawing #389
Outlet tower -----		" " #389
Spillways:		
Excavation -----	65,225	cu yds
Concrete -----	974	" "

2. WARNER CONDUIT

Warner Conduit consists of sections of concrete lined trapezoidal canal, steel flume on trestles, steel flume on bench and tunnels concrete lined. The profile of the conduit is shown on Drawing No. 483. The cross-section of the concrete lined canal is shown on Drawing No. 484. Designs of the steel flume on trestles and on bench is shown on Drawing No. 470. Cross-section of tunnels is shown on Drawing No. 468. The details of culverts will be specified on the commencement of construction.

Estimate of Quantities

Based on grade of .05%
See drawings Nos 468, 484, 470.

Capacity 54.0 cu.ft.second
Length 33,200 lin.ft.

Concrete lined conduit-----	19,685	lin.ft.
Steel flume on trestle -----	850	" "
Steel flume on bench -----	5,005	" "
Earth and rock excavation -----	32,170	cu yds
Timber in trestles -----	12,300	bd ft.
Concrete lined tunnel -----	3,310	lin. ft.
Concrete lined tunnel (Lusardi) -----	6,350	" "
Culverts -----	892	" "
Clearing and grubbing -----	24	acres

3. CARROLL DAM

Carroll Dam will be a concrete multiple arch structure as shown on Drawing No. 459. The portion of cement to aggregate will be one to six and the aggregate will be determined by mechanical analysis and consist of sand and broken stone. The curved portions of the dam will not require reinforcing but the buttresses and beams will be reinforced in accordance with the detail drawings requiring not over one per cent of steel reinforcing. An outlet conduit will be constructed near the level of the river bed according to designs to be furnished later, provided with gates, screens and regulating devices. A spillway 100 ft. wide will be excavated from the north end of the dam and the entire structure will also serve as a spillway. In addition to the outlet conduit, there will be an outlet to connect with the pumping plant.

With the Carroll Dam is included the changing of a county road for a distance of 2 miles which will be relocated and plans furnished later. There will also be included a gate keeper's cottage, plans for which will be furnished later to cost not over \$2,500.00. The following table shows the estimated quantities in this section:

Estimate of Quantities

	Height 90 ft.	Depth of Water 90 ft.
	Type - Multiple arch concrete - See Drawing No. 459.	
Excavation -----	17,000	cu yds
Concrete -----	16,916	" "
Clearing and grubbing flowage area -----	400	acres
Outlet system:		
Buildings -----		
Changing county road -----	2	miles

4. Carroll Pumping Plant

This plant will be placed within 600 feet of the outlet of the Carroll Dam. The contractor will furnish detail plans and specifications for a complete pumping plant erected exclusive of building, and guarantee the following:

- Capacity, 10,000,000 gals. per day.
- Maximum head including pipe friction 310 feet.
- Fuel consumption (assuming 16 gravity California crude oil containing not less than 18,000 B.T.U.) not to exceed 2.6 lbs of fuel per water H.P.
- Guarantee 5 years maintenance and depreciation, not over 10% per year.
- Price not to exceed \$60,000.
- Time of completion from signing of contract, 5 months.

The contractor will furnish the following in addition:

- 600 lin. ft. - 5/16" - 30" Diam. Riveted pipe in place (connection from dam to pump)
- 350 lin. ft. - 3/16" - 30" diam. Riveted pipe in place (discharge pipe)
- 150 lin. ft. - 1/4" - 30" diam. Riveted pipe in place (discharge pipe)

Building for pumping plant, oil tank, and store house detail plans to be furnished later, not to exceed \$10,000.

5. CARROLL CONDUIT

Carroll Conduit will consist of a trapezoidal concrete lined canal as shown in Drawing 471 and constructed on the grade shown on Profile No. 481. This conduit will be 8,000 feet in length and will terminate in a forebay which is the commencement of the Carroll-University pipe line.

6. CARROLL-UNIVERSITY PIPE LINE

A profile of the Carroll-University pipe line is shown on Drawing No. 481 on which is placed the thickness of metal required. The alignment is shown on drawing No. 478. This pipe line will conform to the specifications for riveted pipe lines of the City of San Diego as given in the "Standard plans and Specifications"

of the Department of Water, City of San Diego, attached herewith. Alternate types of pipe lines will be considered.

GENERAL

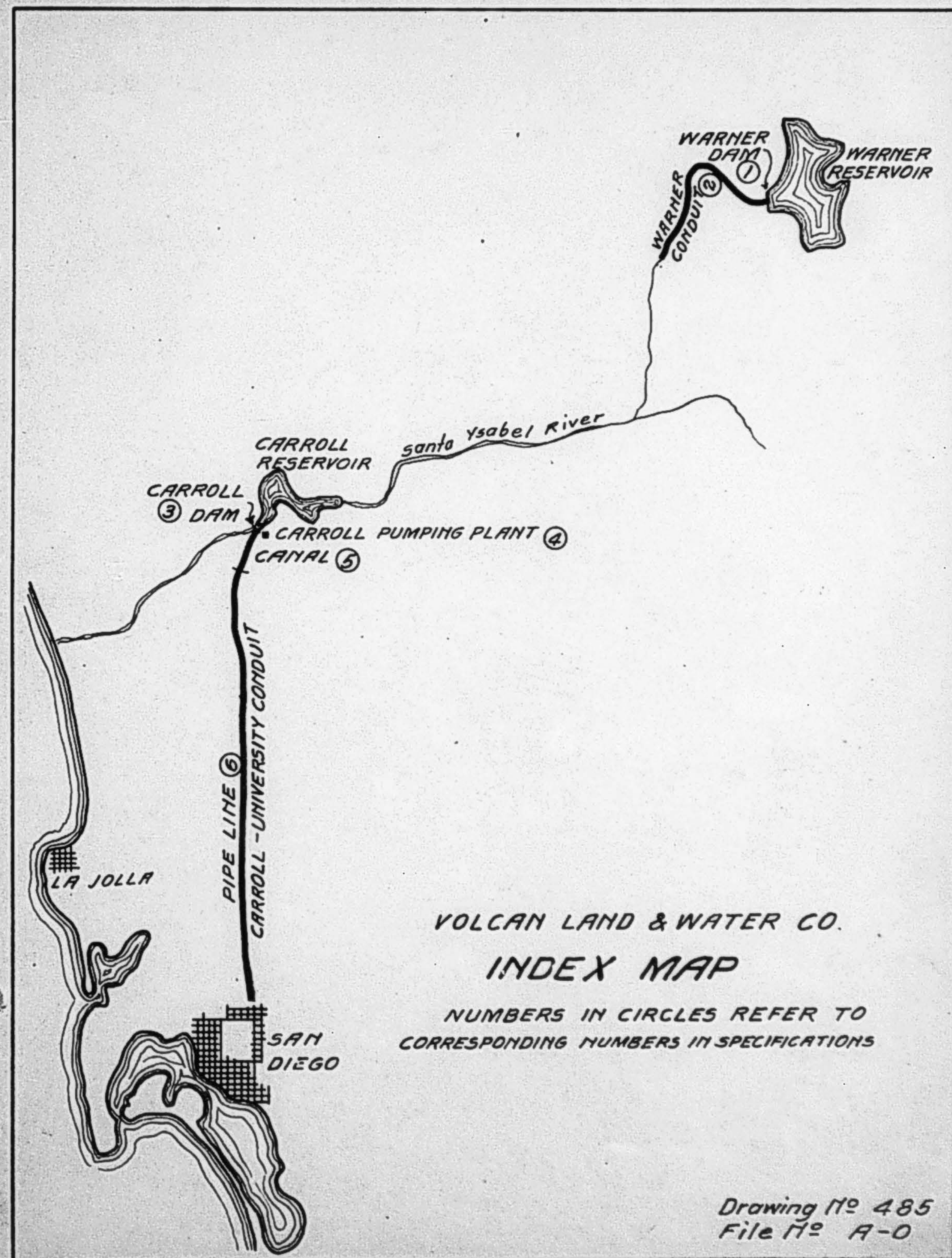
The specifications for cement will be those adopted by the American Society of Testing Materials.

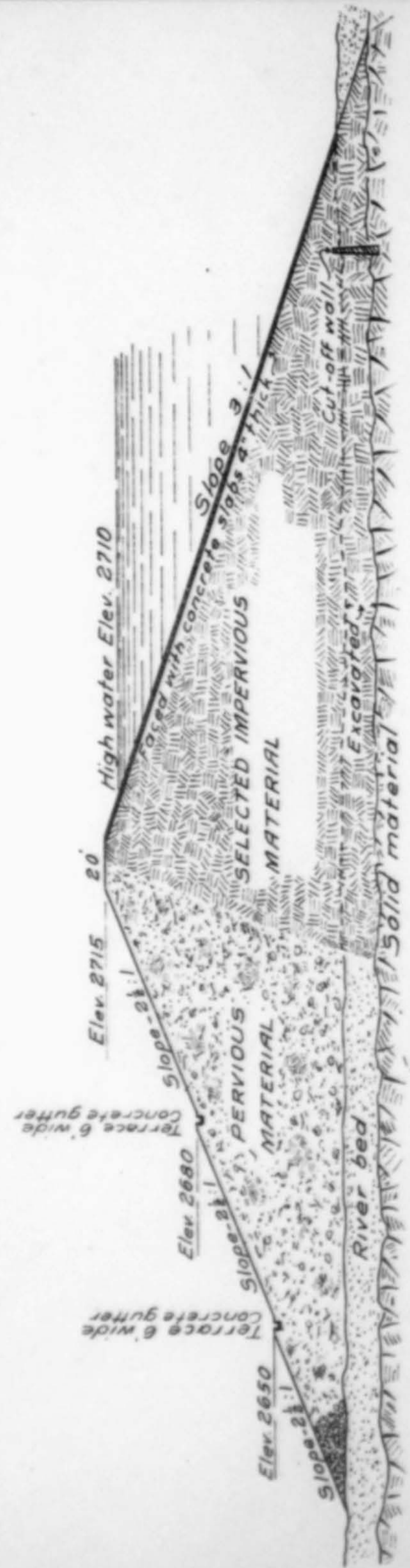
Gravel and crushed rock will be specified for its particular work and nearest satisfactory material will be acceptable.

The contractor will furnish plant, materials, labor, tools and do all things necessary to secure a structure ready for service. Detail specifications in conformity with these general specifications covering all portions of construction will be supplied before the beginning of construction. The usual provisions for inspection, changes in plans, acceptance, payments, responsibility of contractor, right to enter on said contract on failure and liens, will be included.

Contractor will specify unit prices of all quantities named above and in the case of a general lump sum contract, it will be understood that the contractor will receive payment at these rates for all quantities in excess of those stated in the estimates. On the other hand if the construction quantities are less than those given in the estimates, a corresponding deduction shall be made. Unless otherwise agreed under the contract. Extra work which may be ordered in writing, will be paid for 15% on the cost of work, material to be furnished at cost.

Approved:





CROSS SECTION
AT GREATEST DEPTH

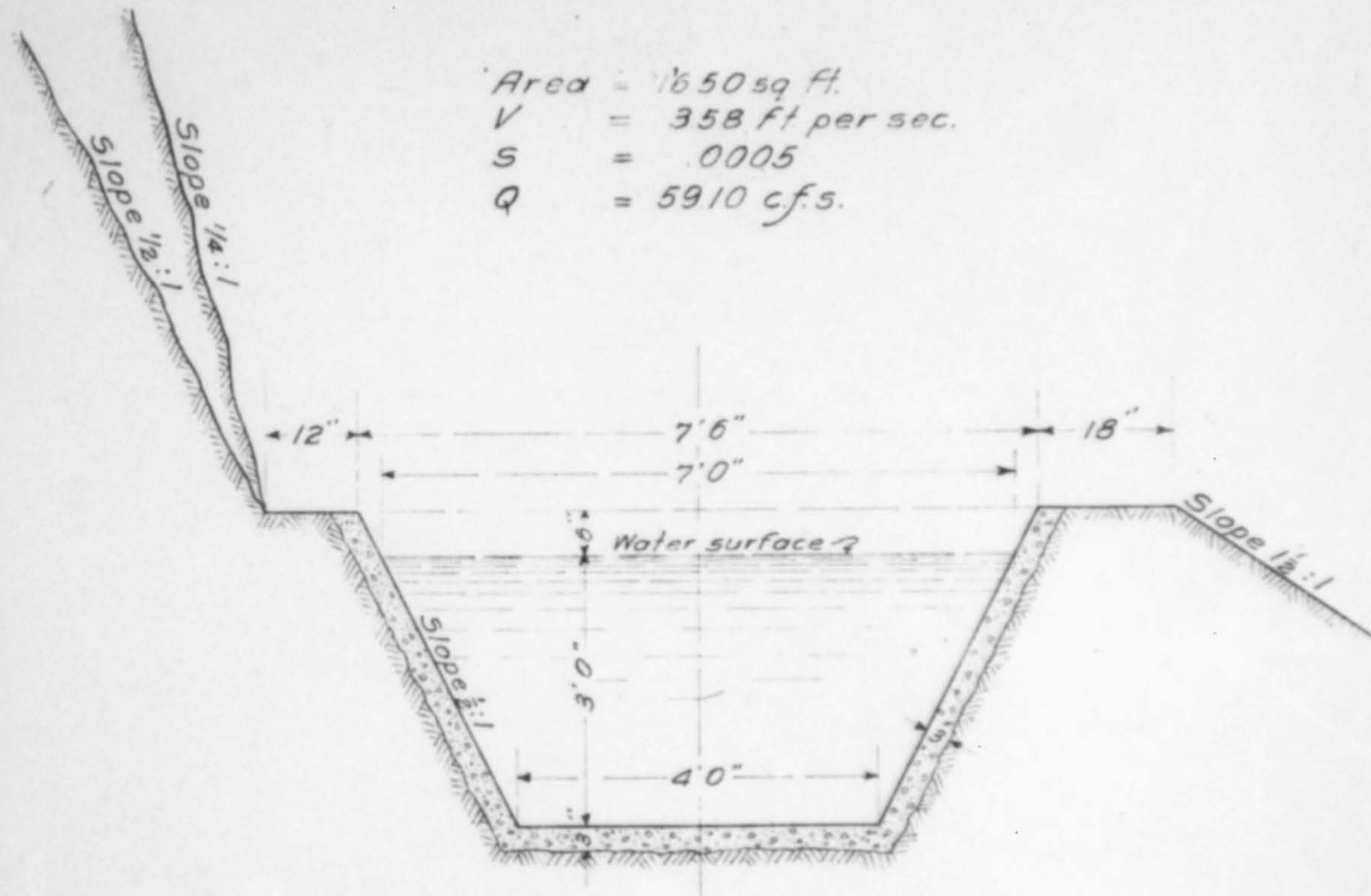
VOLCAN LAND & WATER CO
WARNER DAM

SCALE: 1" = 60'

W.S. POST, Eng'r OCT. 7, 1914

Drawing No 467
File No T-1

1/20



Area = 1650 sq ft.
V = 358 ft per sec.
S = .0005
Q = 5910 c.f.s.

VOLCAN LAND & WATER CO.
WARNER CONDUIT
CANAL

FOR GRADE OF .0005

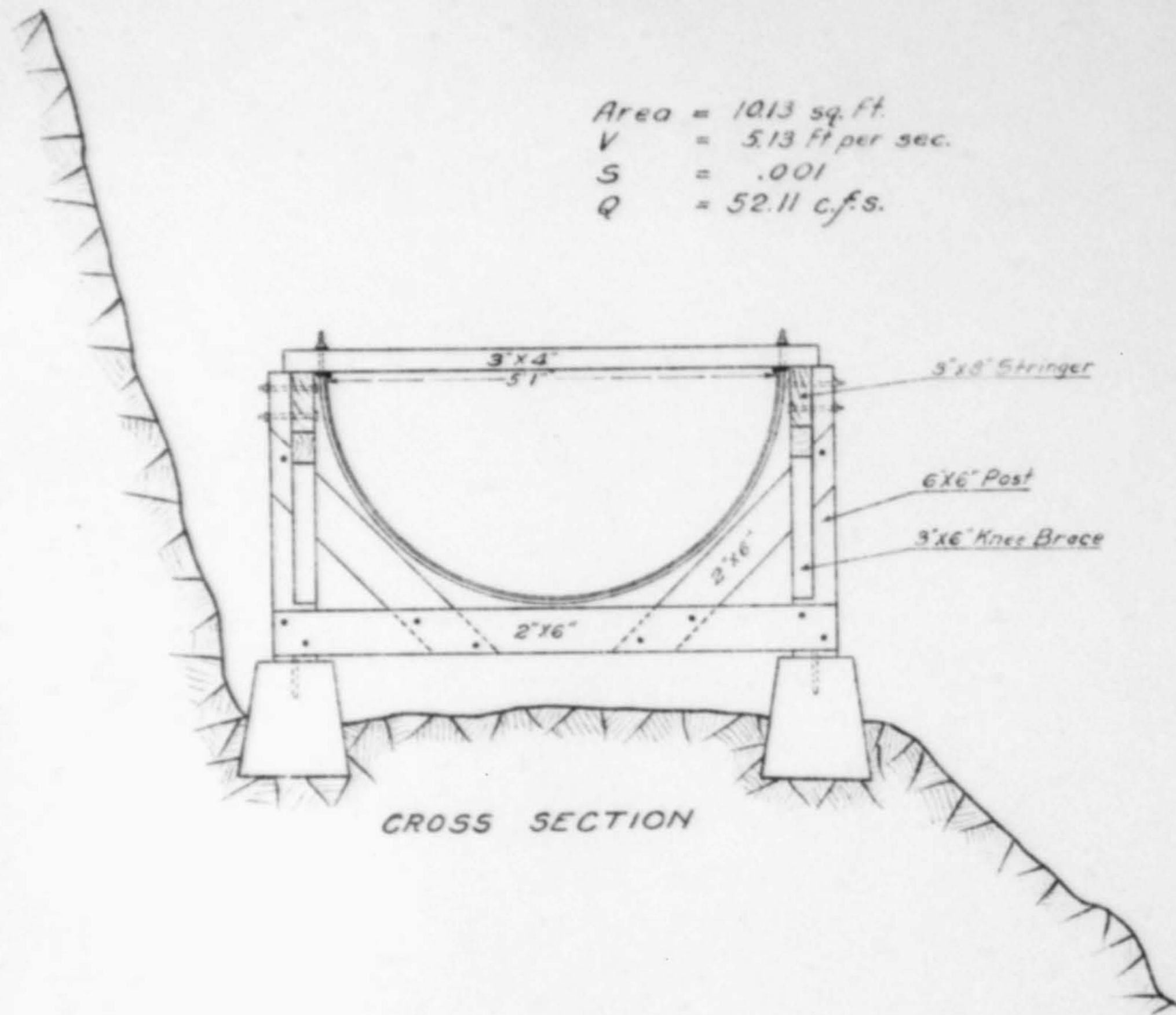
SCALE: 1/2" = 1'

W.S. POST, Eng'r

DEC. 1, 1914

Drawing No 484
File No T-1

Area = 1013 sq. ft.
 V = 5.13 ft per sec.
 S = .001
 Q = 52.11 c.f.s.



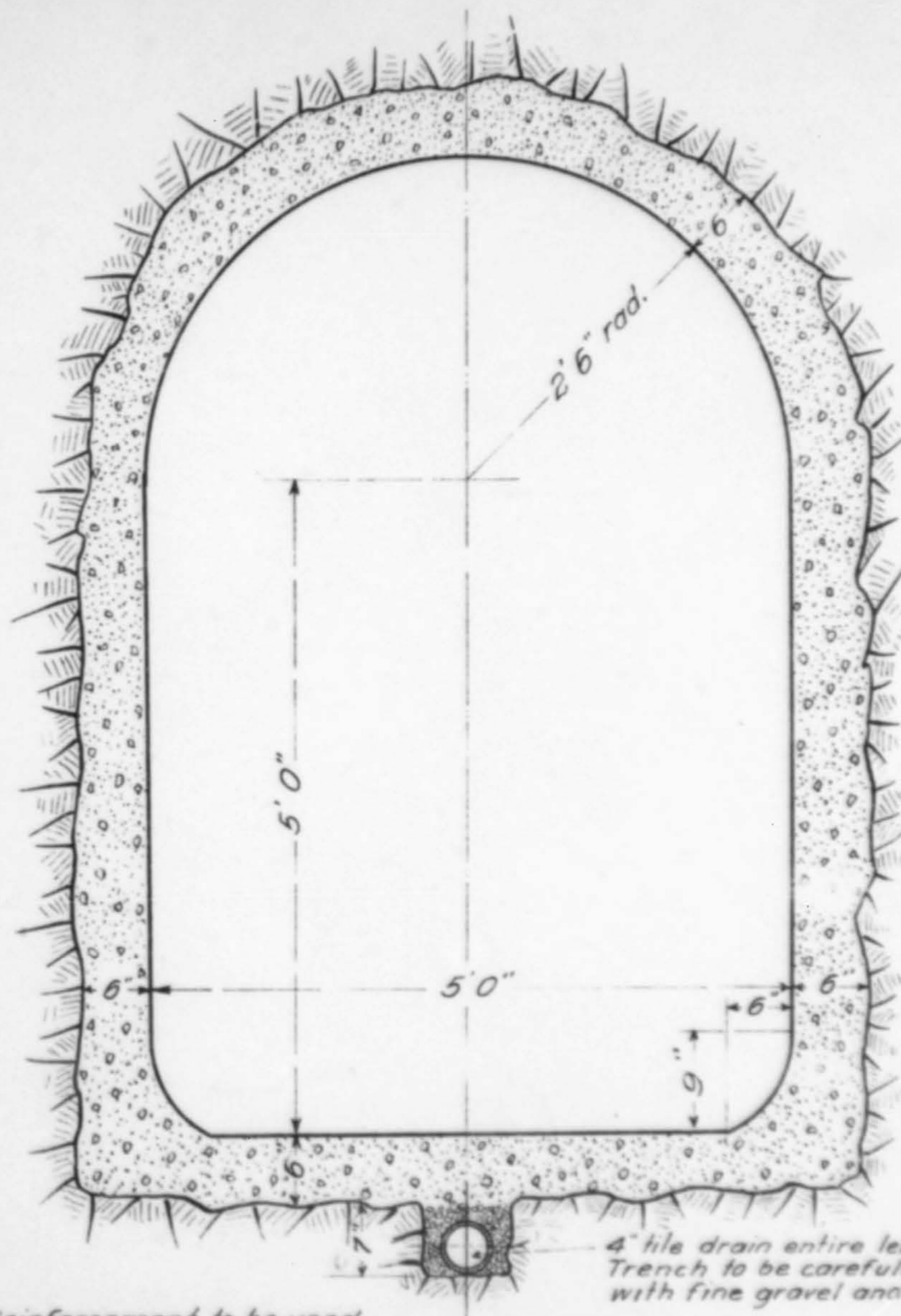
CROSS SECTION

VOLCAN LAND & WATER CO.
WARNER CONDUIT
METAL FLUME

SCALE: $\frac{1}{2}'' = 1'$

W.S. POST, Eng'r OCT. 9, 1914.

Drawing No 470.
File No T-1.



NOTE -
 Reinforcement to be used
 in weak places only.

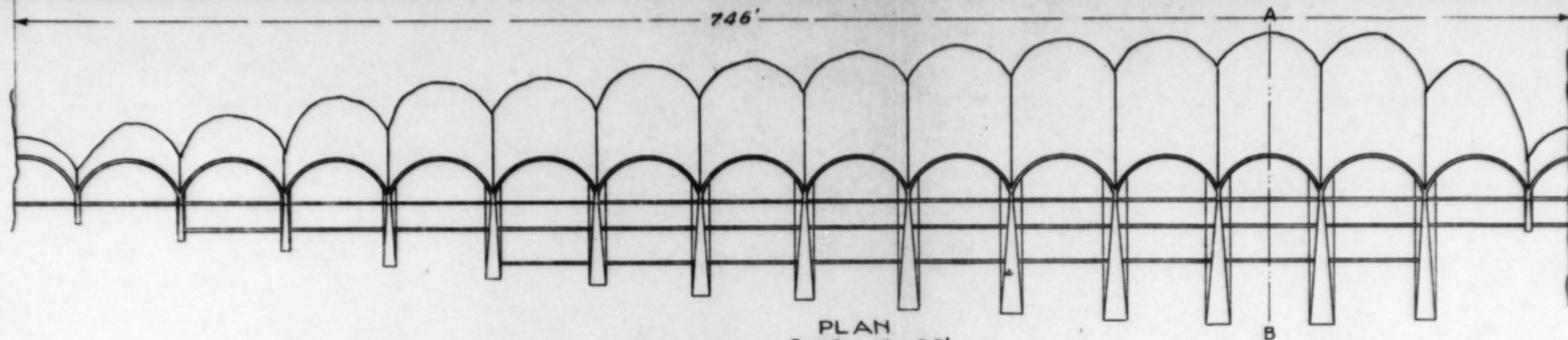
4" tile drain entire length of tunnel
 Trench to be carefully back-filled
 with fine gravel and sand.

VOLCAN LAND & WATER CO.
CROSS SECTION
OF
CONDUIT TUNNEL

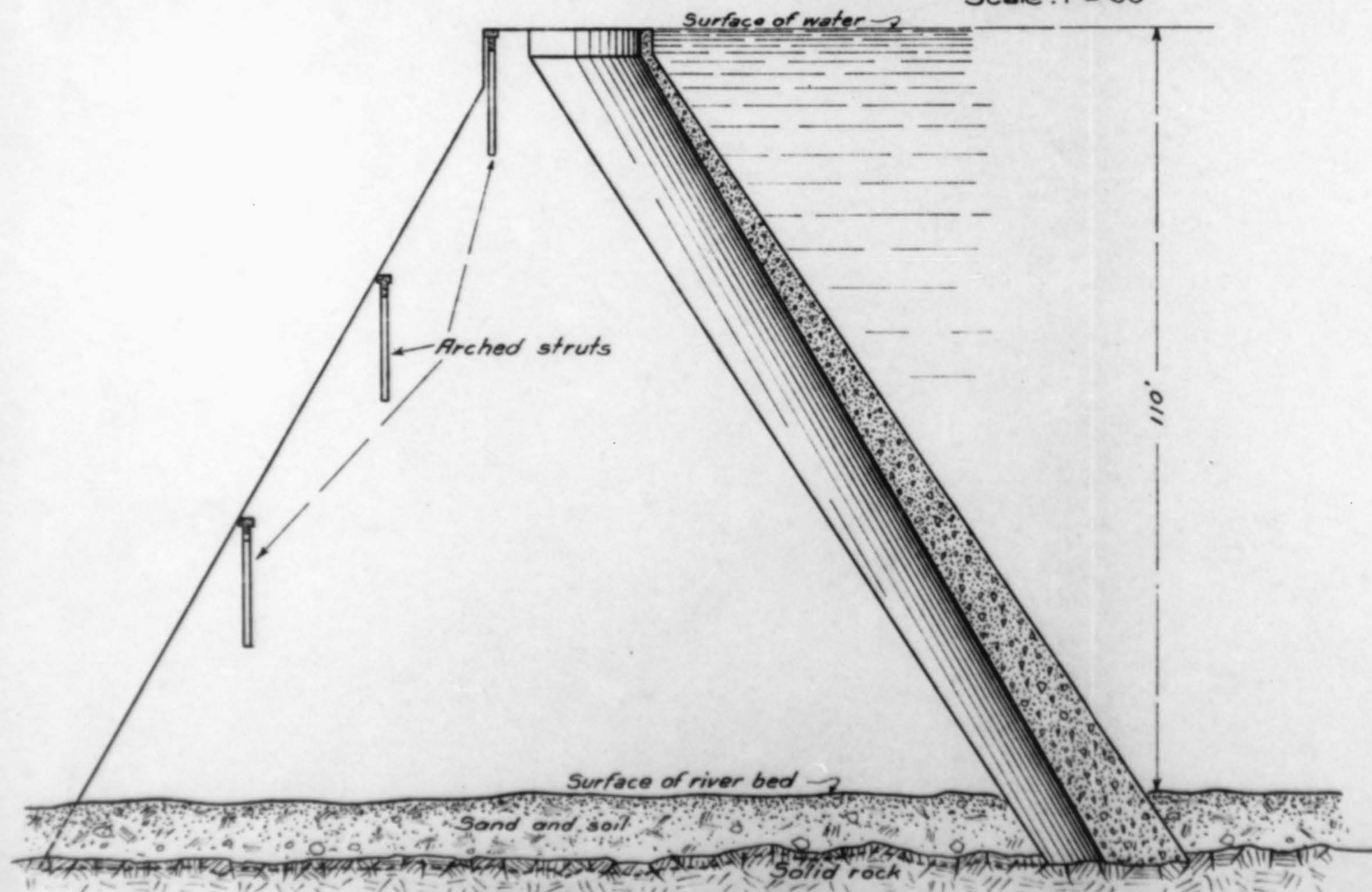
SCALE: $\frac{3}{4}'' = 1'$

W.S. POST, Eng'r OCT 8, 1914

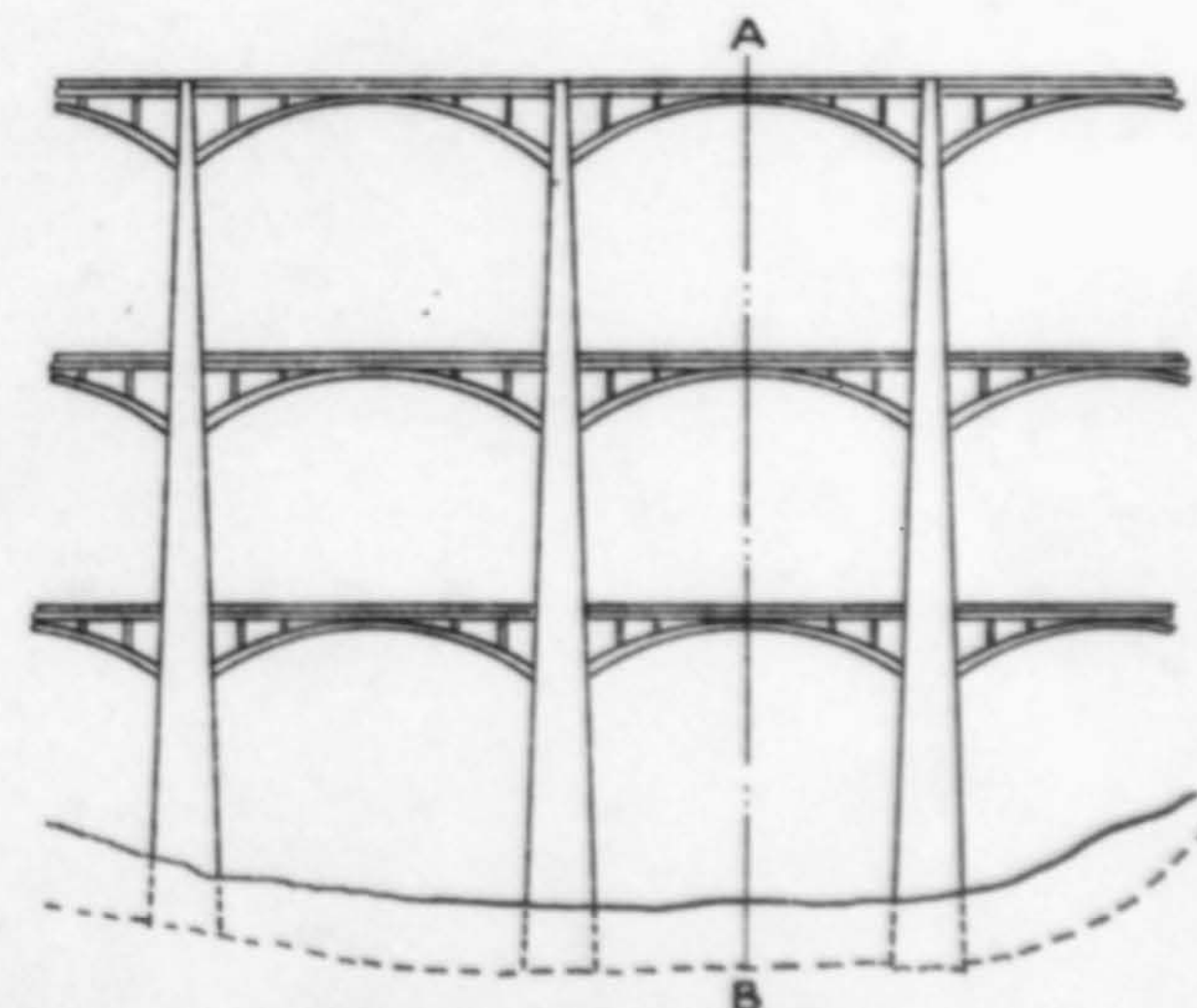
Drawing No 468
File No T-1



PLAN
Scale: 1" = 60'



CROSS SECTION AT A-B
Scale: 1" = 20'



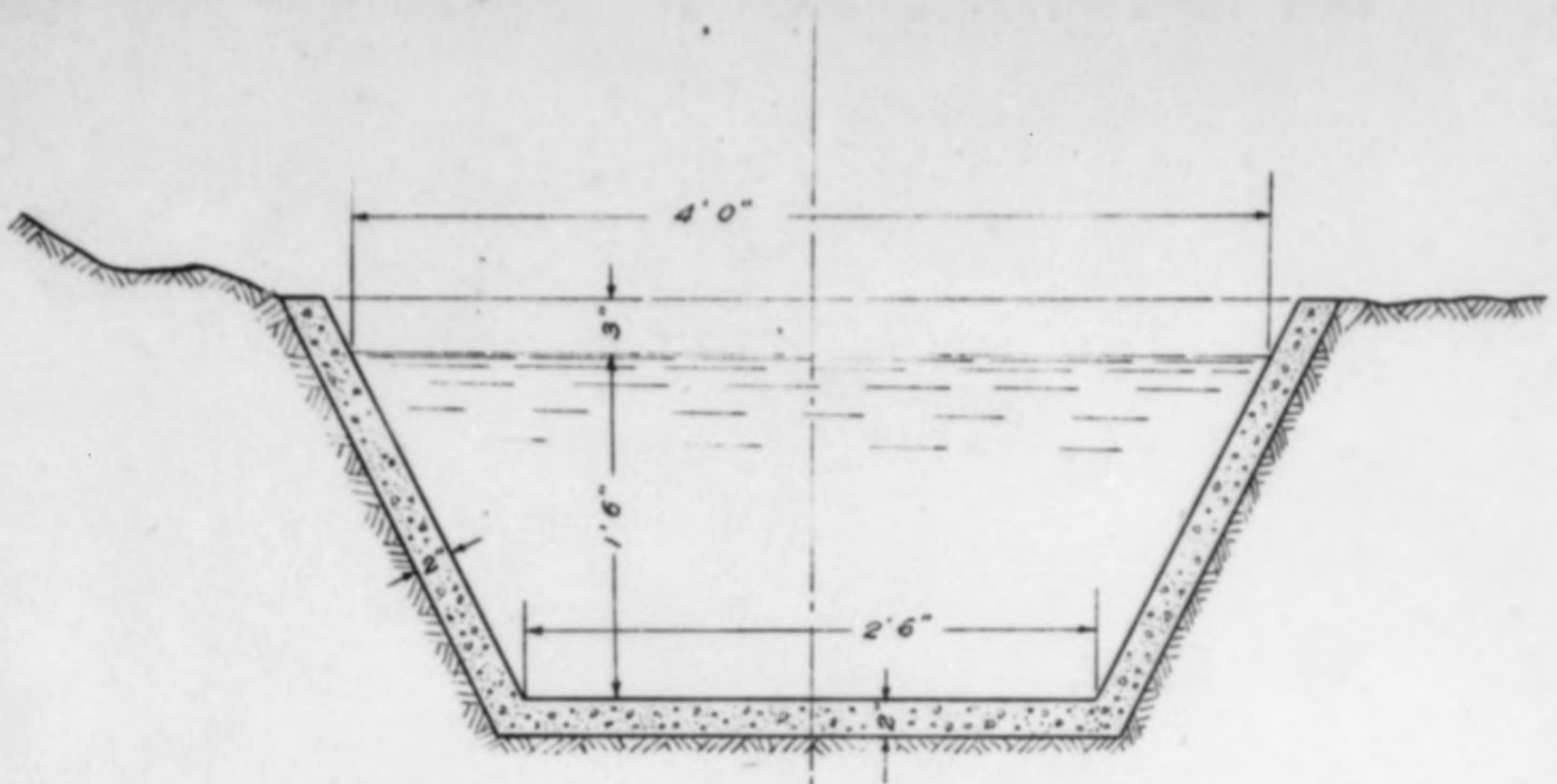
REAR ELEVATION
Scale: 1" = 40'

VOLCAN LAND & WATER CO.
CARROLL RESERVOIR
DESIGN OF
CONCRETE DAM
MULTIPLE ARCH TYPE

W.S. POST, Eng'r
Drawn by LJO
Traced by

OCT. 1, 1914

Drawing No 459
File No T-2



CROSS SECTION

Area = 4.87 sq. ft.

$p = 5.86$

$r = .832$

$S = .001$

$C = 120$

$V = 3.48$

$Q = 16.9 \text{ sec. Ft.} = 10.9 \text{ mill. galls per day.}$

VOLCAN LAND & WATER CO.
 CARROLL-UNIVERSITY HEIGHTS CONDUIT
 CANAL
 SCALE: 1" = 1'

W.S. POST, Engr.

OCTOBER 12, 1914.

Drawing No. 471.
 File No. T-1.

12.544
Grade 2.22%

Grade 2.22% from Sta 10+54.5

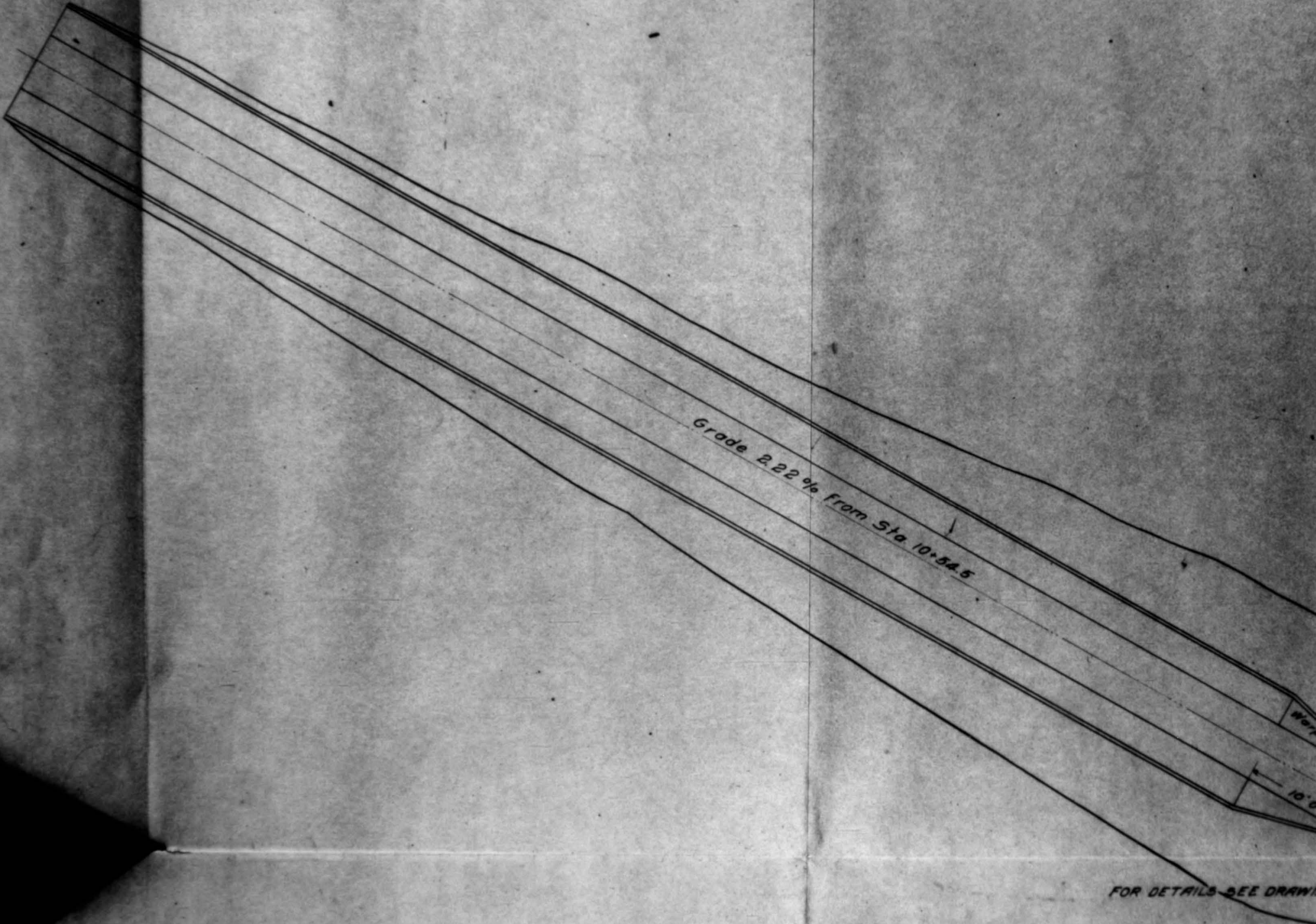
Work

10'

FOR DETAILS SEE DRAWING

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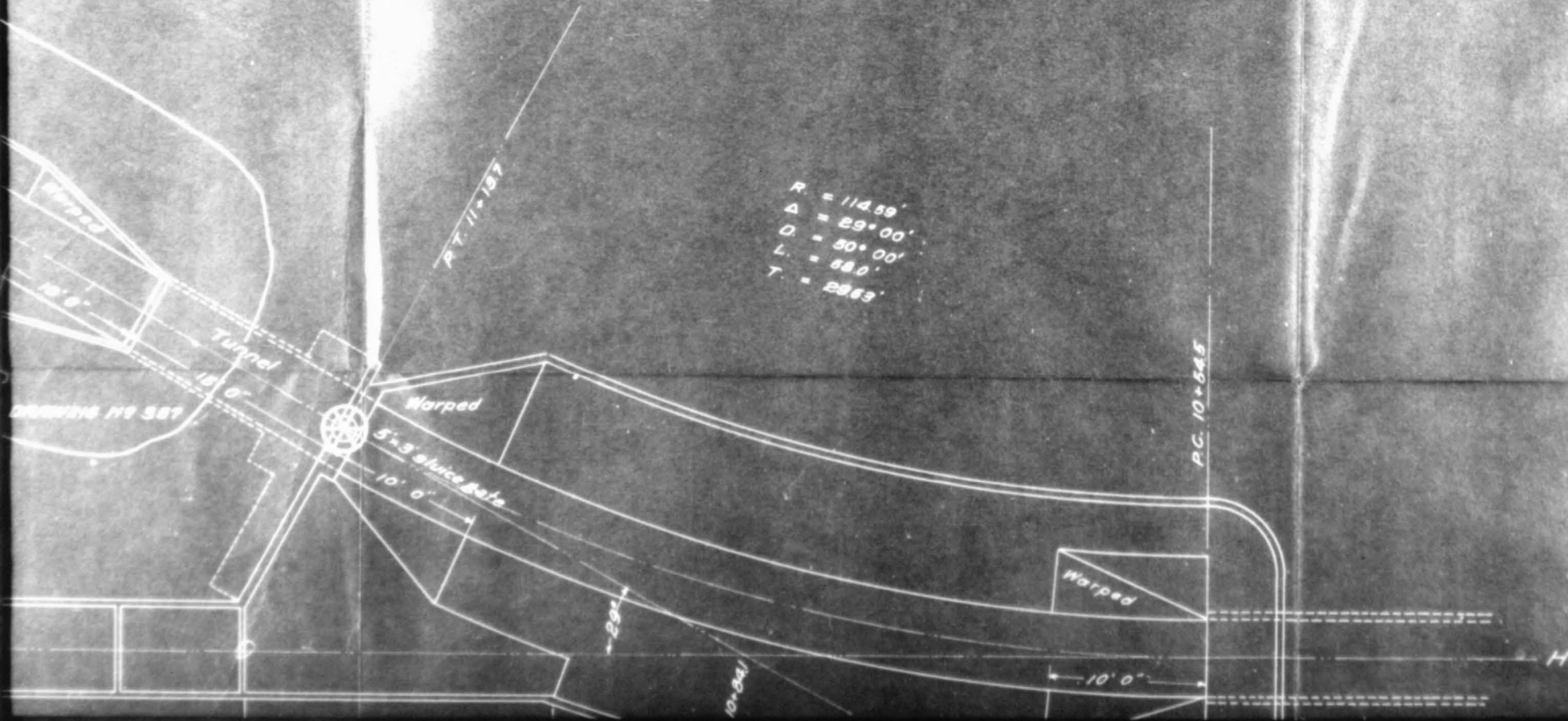
12+34.4
Grade 2.22%



FOR DETAILS SEE DRAWING

6

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DRAWING NO 587

RT. 11+197

R. = 114.59'
Δ = 29° 00'
D = 50° 00'
L = 58.0'
T = 29.63'

PC. 10+545

Warped

5:3 sluice gate
10' 0"

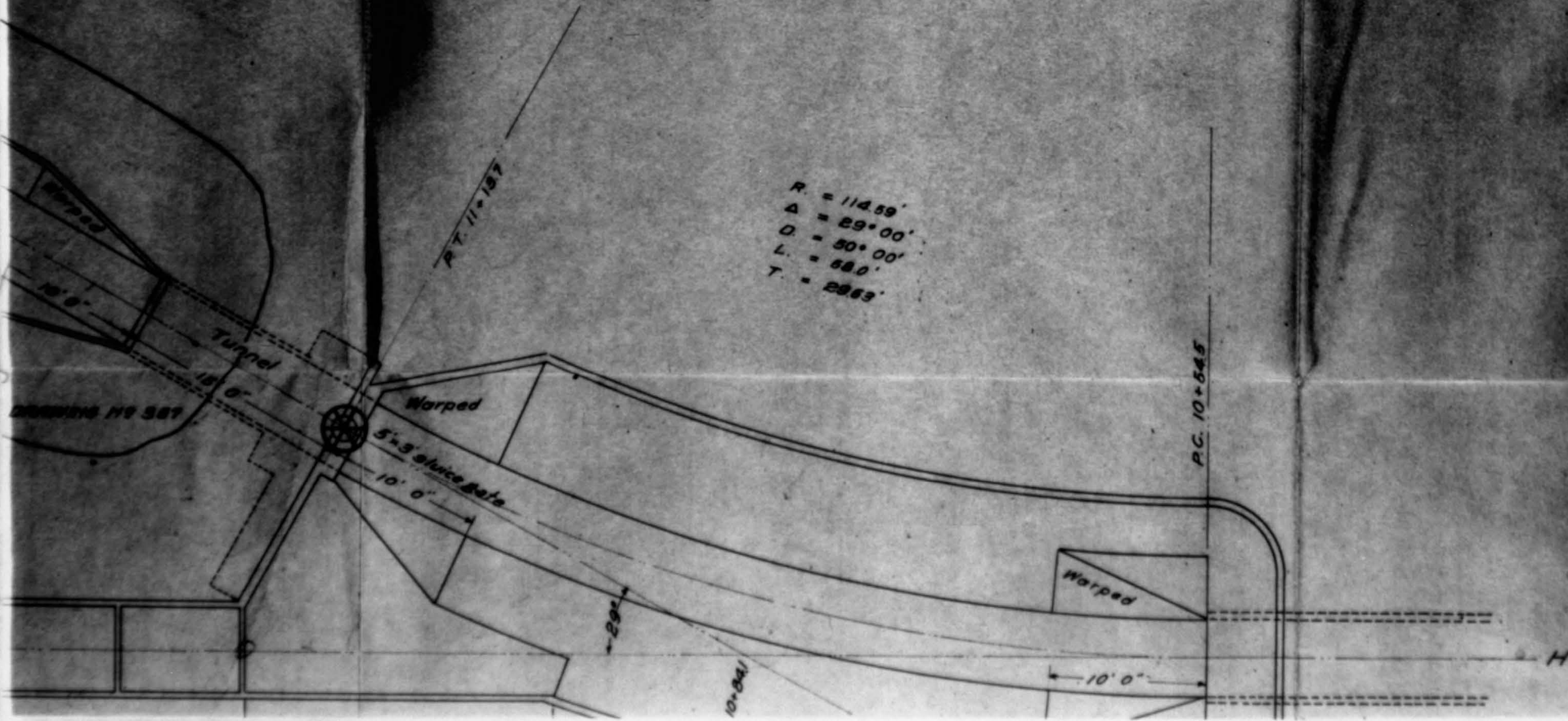
Warped

10' 0"

-29%

10+841

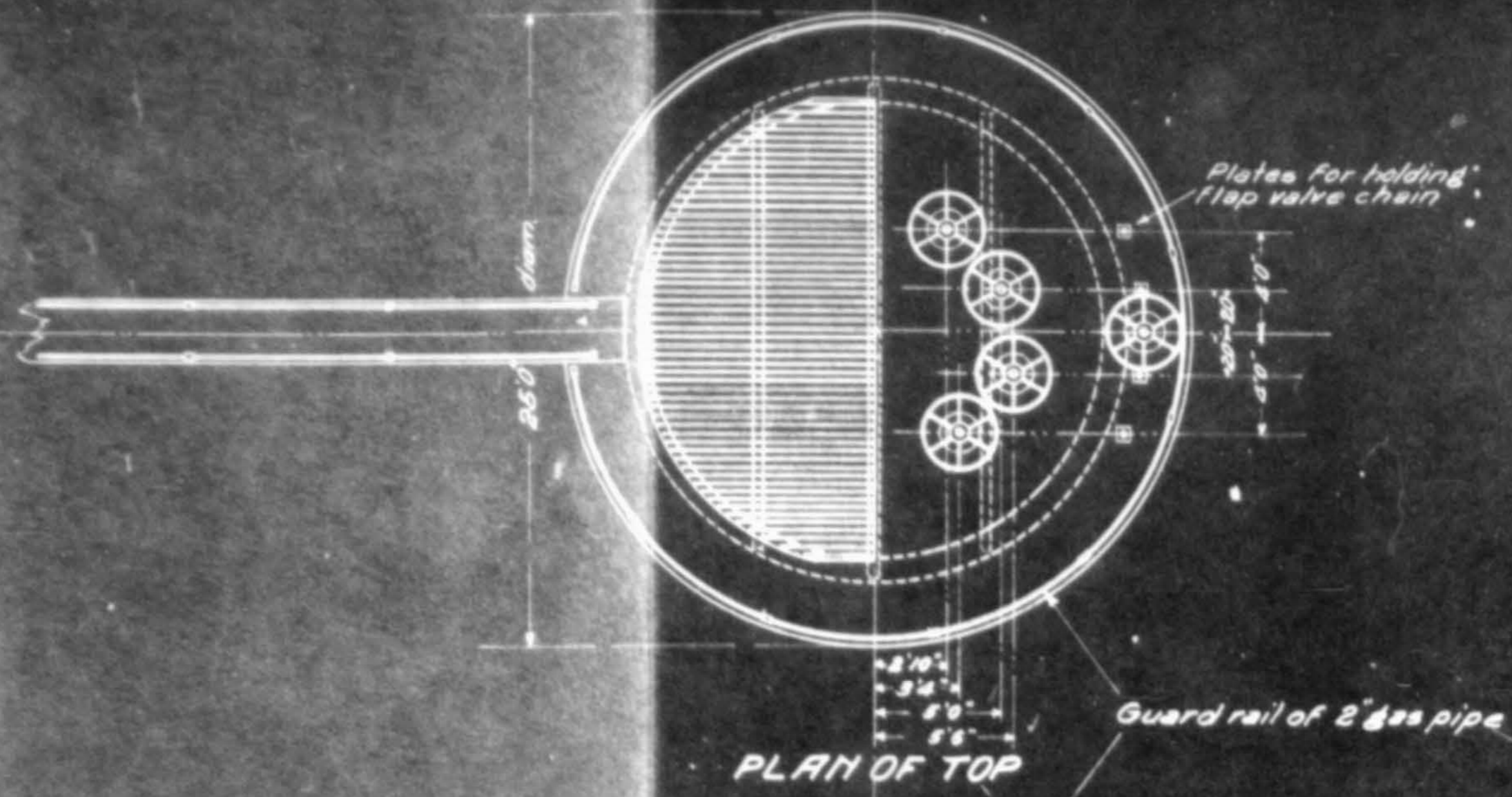
H



R. = 114.59'
Δ = 29° 00'
D = 50° 00'
L. = 58.0'
T. = 28.53'

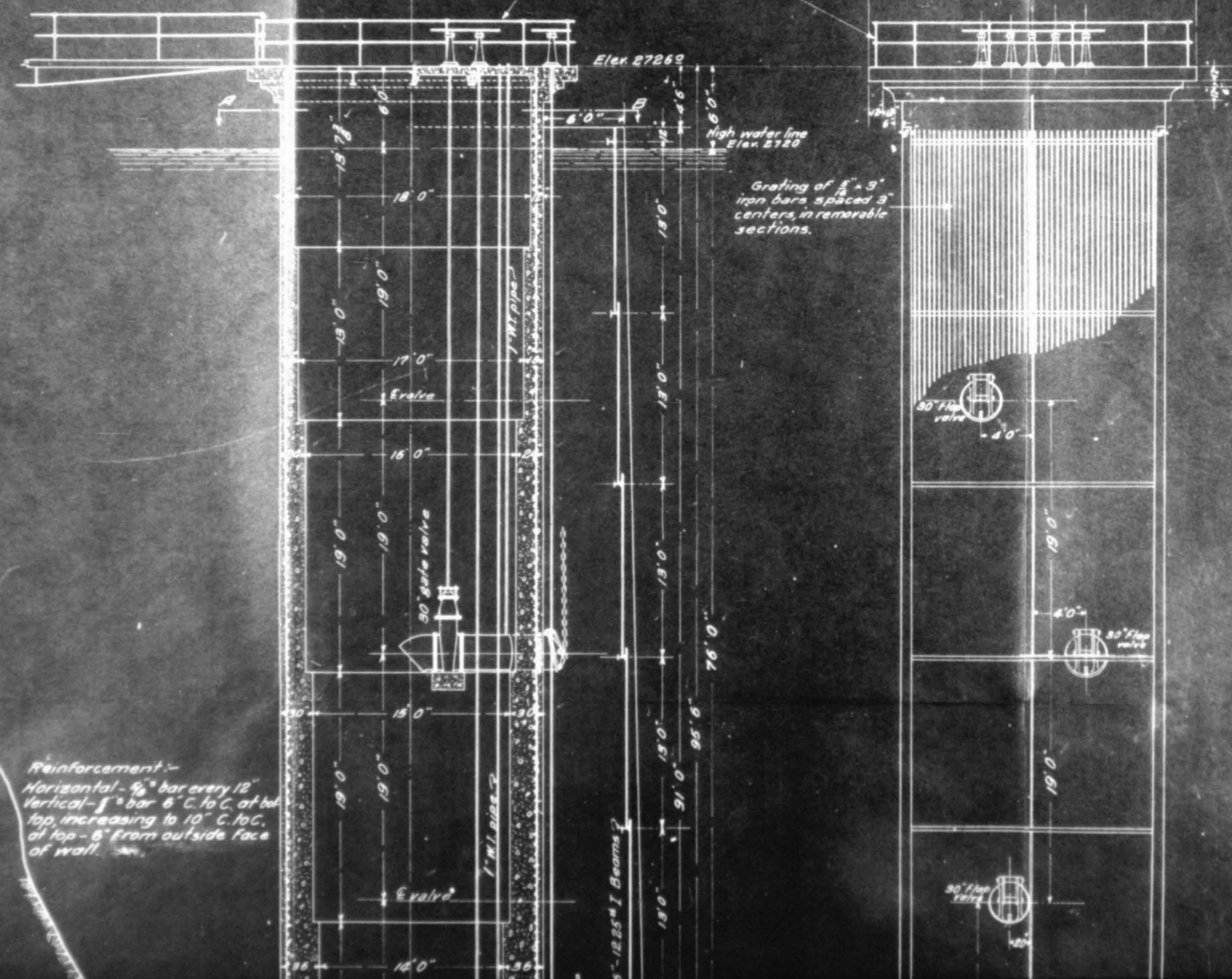
P.T. 11+19.7

DRAWING NO 387



PLAN OF TOP

Bridge to bluff



Reinforcement:-
 Horizontal - 5/8" bar every 12"
 Vertical - 5/8" bar 6" C. to C. at bot
 top, increasing to 10" C. to C.
 at top - 6" from outside face
 of wall.

6" 12.25# I Beams

30" Flap valve

30" Flap valve

30" Flap valve

High water line
 Elev. 2720

Elev. 2725.2

Guard rail of 2" gas pipe

down

25' 0"

Plates for holding flap valve chain

4' 0"

25' 0"

15' 7 1/2"

18' 0"

19' 0"

17' 0"

15' 0"

19' 0"

19' 0"

15' 0"

19' 0"

19' 0"

15' 0"

19' 0"

19' 0"

14' 0"

6' 0"

4' 6"

6' 0"

15' 0"

13' 0"

15' 0"

13' 0"

15' 0"

13' 0"

15' 0"

13' 0"

15' 0"

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15' 0"

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13' 0"

15' 0"

13' 0"

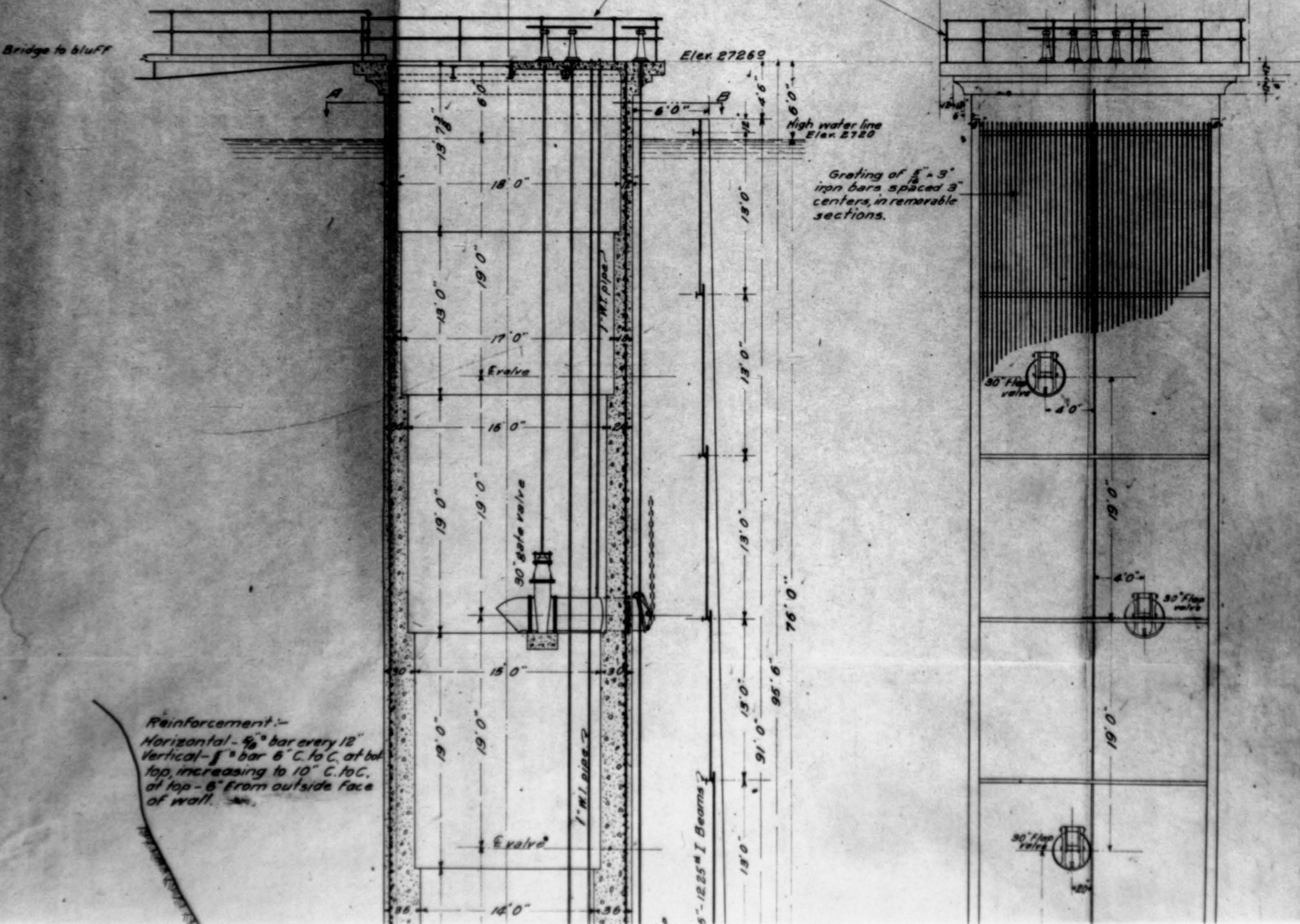
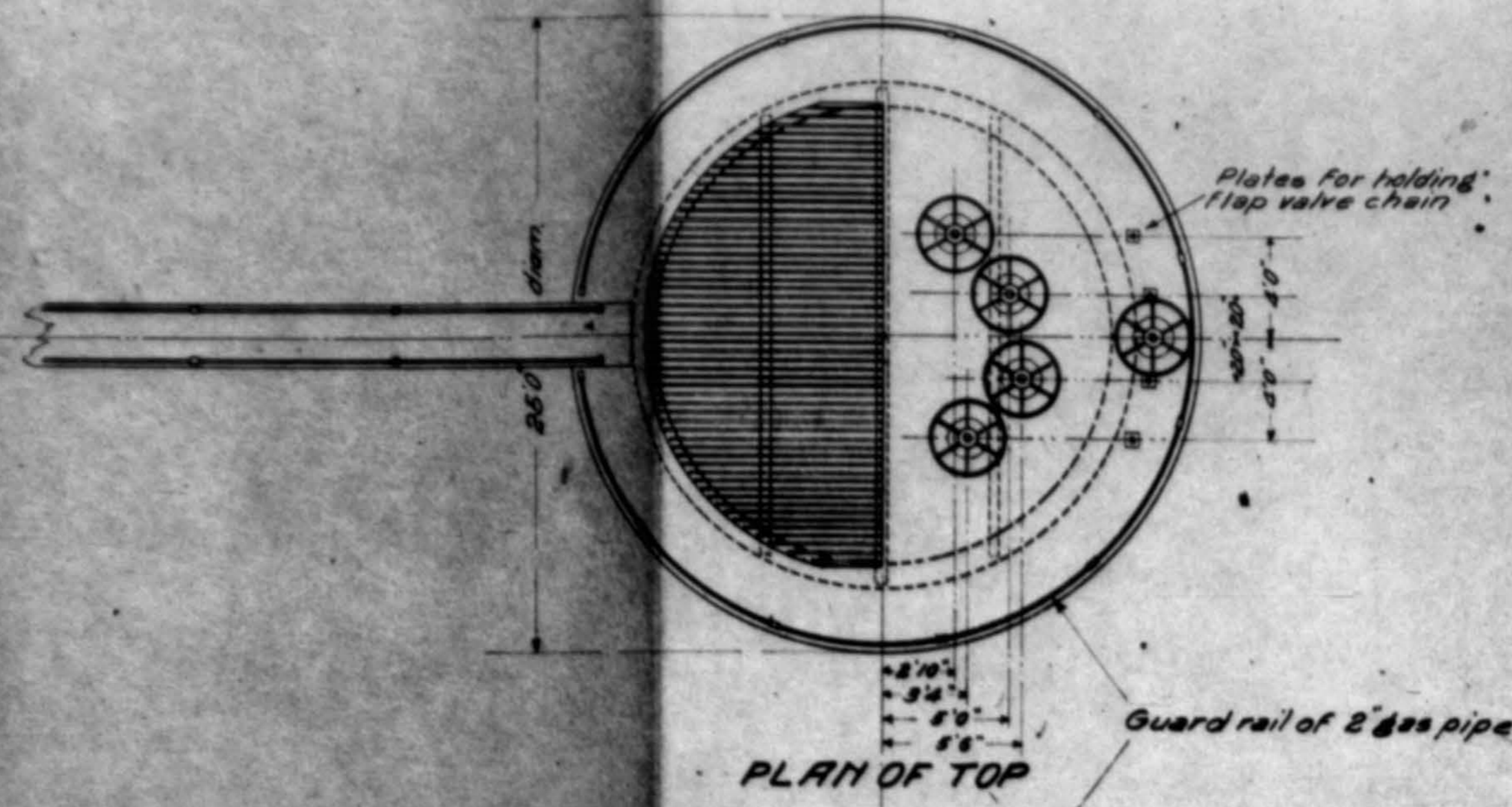
76' 0"

95' 6"

91' 0"

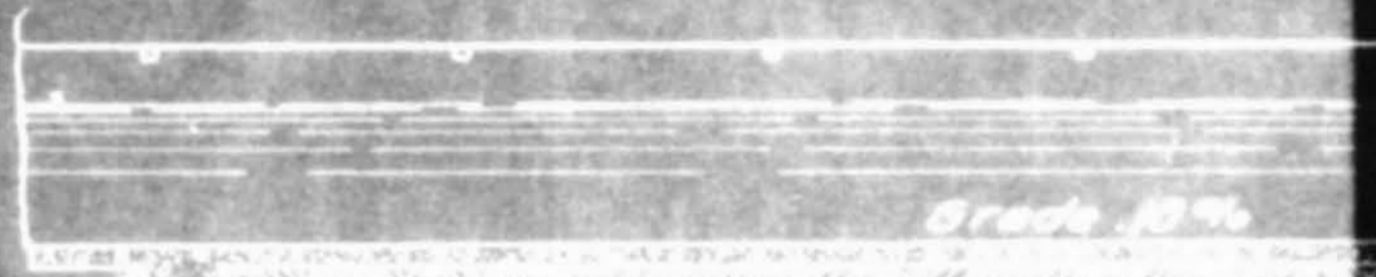
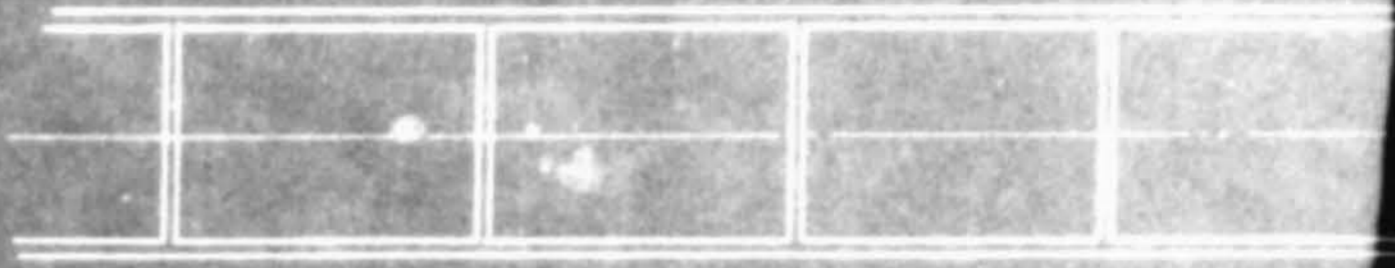
95' 6"

91' 0"



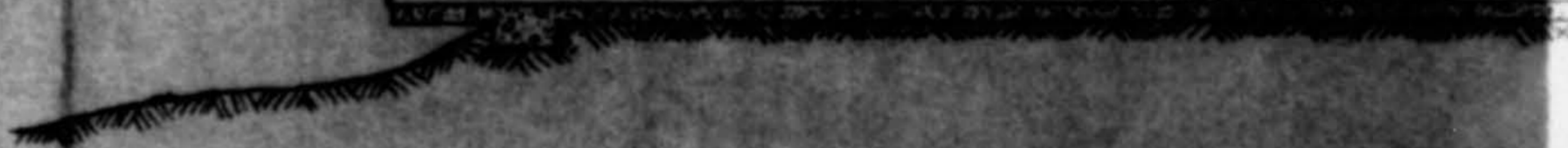
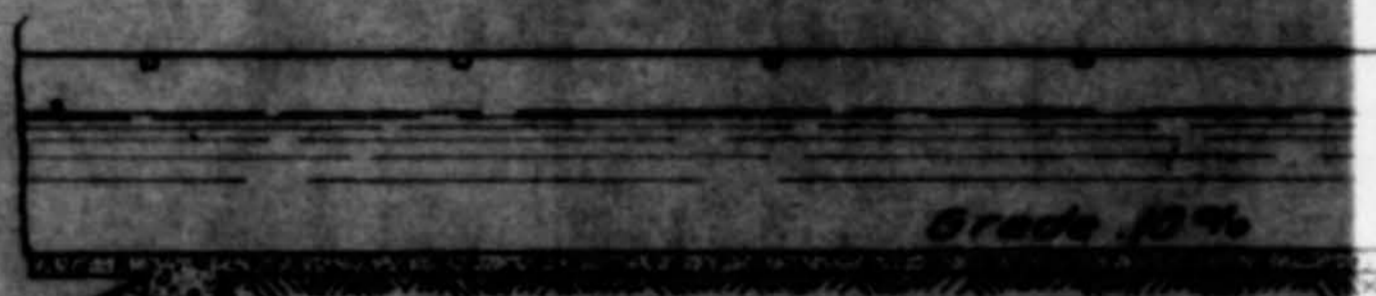
FOR DETAILS SEE DRAWING

6

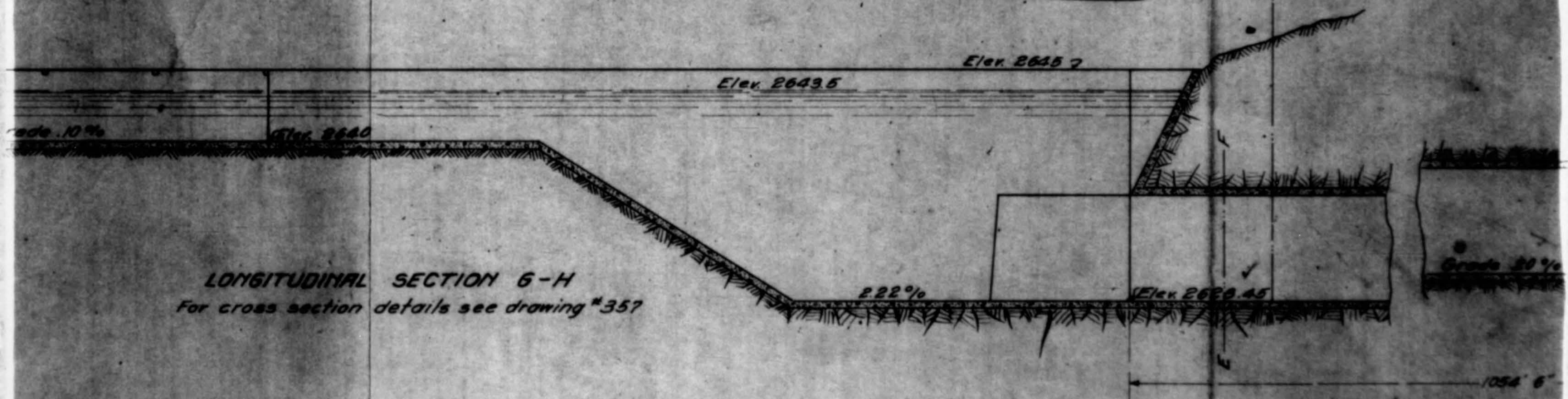
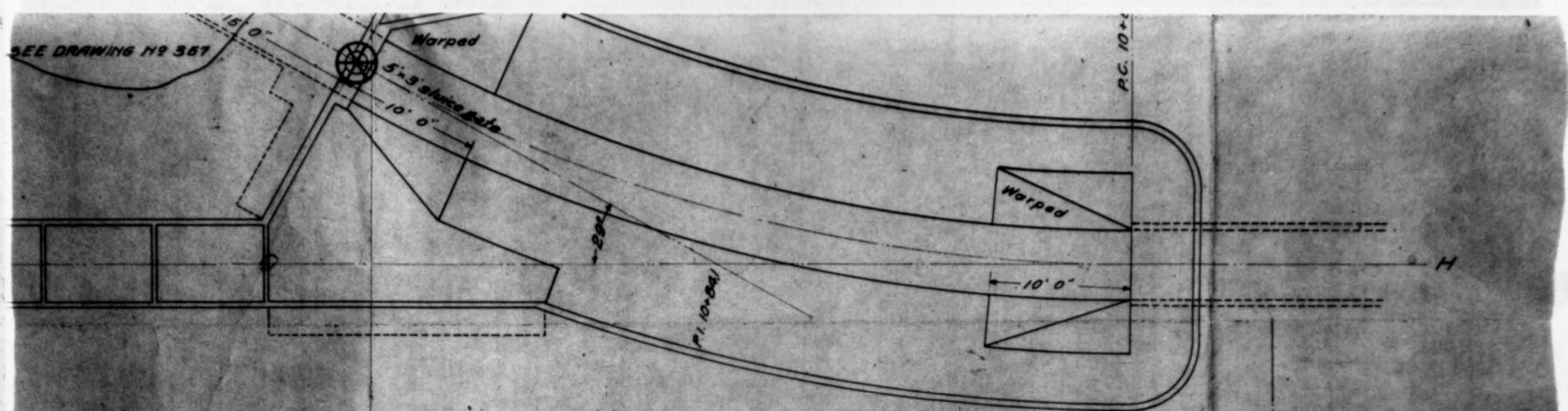


Grade 10%

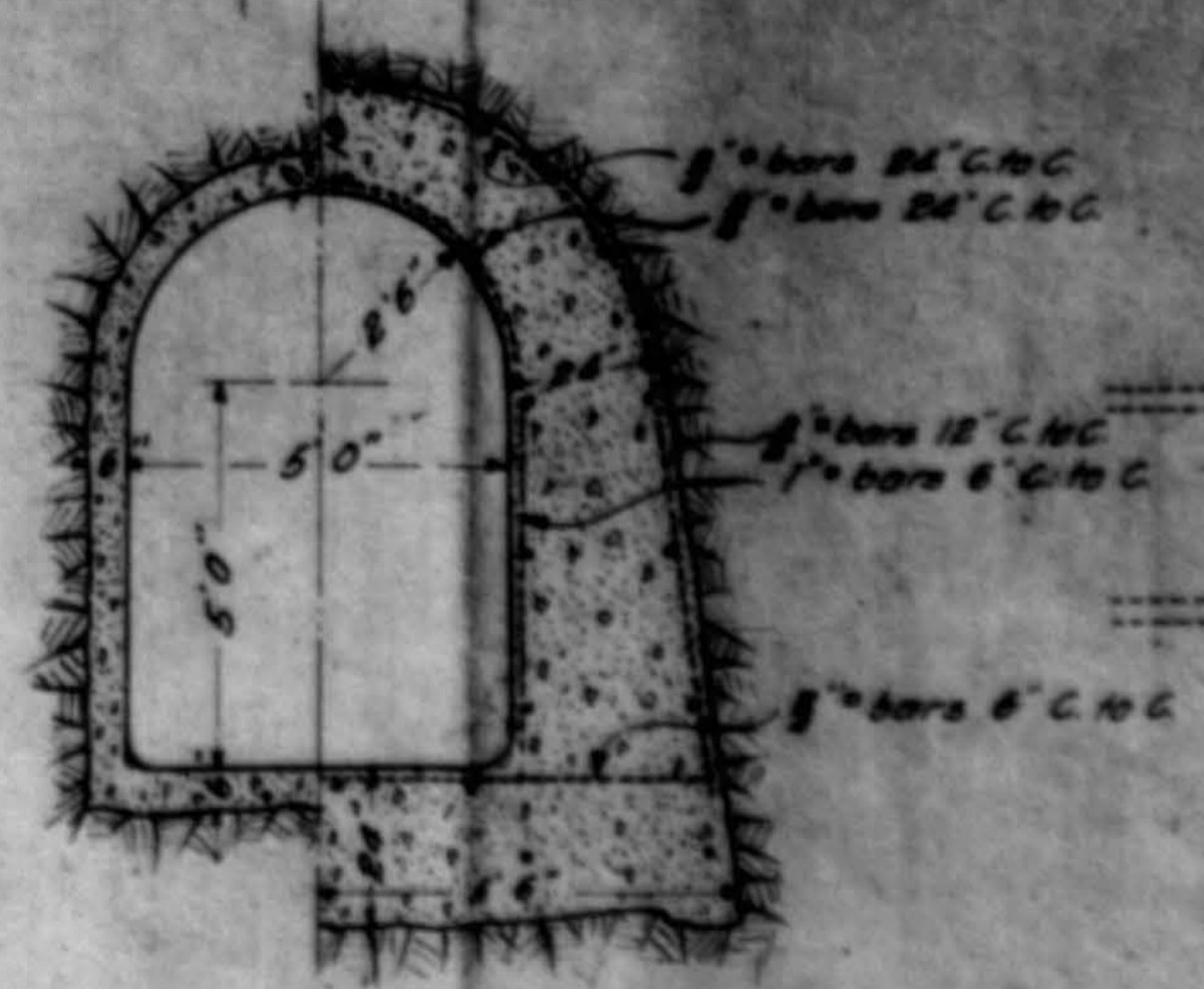
FOR DETAILS SEE DRAWING 1



SEE DRAWING NO 357

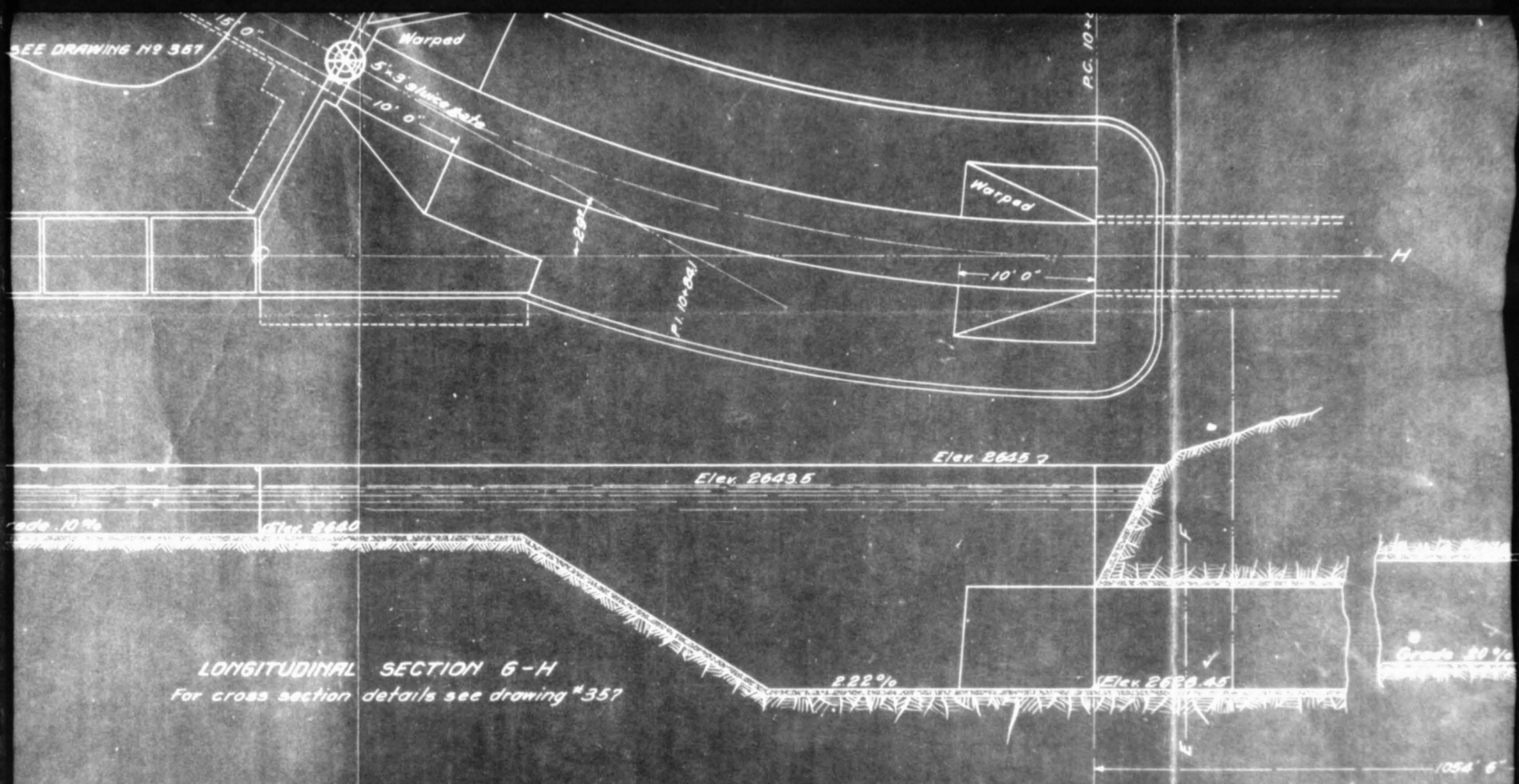


LONGITUDINAL SECTION 6-H
 For cross section details see drawing #357

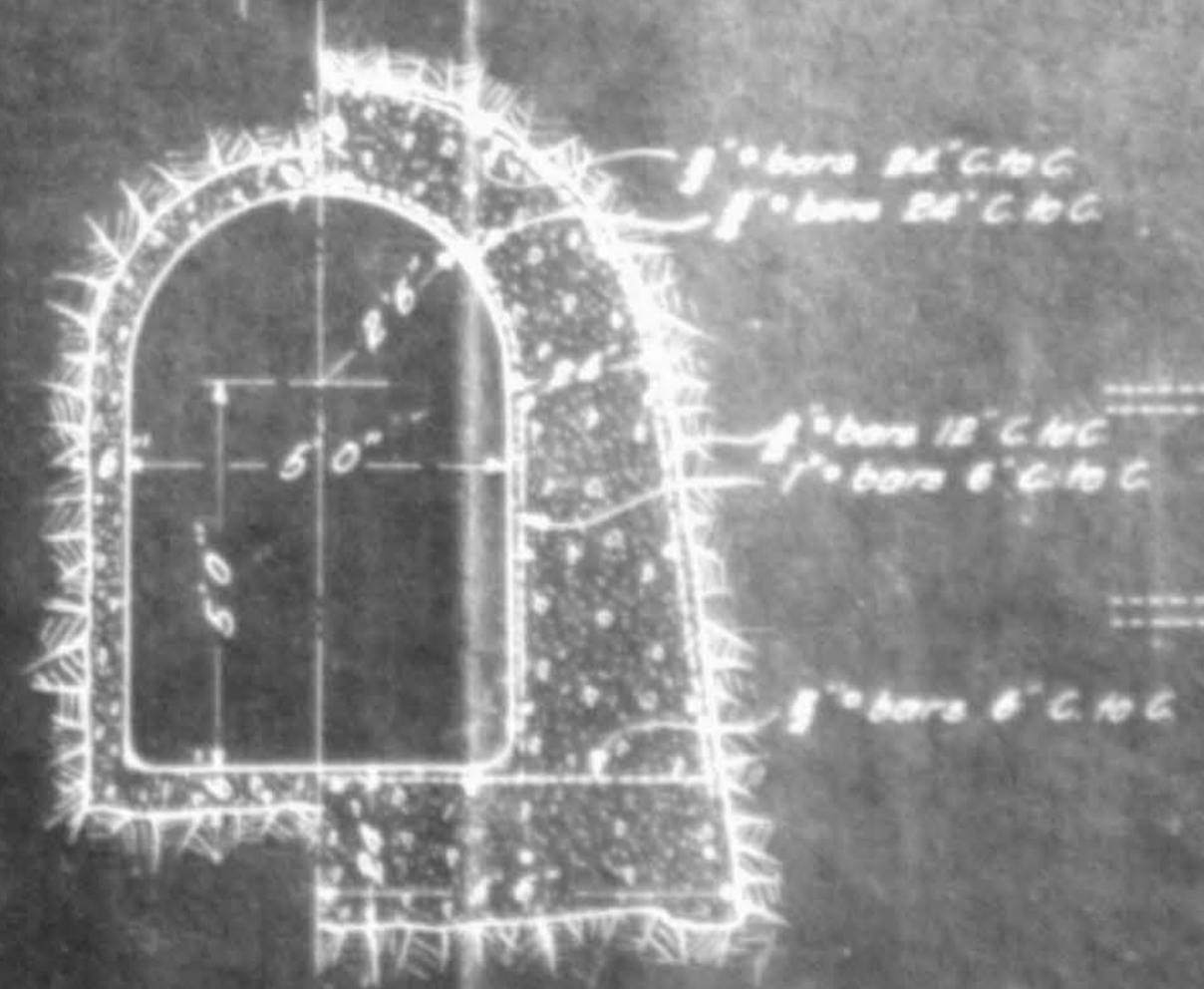


SECTION E-F SECTION C-D

SEE DRAWING NO 357

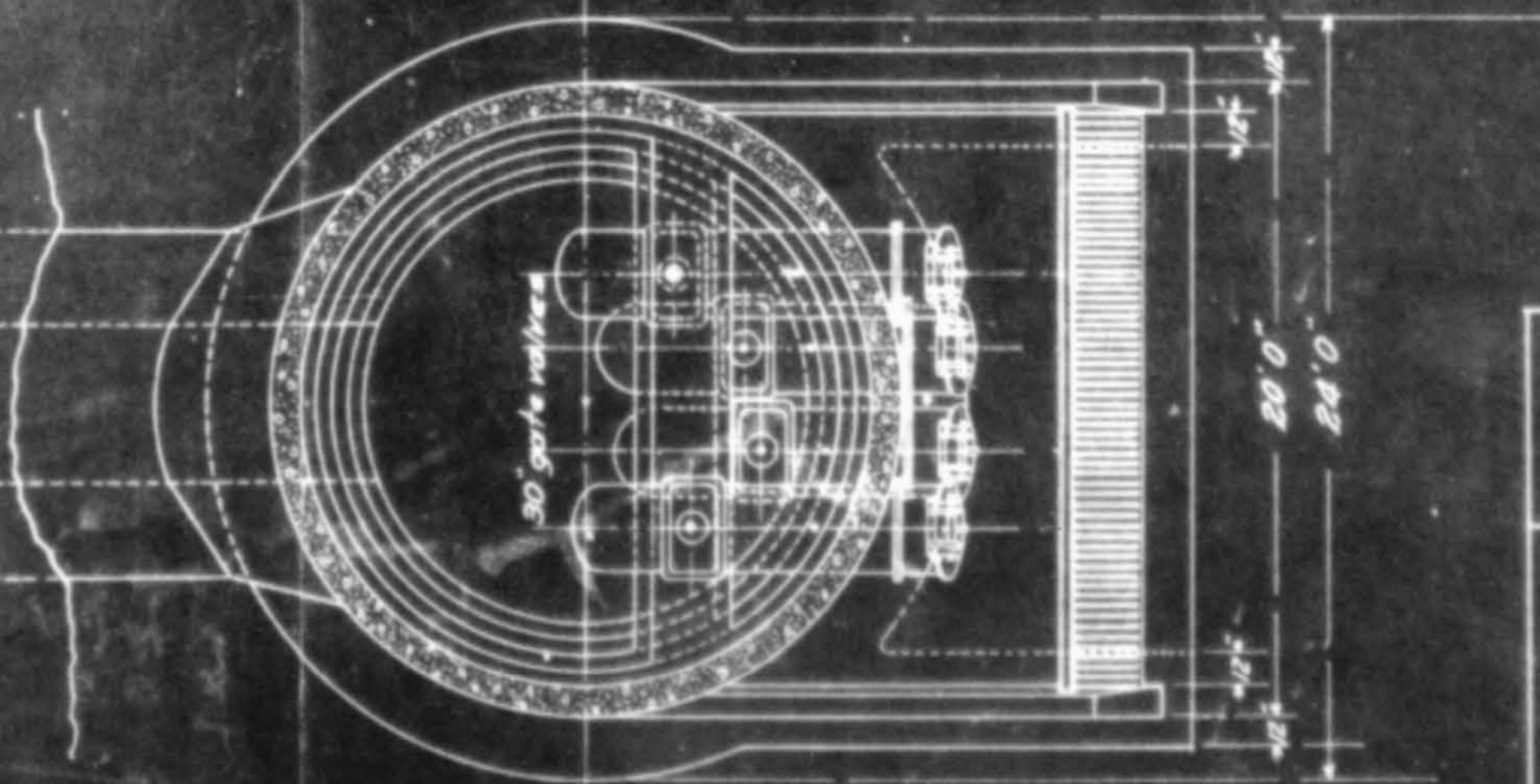
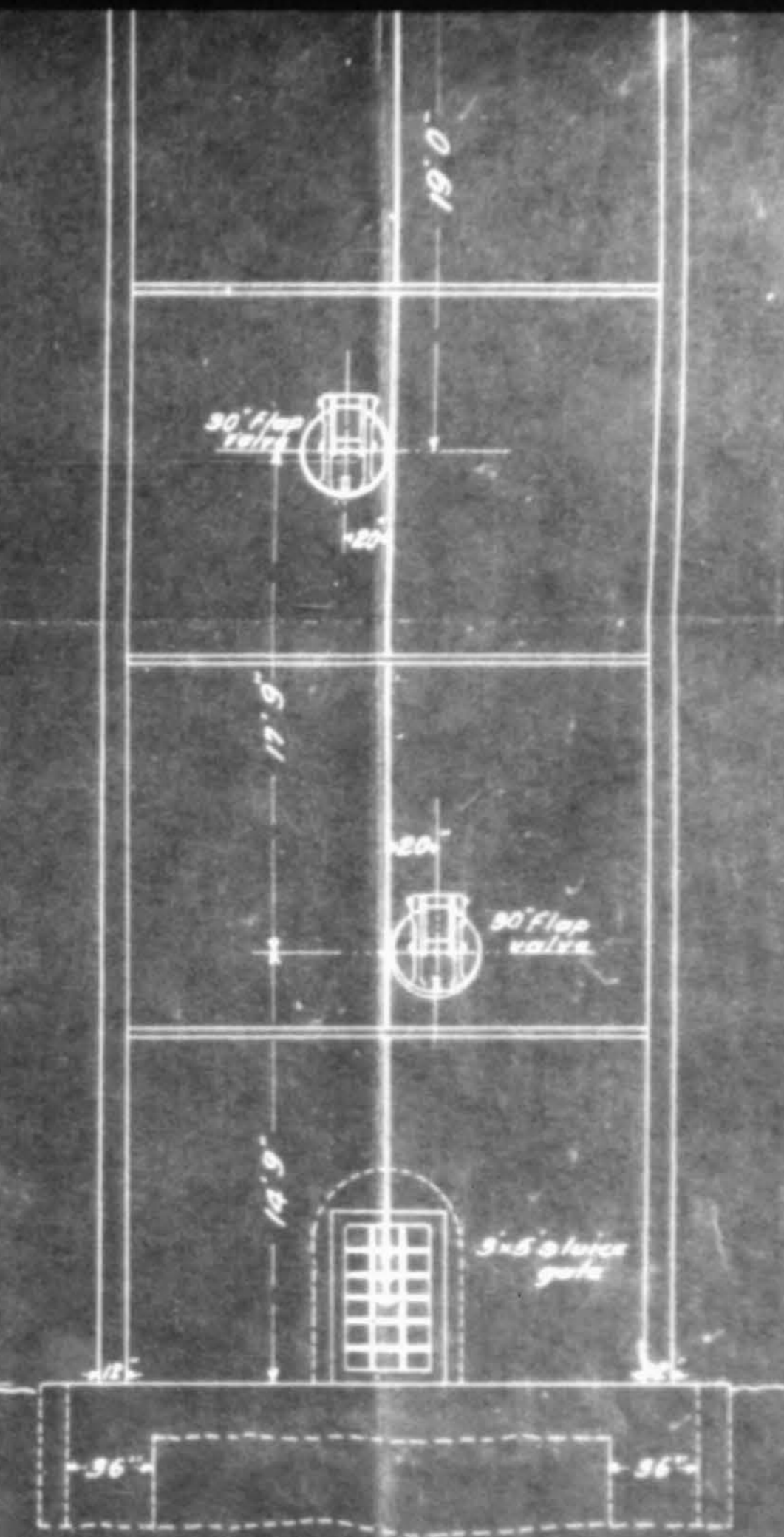
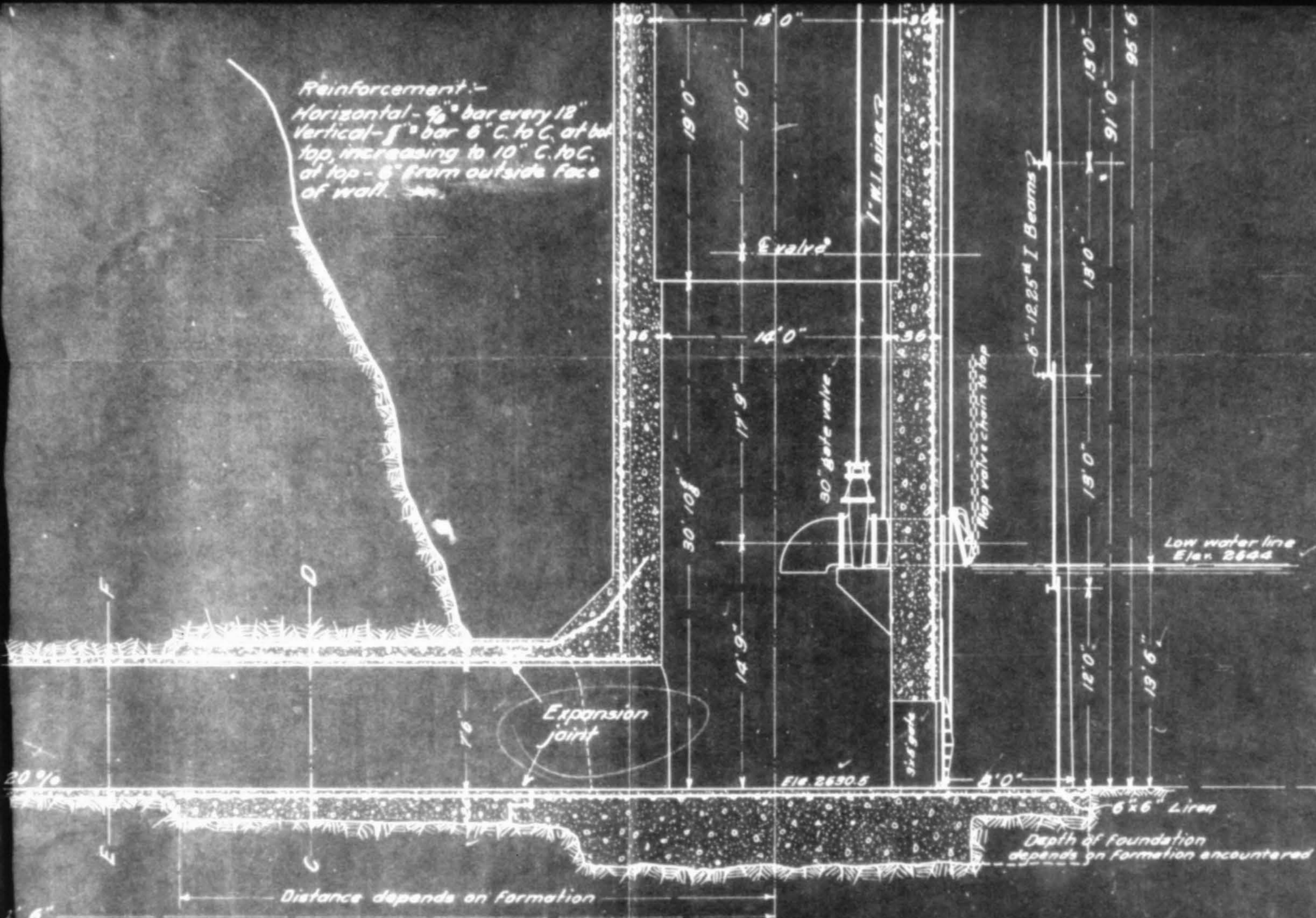


LONGITUDINAL SECTION 6-H
 For cross section details see drawing #357



SECTION E-F SECTION C-D

Reinforcement:-
 Horizontal - $\frac{3}{8}$ " bar every 12"
 Vertical - $\frac{5}{8}$ " bar 6" C. to C. at bot
 top, increasing to 10" C. to C.
 at top - 6" from outside face
 of wall.

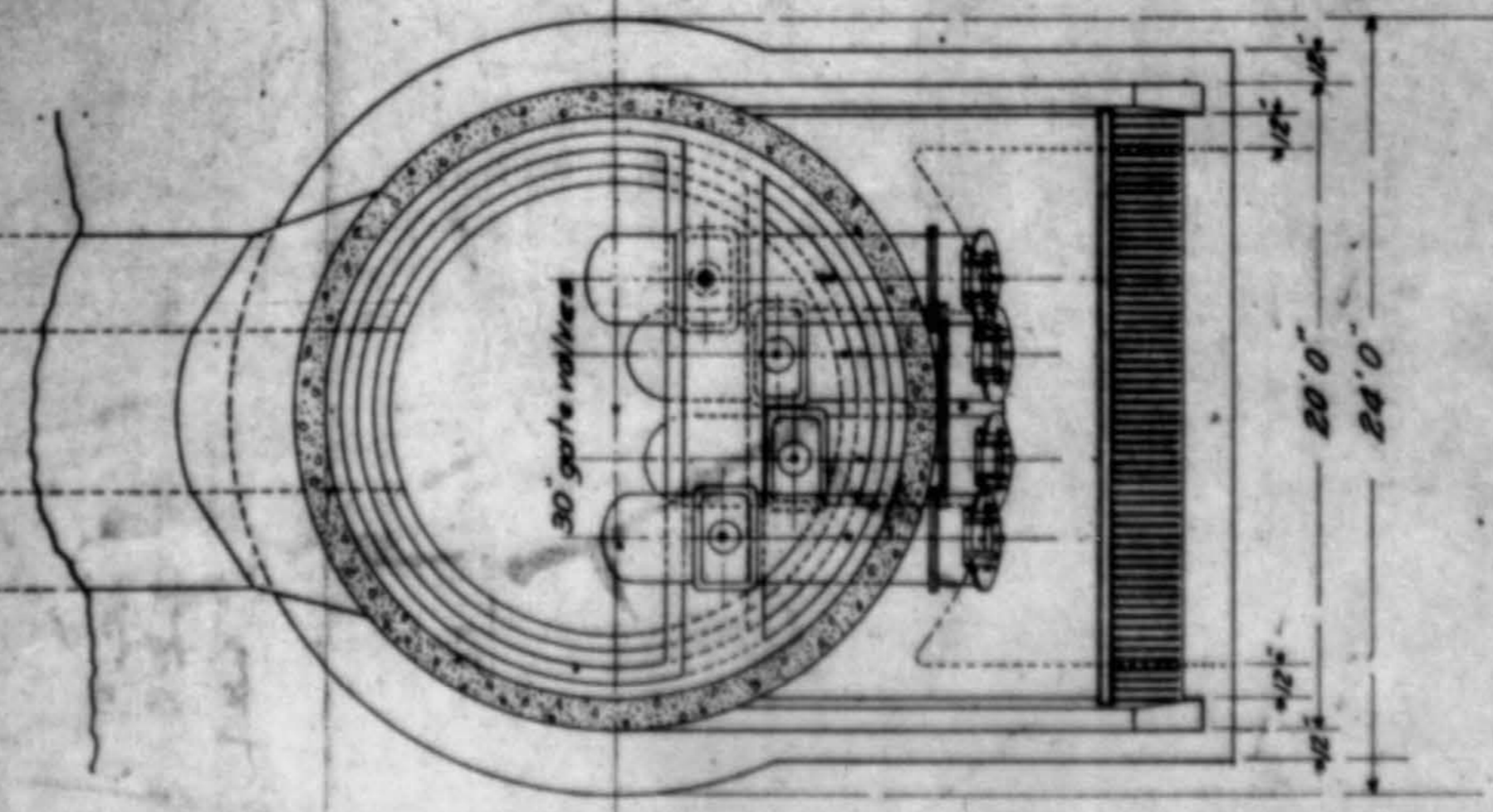
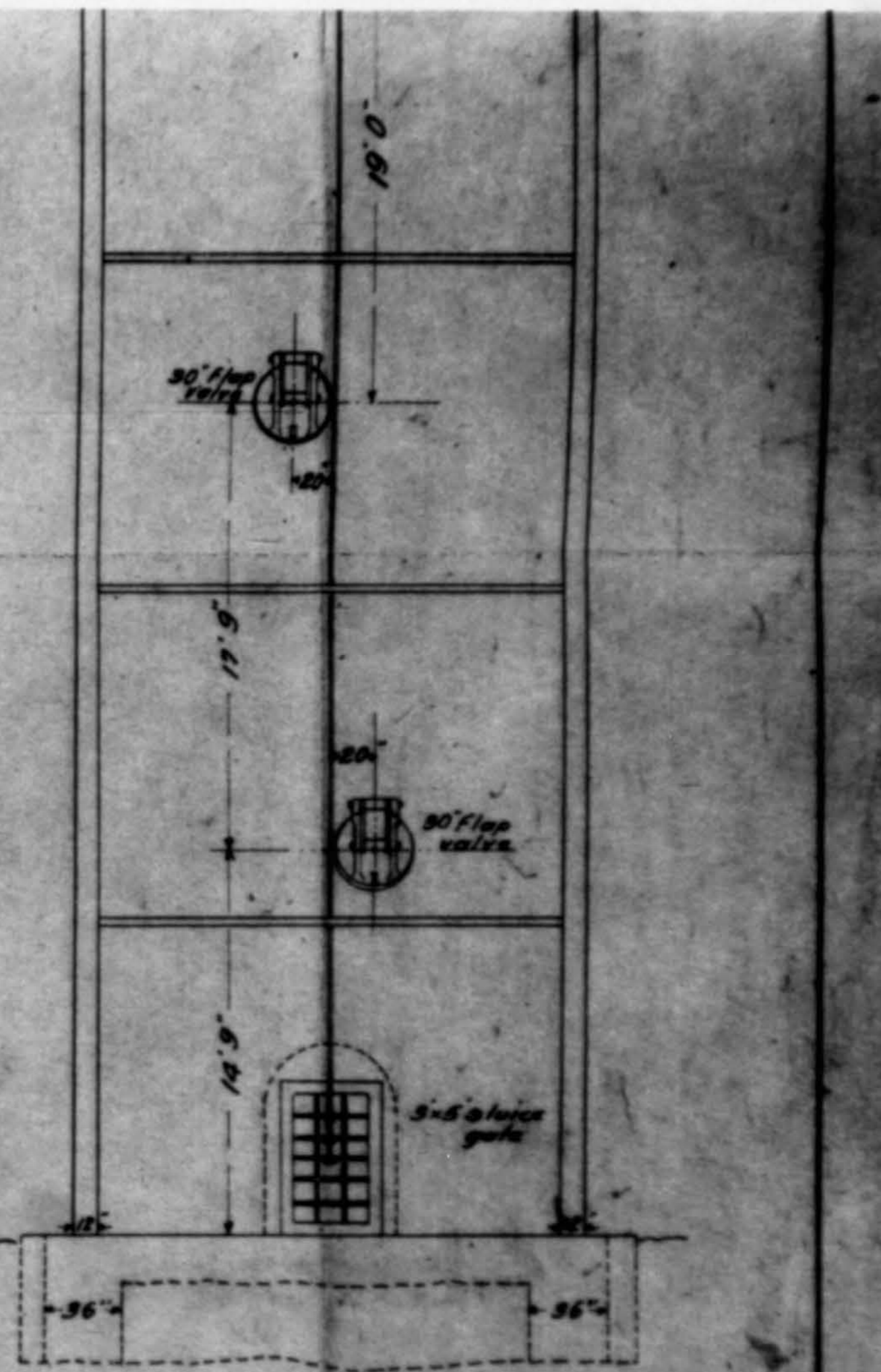
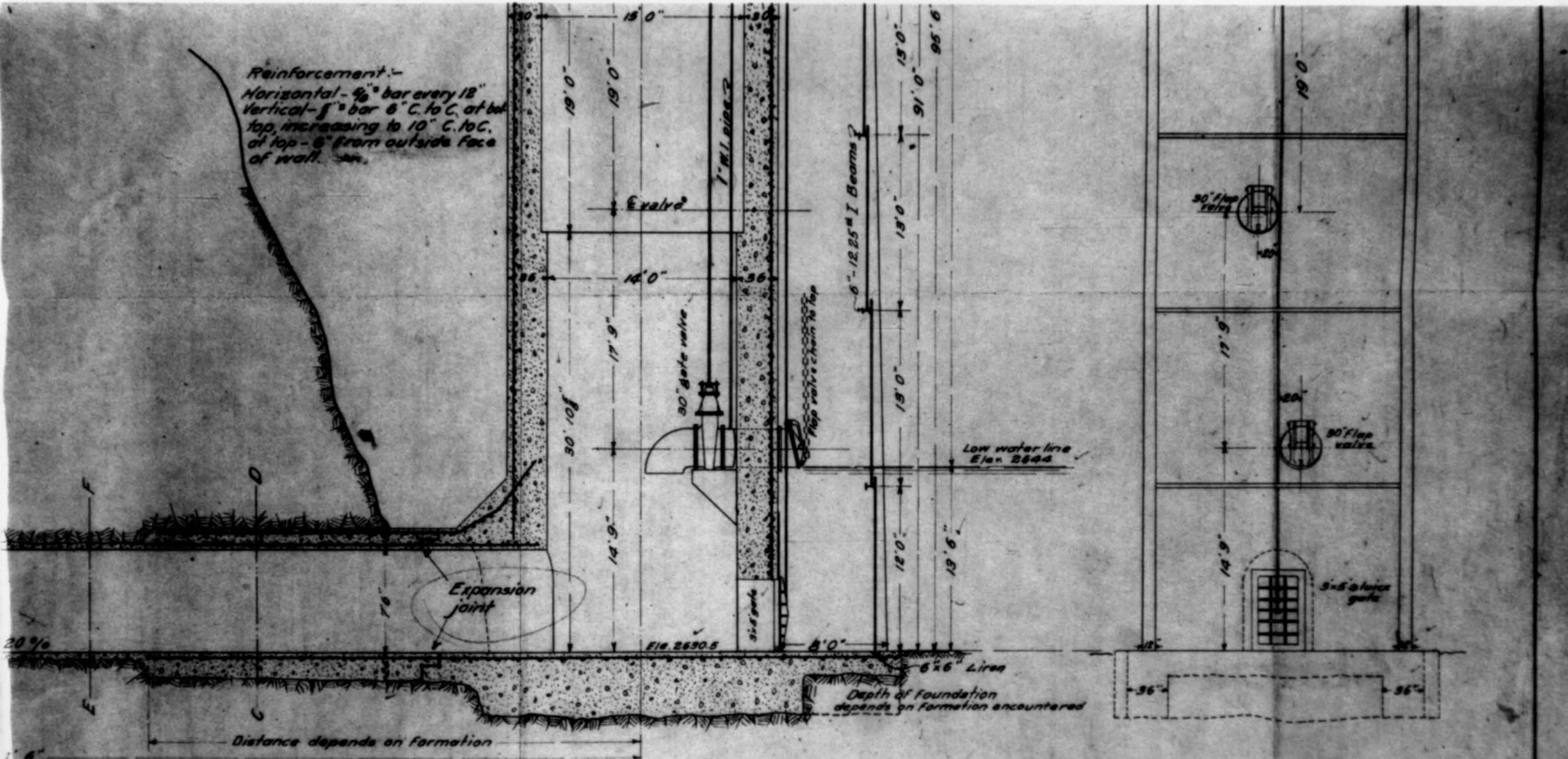


SECTIONAL PLAN ON A-B

SCALE: $\frac{1}{8}$ " = 1'

DESIGN NO 4
VOLCAN LAND & WATER CO.
WARNER RESERVOIR
OUTLET TOWER
 AND
CONDUIT CONNECTION
 W.S. POST, Engr
 Drawn by G.E.H.-L.A.O.
 Traced by L.A.O.
 Checked by *[Signature]*
 APRIL 10, 1914
 Drawing No 389
 File No T-5

Reinforcement:-
 Horizontal - $\frac{3}{8}$ " bar every 12"
 Vertical - $\frac{5}{8}$ " bar 6" C. to C. at bot
 top, increasing to 10" C. to C.
 at top - 6" from outside face
 of wall.



SECTIONAL PLAN ON A-B

SCALE: $\frac{1}{8}$ " = 1'

DESIGN NO 4

VOLCAN LAND & WATER CO.
WARNER RESERVOIR

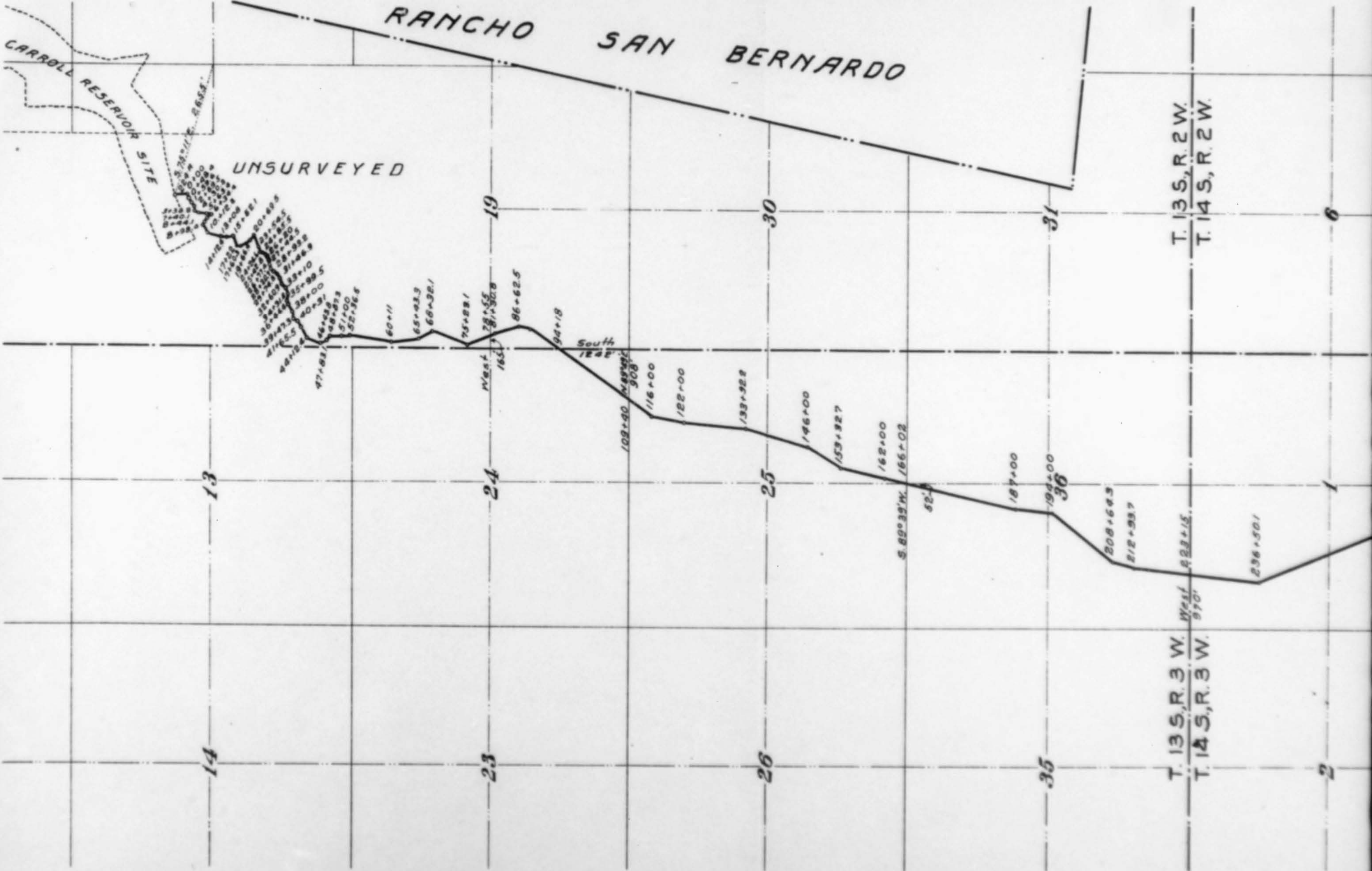
OUTLET TOWER
 AND
CONDUIT CONNECTION

W.S. POST, Engr
 Drawn by C.E.H.-L.A.O.
 Traced by L.A.O.
 Checked by *C.E.H.*

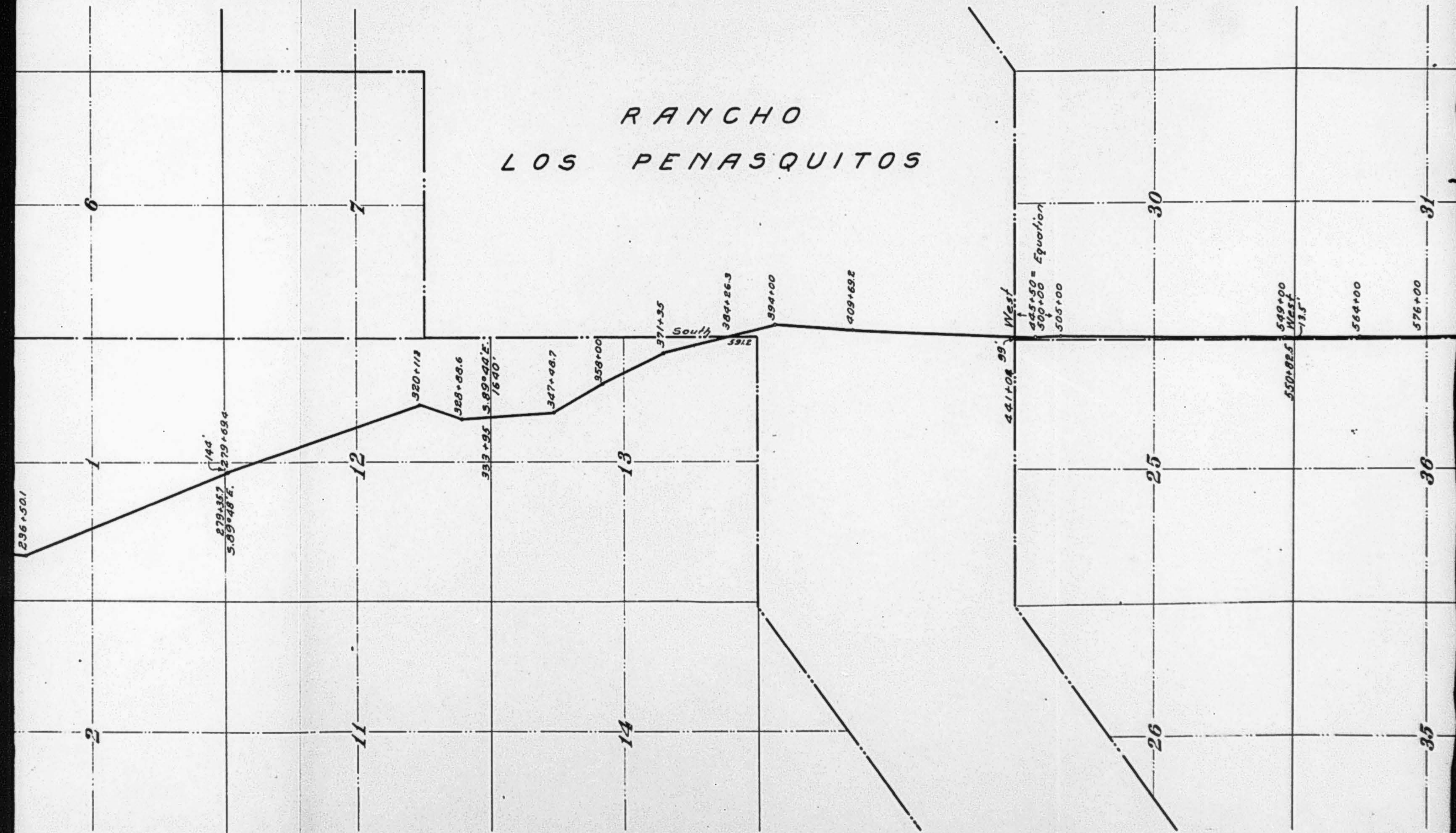
APRIL 10, 1914

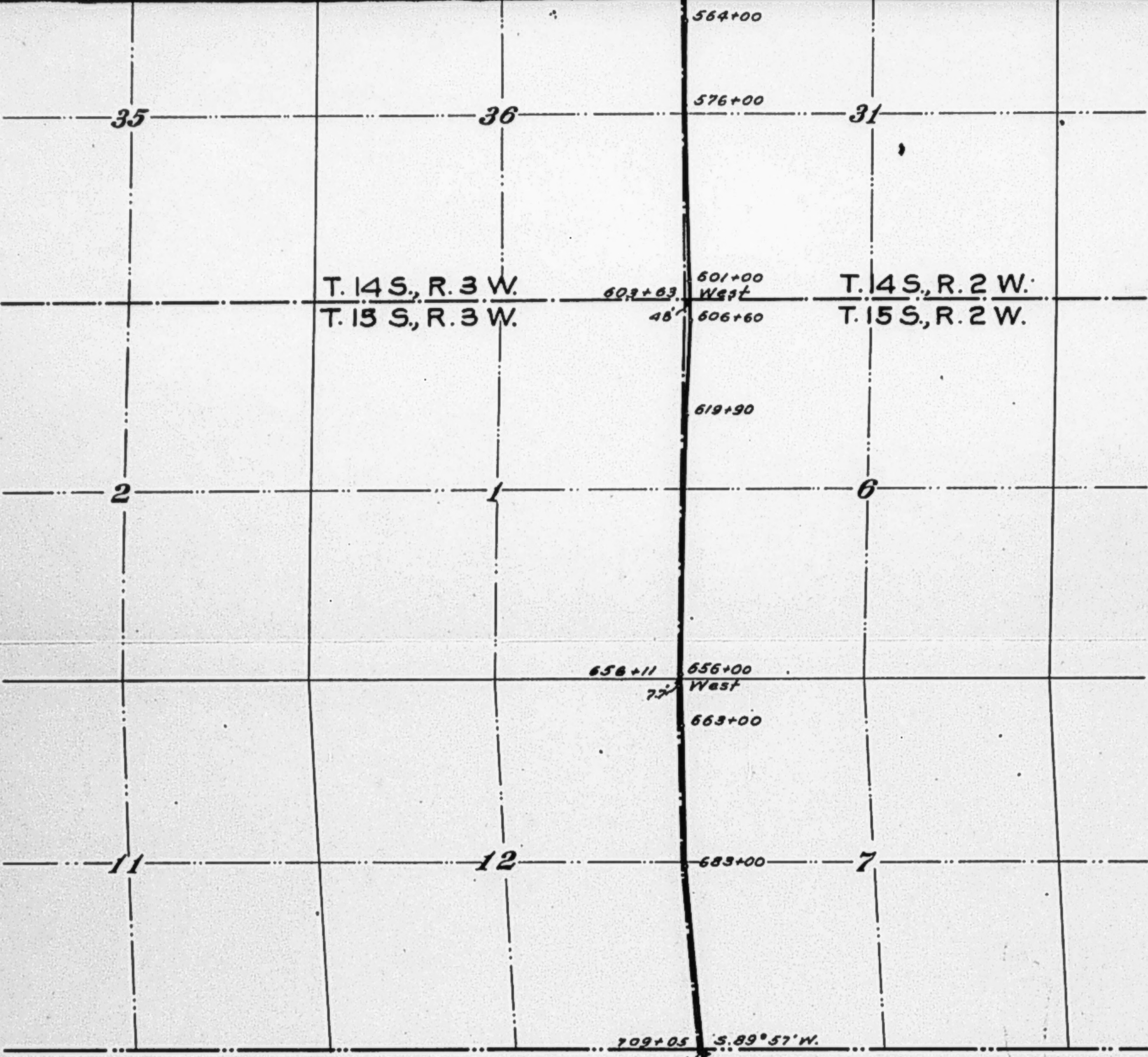
Drawing No 589
 File No T-5

RANCHO SAN BERNARDO

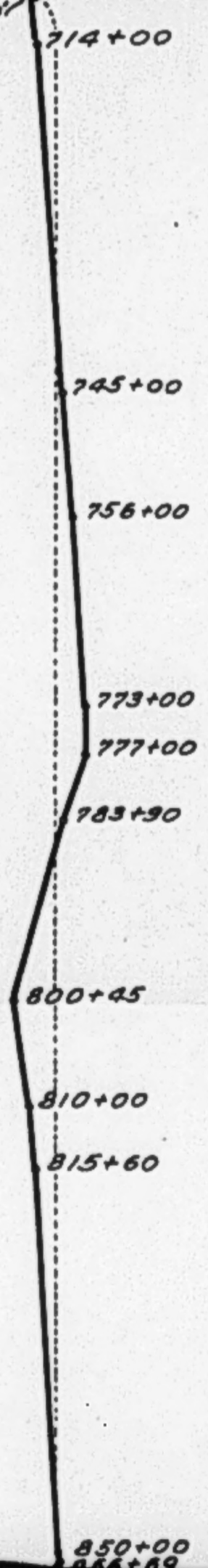


RANCHO LOS PENASQUITOS





RANCHO EX MISSION





850+00
856+89

N. 0° 02' E. 44295.0'

876+25.5

887+00

905+13.4

964+00

989+82.8

1007+30

1020+10

Rancho Ex Mission
City limits of San Diego

1076+44.8

1041+46.3

1055+59

SION

SAN DIEGO

PUEBLO

LANDS

All courses of
All distances

PUEBLO

LANDS

OF

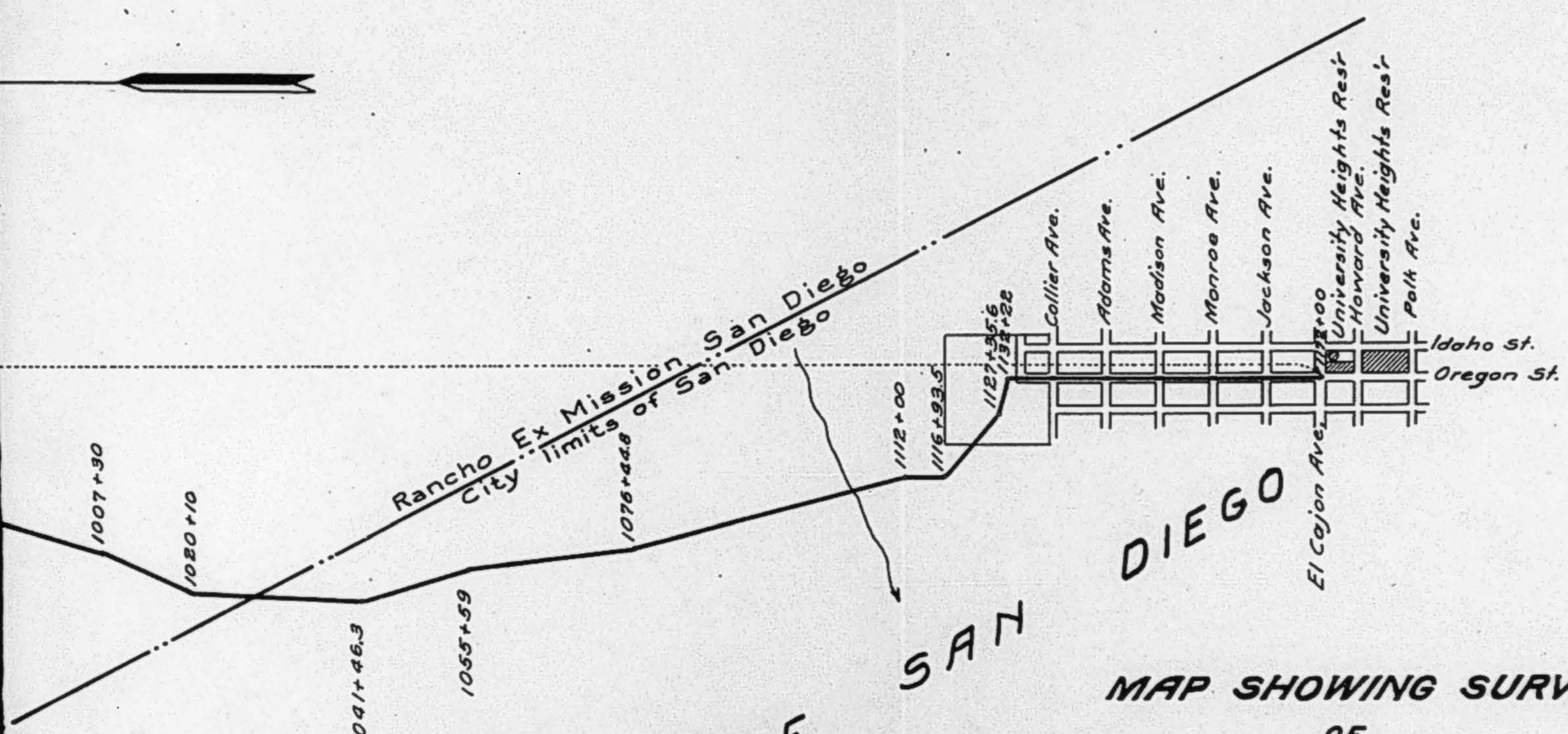
SAN

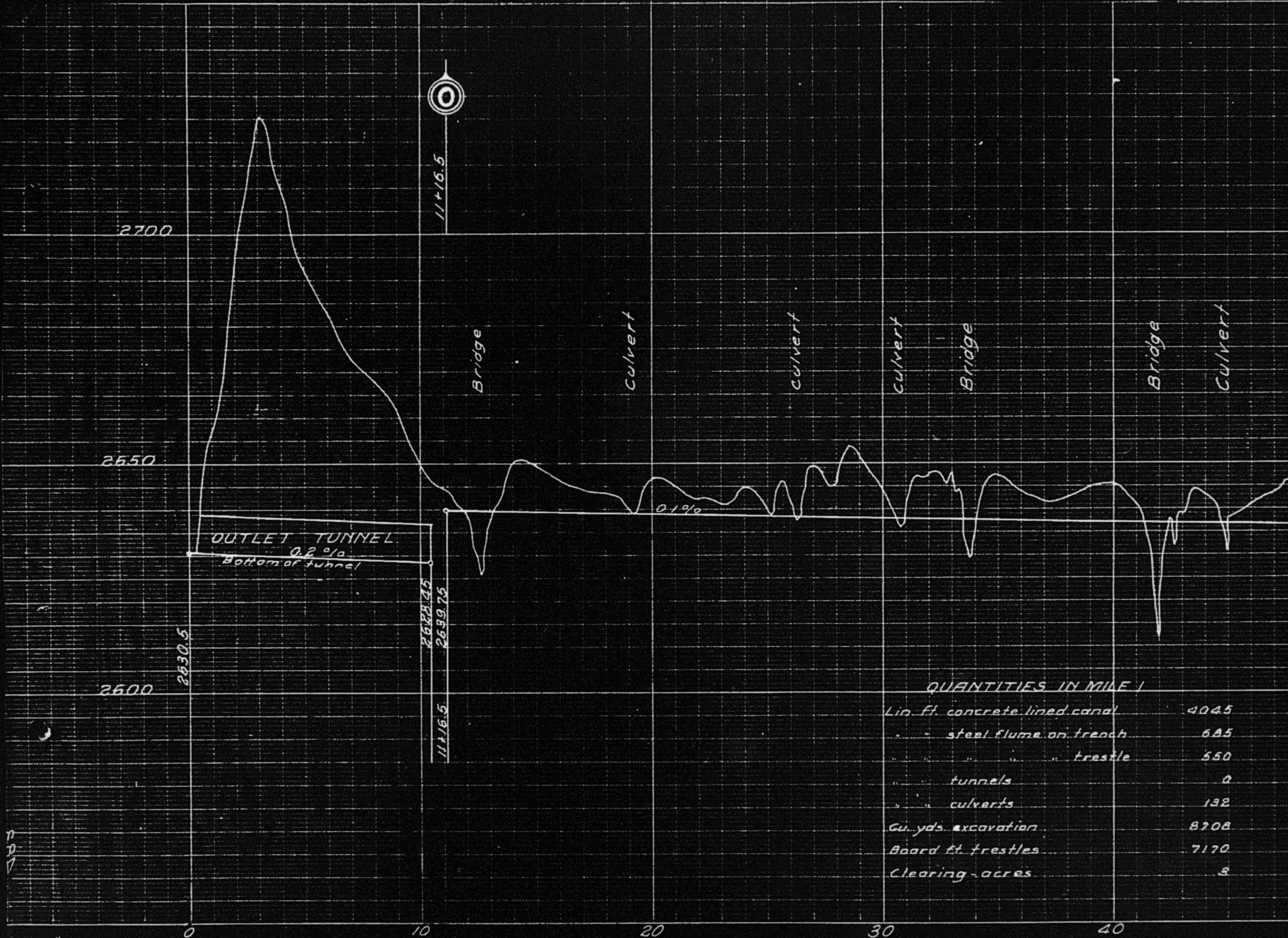
DIEGO

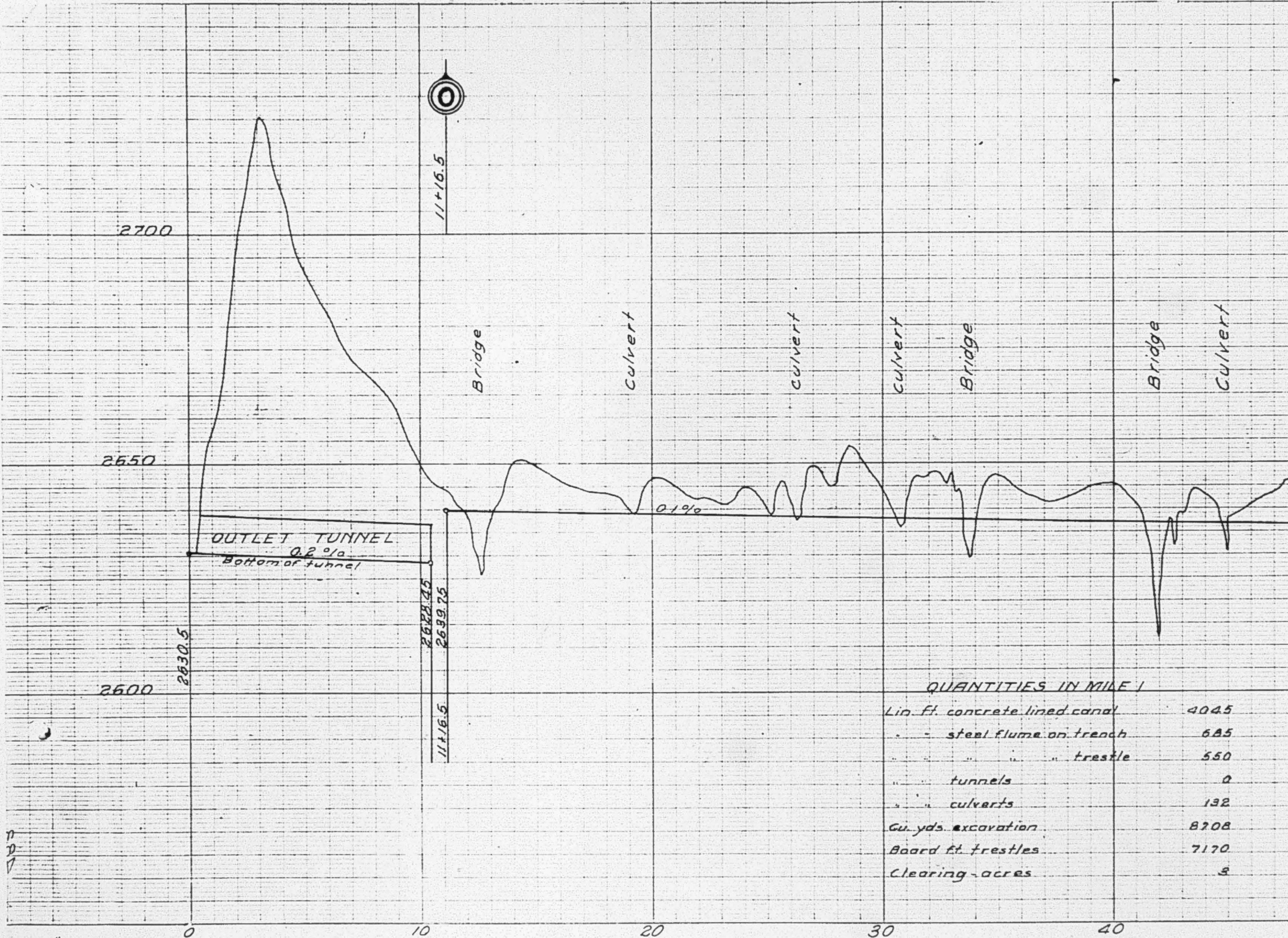
All courses are true
All distances in feet

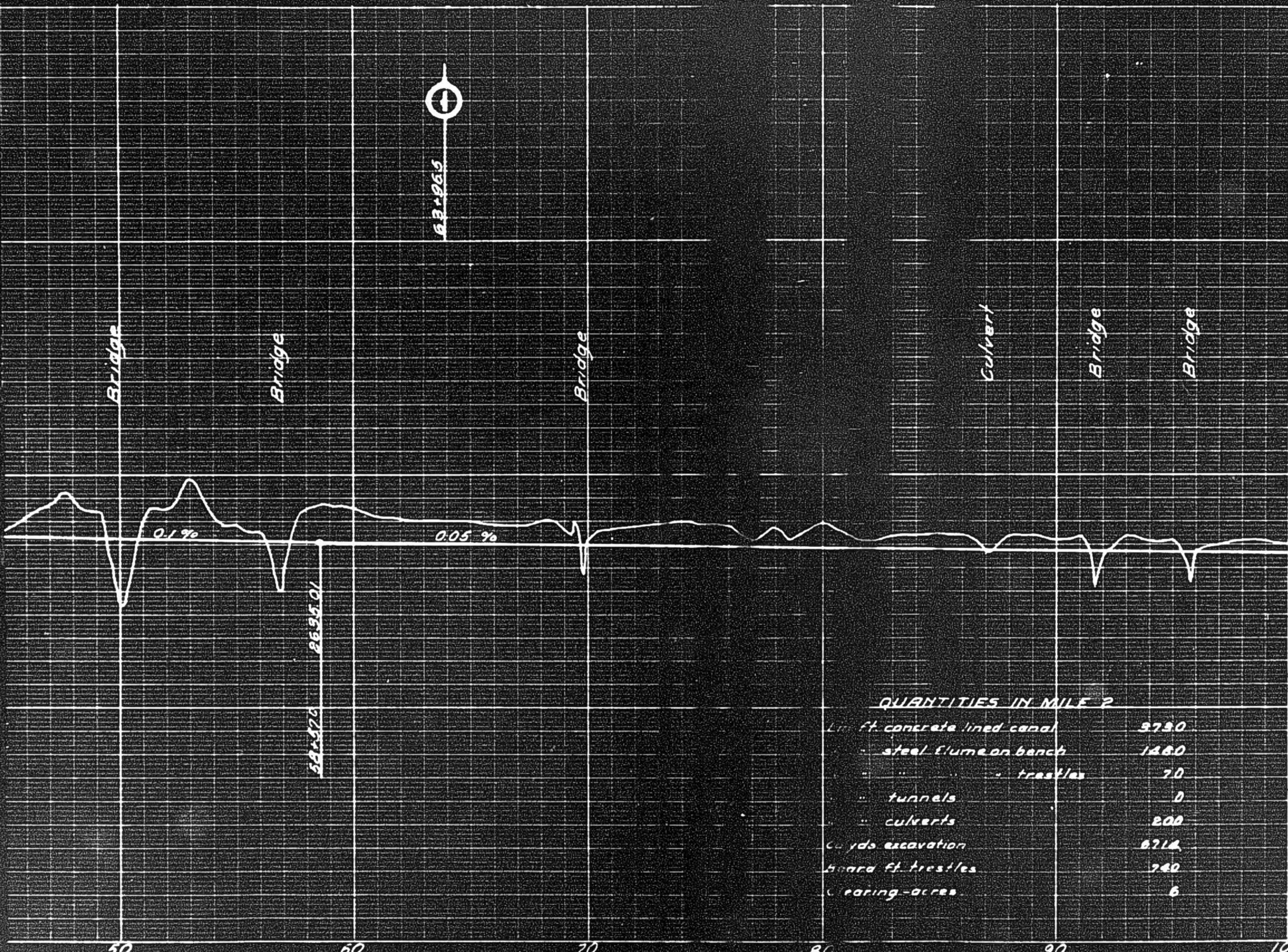
MAP SHOWING SURVEY
OF
CENTER LINE
OF
CARROLL - UNIVERSITY CANAL
OF
ED FLETCHER
SAN DIEGO COUNTY, CALIFORNIA

SCALE : 1" = 2000'









QUANTITIES IN MILE 2

Lin. ft. concrete lined canal	9790
.. steel flume on bench	1380
.. .. trestles	70
.. tunnels	0
.. culverts	200
Cu yds excavation	8712
Board ft. trestles	740
Clearing-acres	6

50

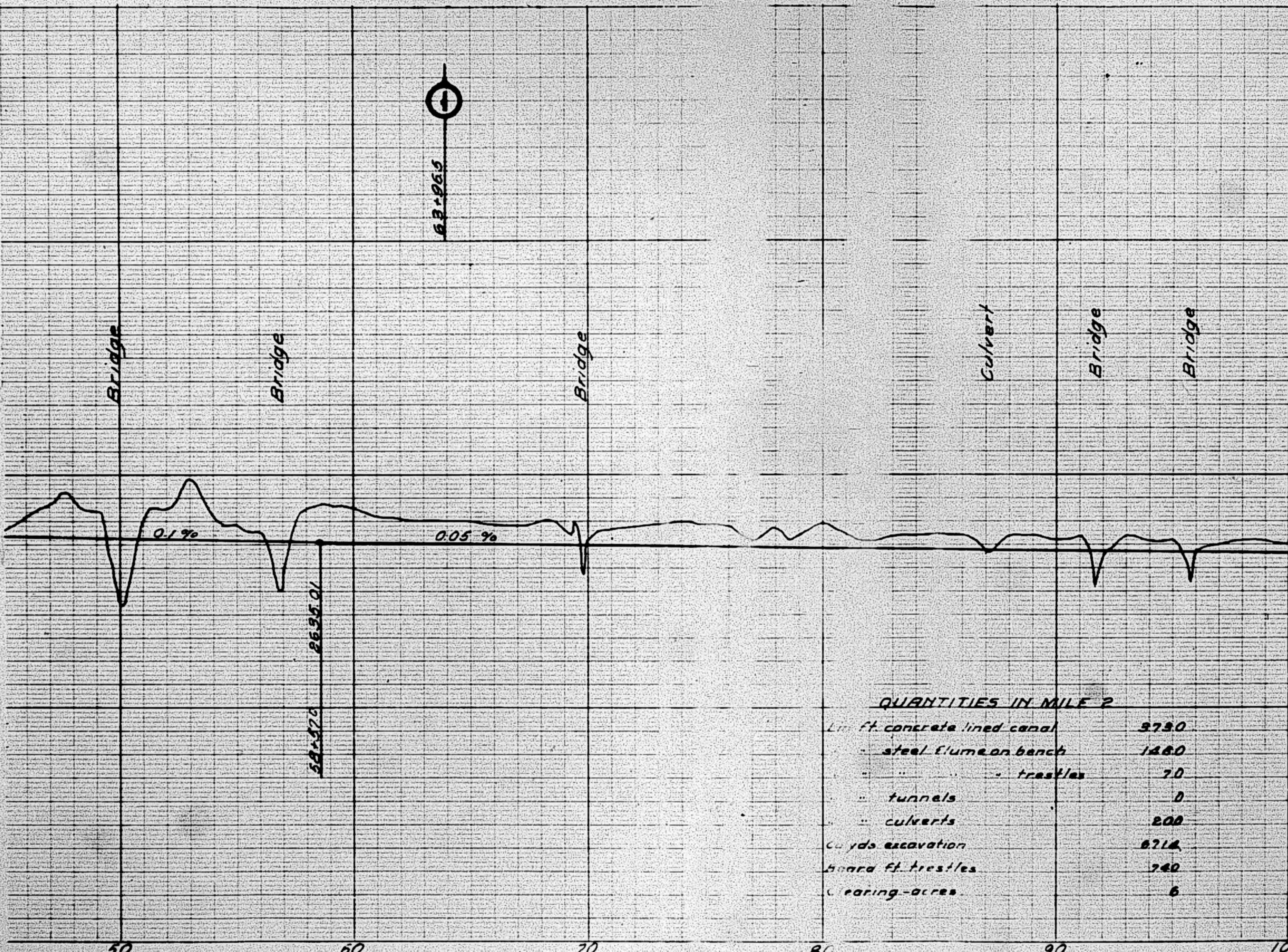
60

70

80

90

100



QUANTITIES IN MILE 2

Lin. ft. concrete lined canal	3750
" steel flume on bench	1460
" " " " trestles	70
" tunnels	0
" culverts	200
Cu yds excavation	6712
Board ft. trestles	740
Clearing-acres	6

2

11426.5

Culvert
Culvert
Bridge

Bridge

Bridge

Culvert

26.50

0.05%

QUANTITIES IN MILE 3

2600

Lin. ft. concrete lined canal	3900
" " steel flume on bench	840
" " " " " trestle	40
" " tunnel	500
" " culverts	240
Cu. yds. excavation (outside)	6000
Board ft. in trestles	420
Clearing (acres)	5.3

100

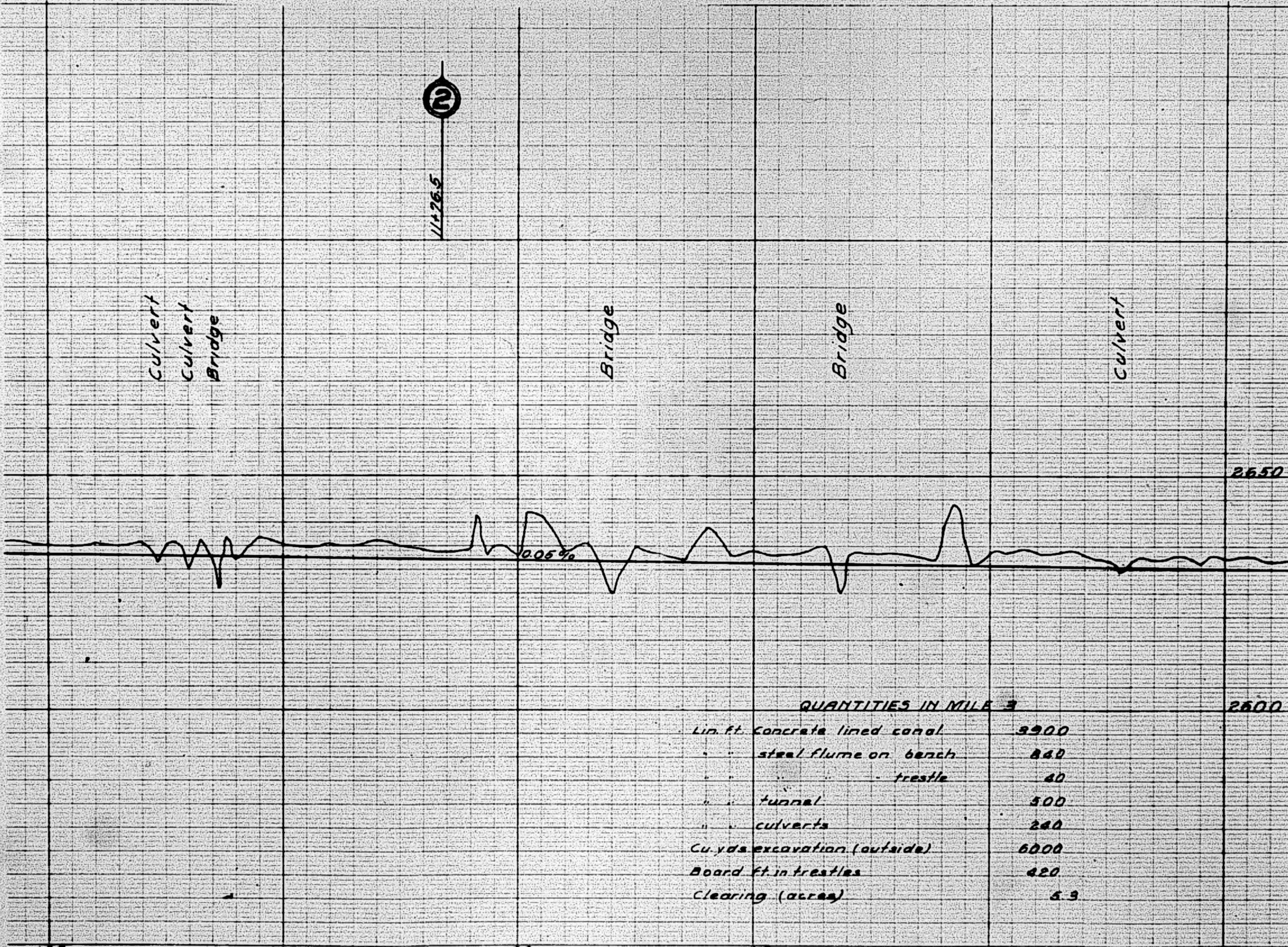
110

120

130

140

150



Culvert
Culvert
Bridge

Bridge

Bridge

Culvert

2650

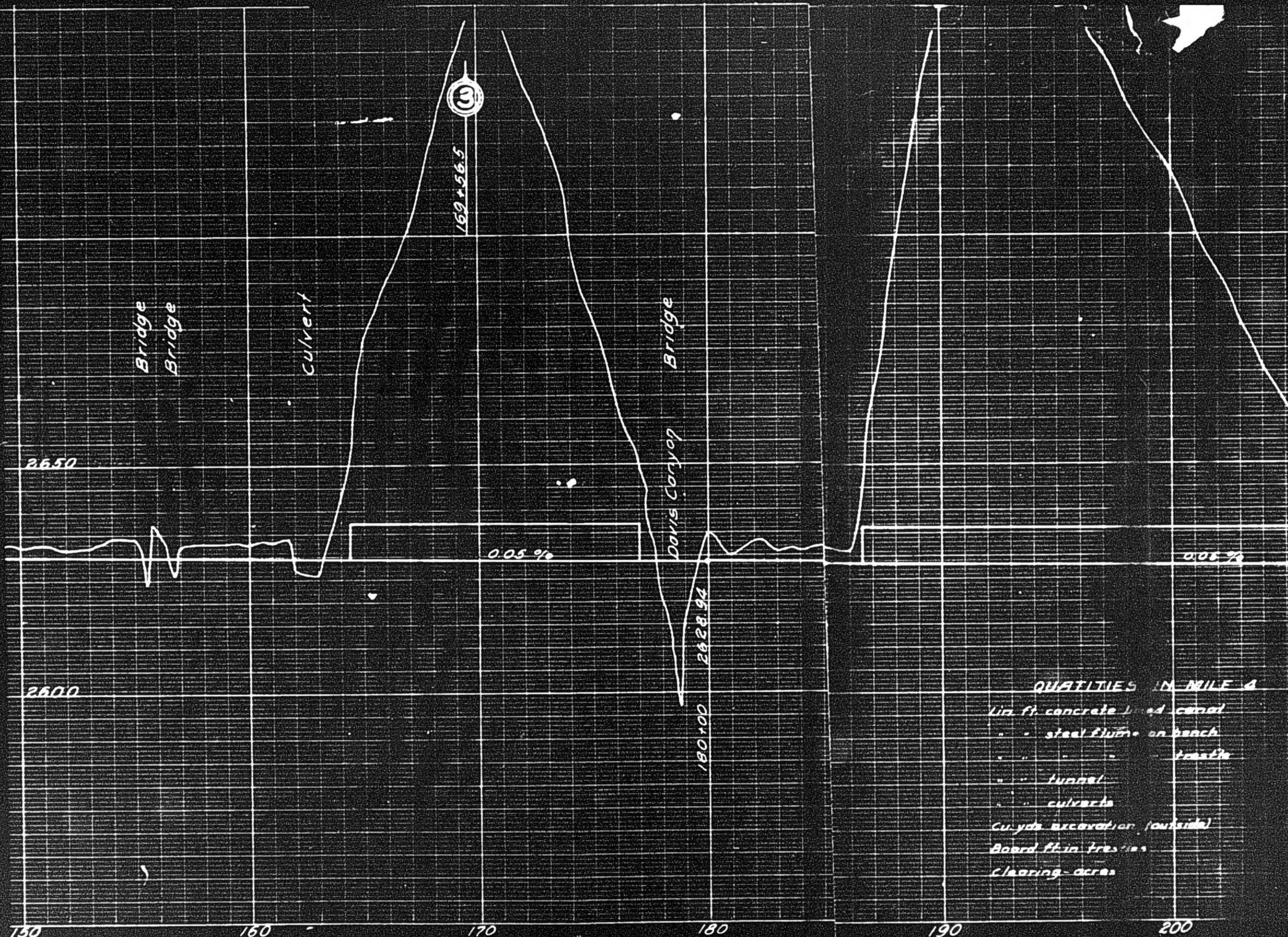
0.05%

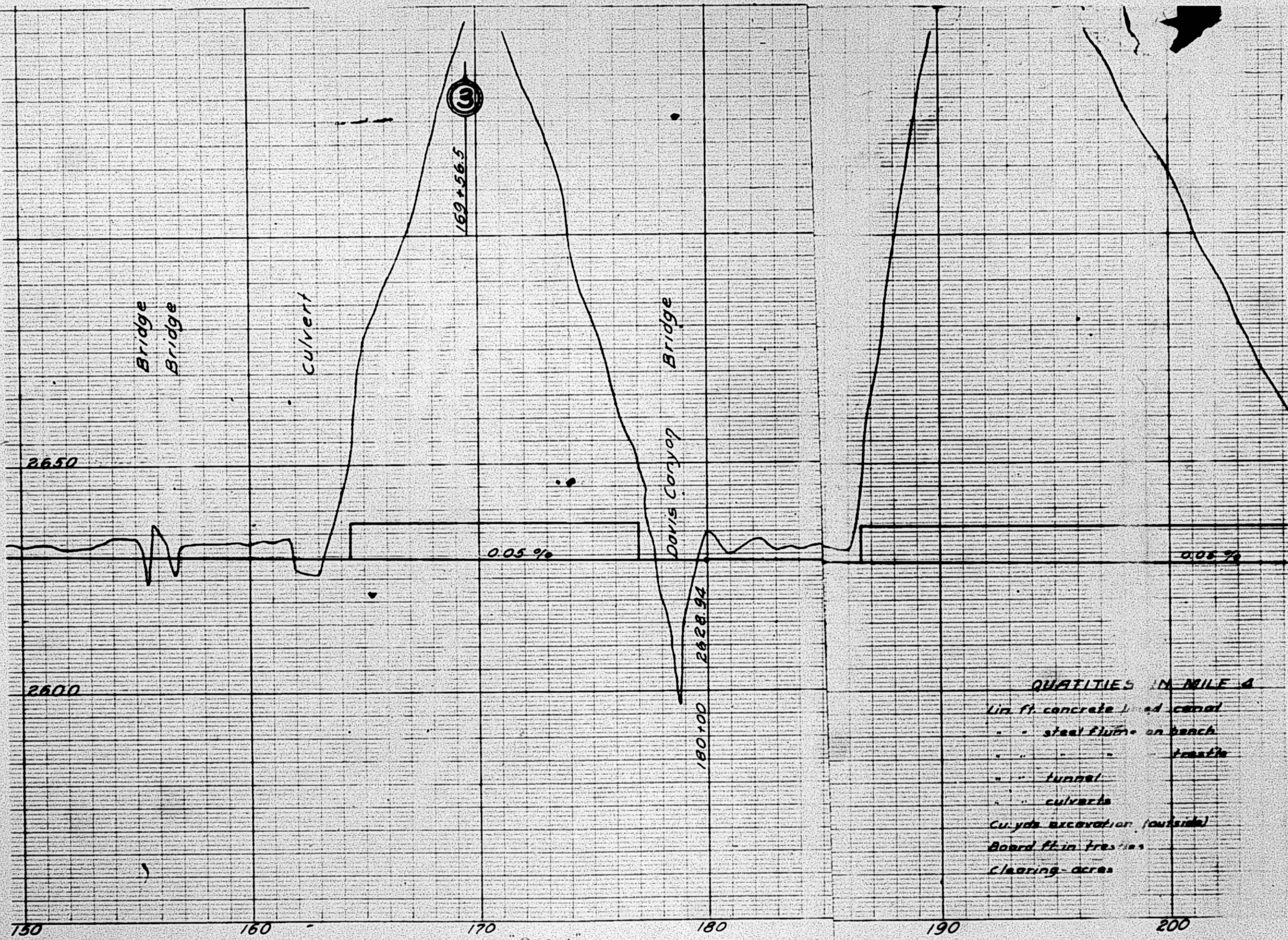
QUANTITIES IN MILE 3

2600

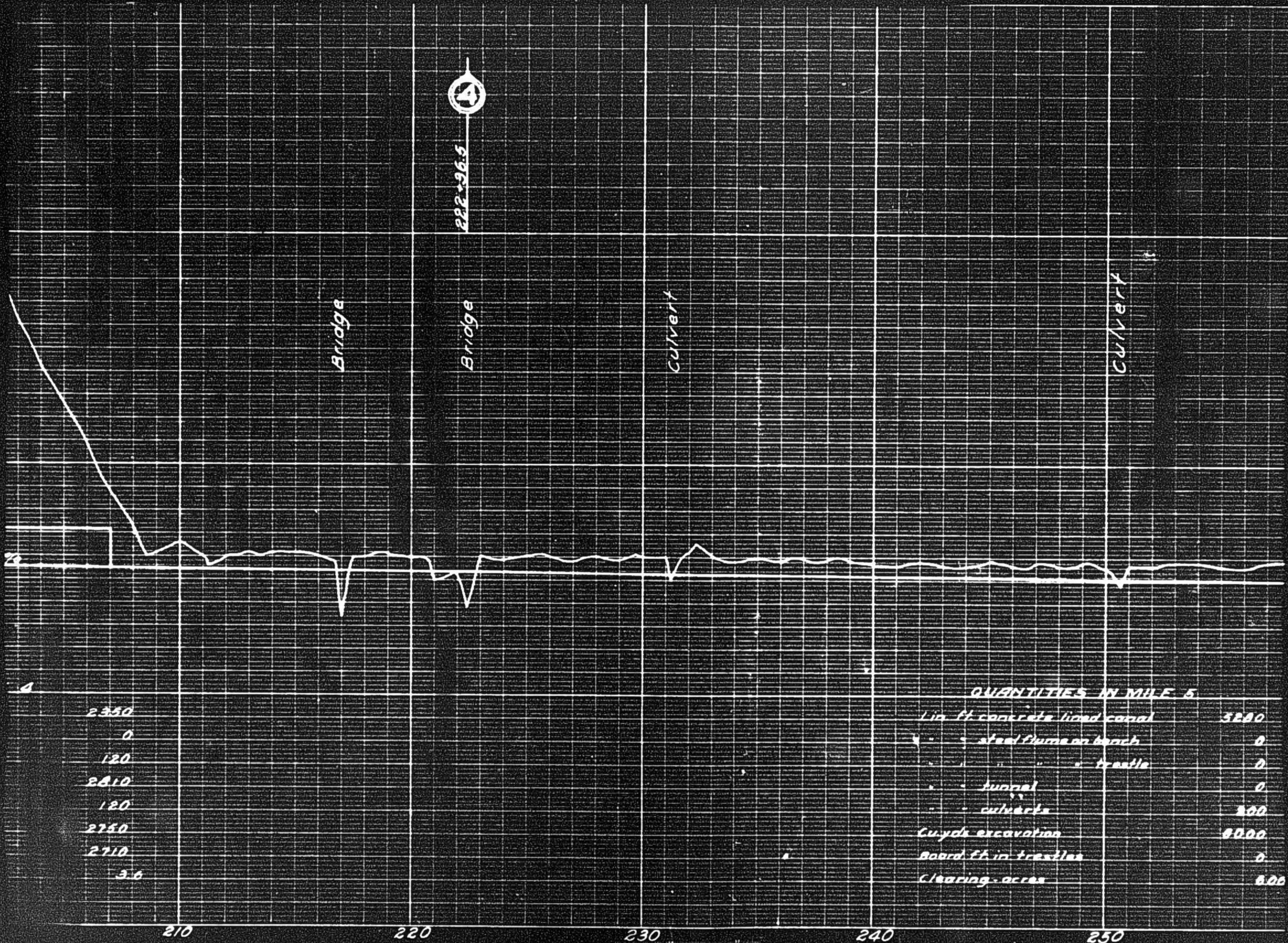
Lin. ft. concrete lined canal	3900
" " steel flume on bench	840
" " " " " trestle	40
" " tunnel	500
" " culverts	240
Cu. yds. excavation (outside)	6000
Board ft. in trestles	420
Clearing (acres)	5.3

100 110 120 130 140 150





- QUANTITIES IN MILE 4
- Lin. ft. concrete lined canal
 - " " steel flume on bench
 - " " " " trestle
 - " " tunnel
 - " " culverts
 - Cu. yds. excavation (outside)
 - Board ft. in trestles
 - Clearing - acres



222+26.5

Bridge

Bridge

Culvert

Culvert

2350

0

120

2810

120

2750

2710

3.6

QUANTITIES IN MILE 5

Lin. ft concrete lined canal	5200
" " steel flume on bench	0
" " " " " trestle	0
" " tunnel	0
" " culverts	200
Cu yds excavation	8000
Board ft in trestles	0
Clearing - acres	800

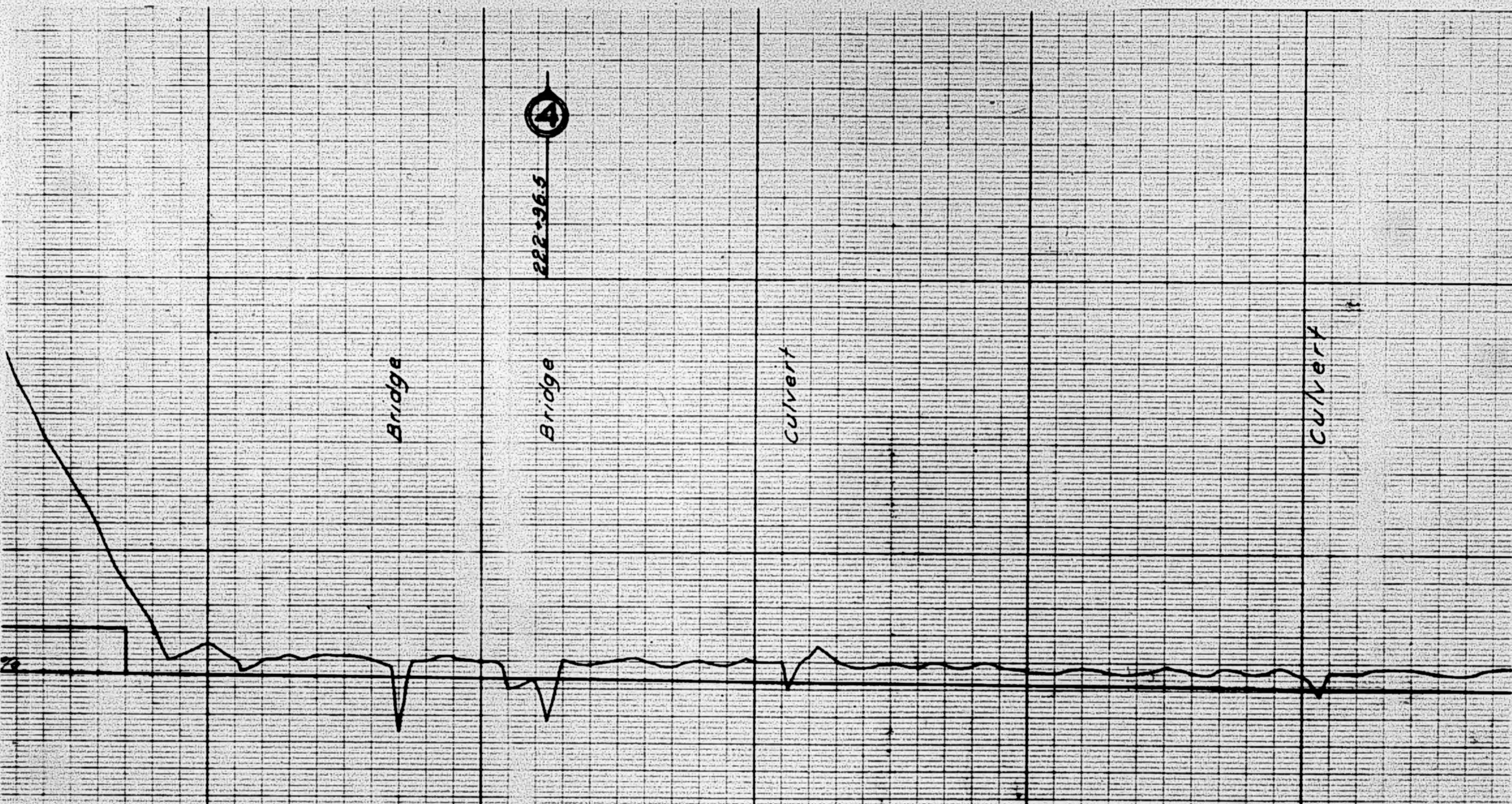
210

220

230

240

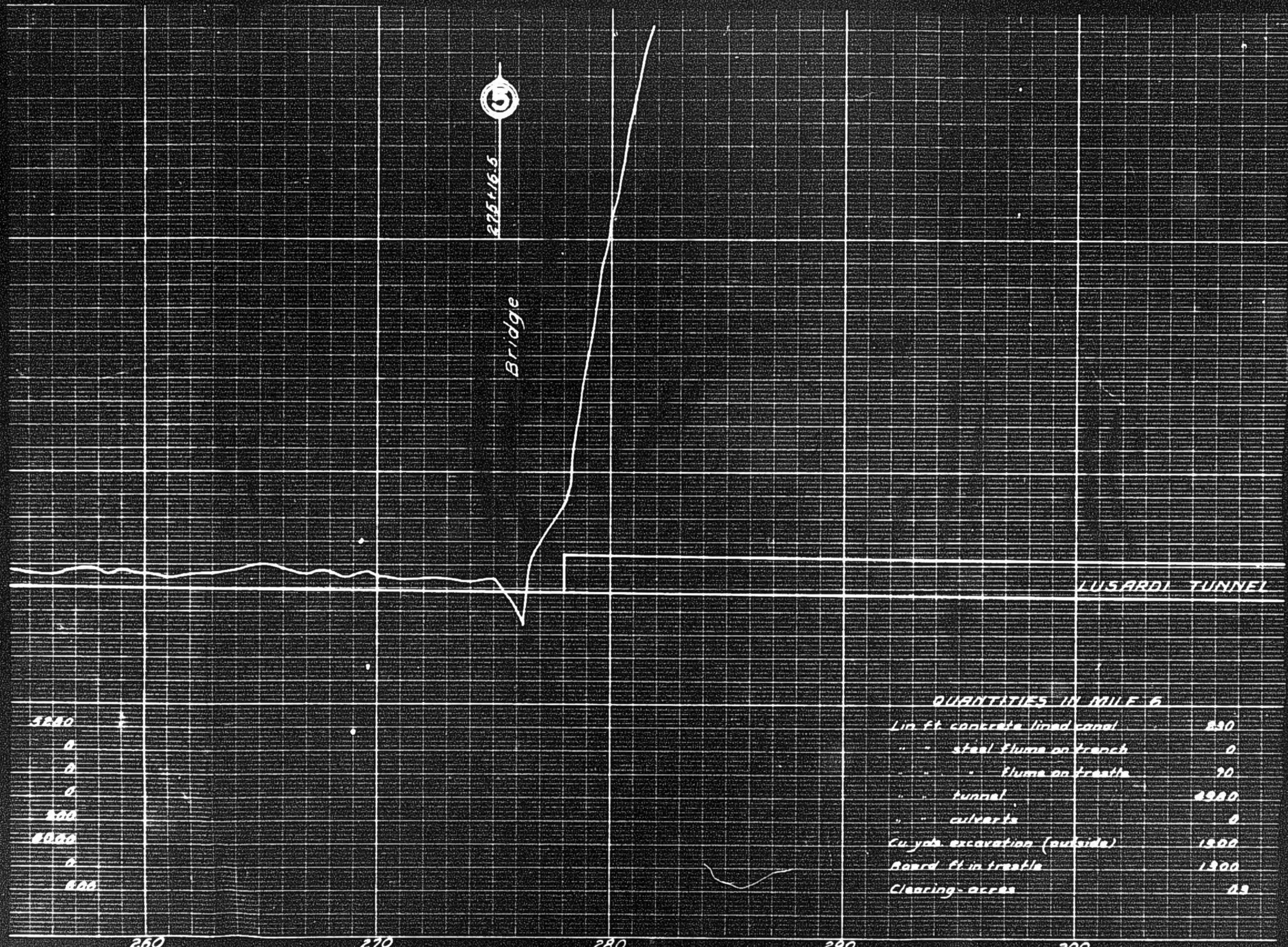
250



2350
 0
 120
 2610
 120
 2750
 2710
 3.6
 210
 220
 230
 240
 250

QUANTITIES IN MILE 5

Lin ft concrete lined canal	3200
" " steel flume on bench	0
" " " " trestle	0
" " tunnel	0
" " culverts	200
Cu yds excavation	8000
Board ft in trestles	0
Clearing acres	600



275+16.5

Bridge

LUSARDI TUNNEL

5200
 0
 0
 0
 0
 200
 4000
 0
 800

QUANTITIES IN MILE 6

Lin. ft. concrete lined canal	230
" " steel flume on trench	0
" " " flume on trench	90
" " tunnel	2900
" " culverts	0
Cu. yds. excavation (outside)	1500
Board ft. in trestle	1900
Clearing - acres	0.9

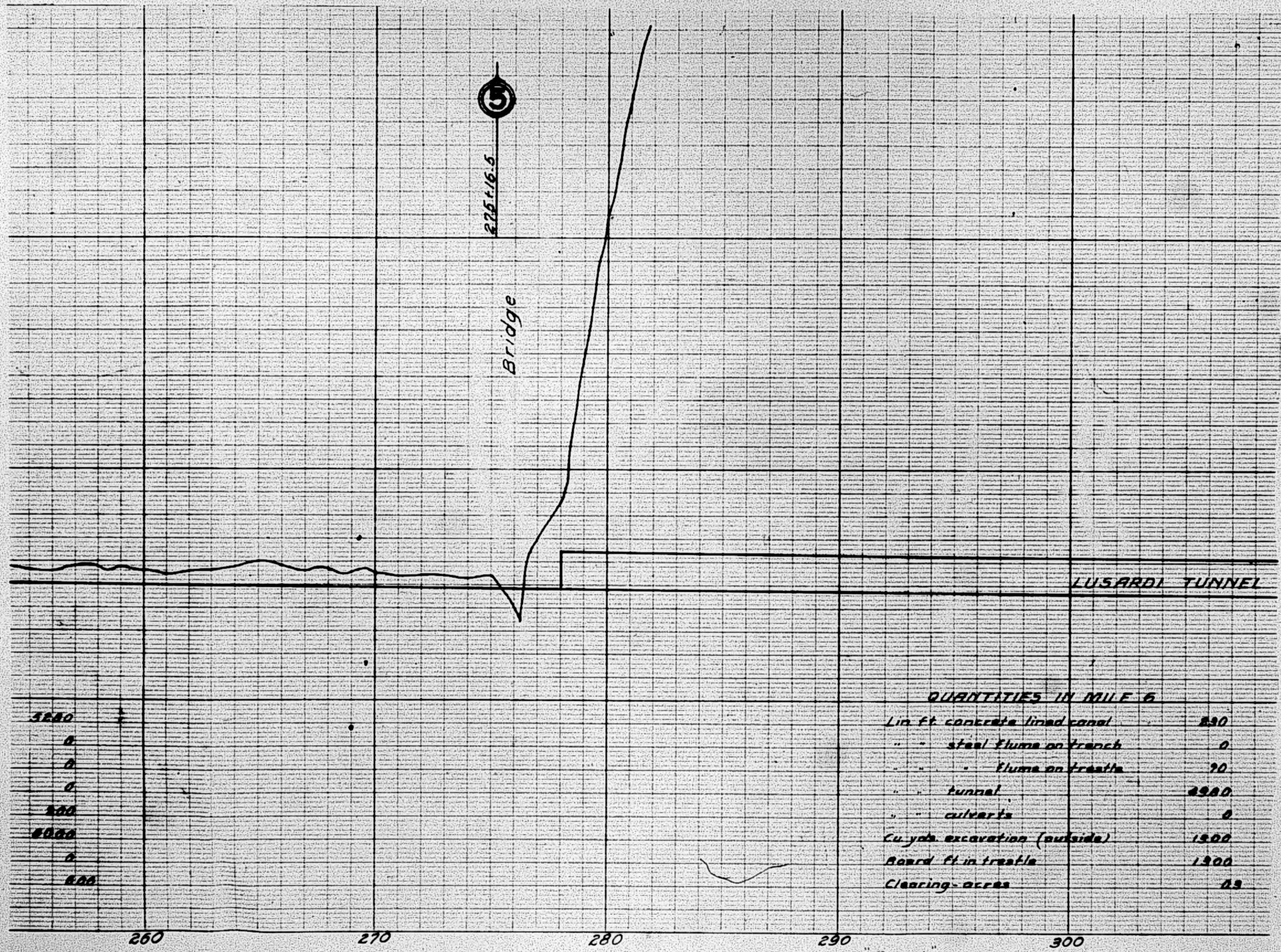
260

270

280

290

300

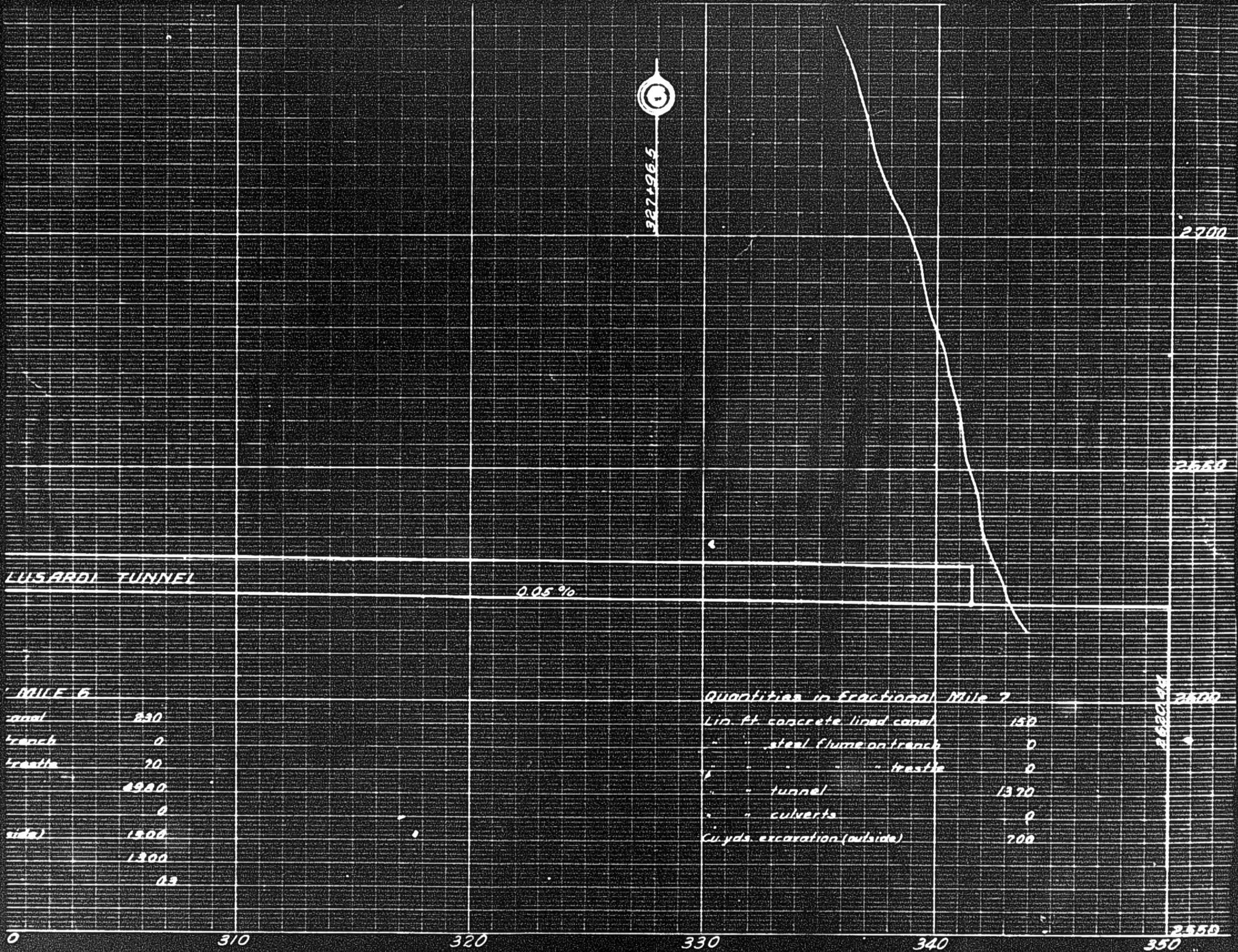


3250
 0
 0
 0
 200
 6000
 0
 600

QUANTITIES IN MILE 6

Lin ft concrete lined canal	230
" " steel flume on trench	0
" " " flume on trestle	20
" " tunnel	2980
" " culverts	0
Cu yds excavation (outside)	1900
Board ft in trestle	1300
Clearing-acres	0.9

260 270 280 290 300



LUSARDI TUNNEL

0.05%

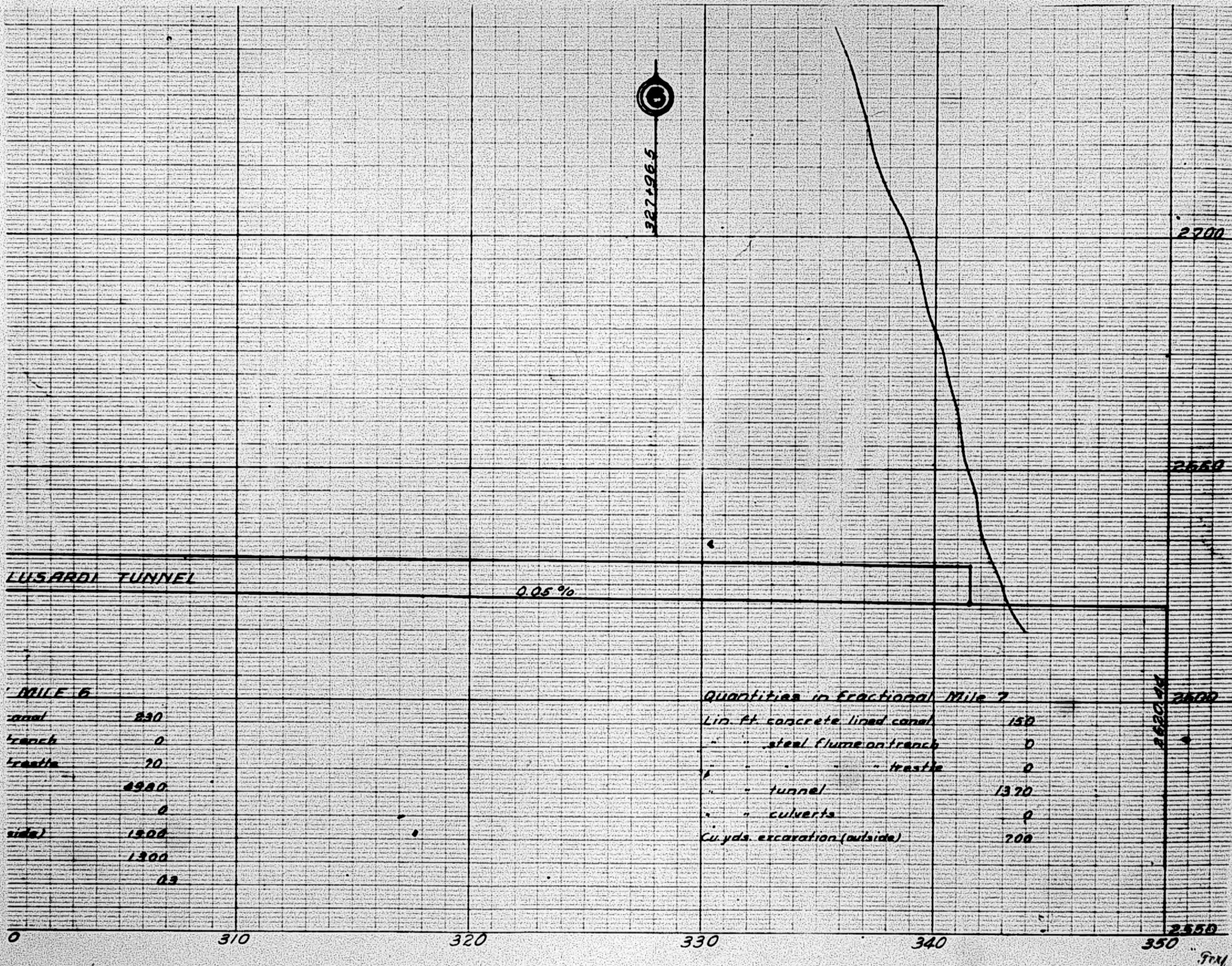
MILE 6

canal	230
trench	0
travels	20
	490
	0
side)	1500
	1300
	03

Quantities in Fractional Mile 7

Lin. ft. concrete lined canal	150
" " steel flume on trench	0
" " " " " " " " " " " "	0
" " tunnel	1320
" " culverts	0
Cu. yds. excavation (outside)	200

2550
2600
2650
2700
350
Foot



LUSARDI TUNNEL

0.05%

327+96.5

DRILE 6

canal	230
trench	0
trestle	20
	4900
	0
side)	1500
	1300
	03

Quantities in Fractional Mile 7

Lin. ft. concrete lined canal	150
" " steel flume on trench	0
" " " " " trestle	0
" " tunnel	1370
" " culverts	0
Cu. yds. excavation (outside)	700

2620
2620.45

2700

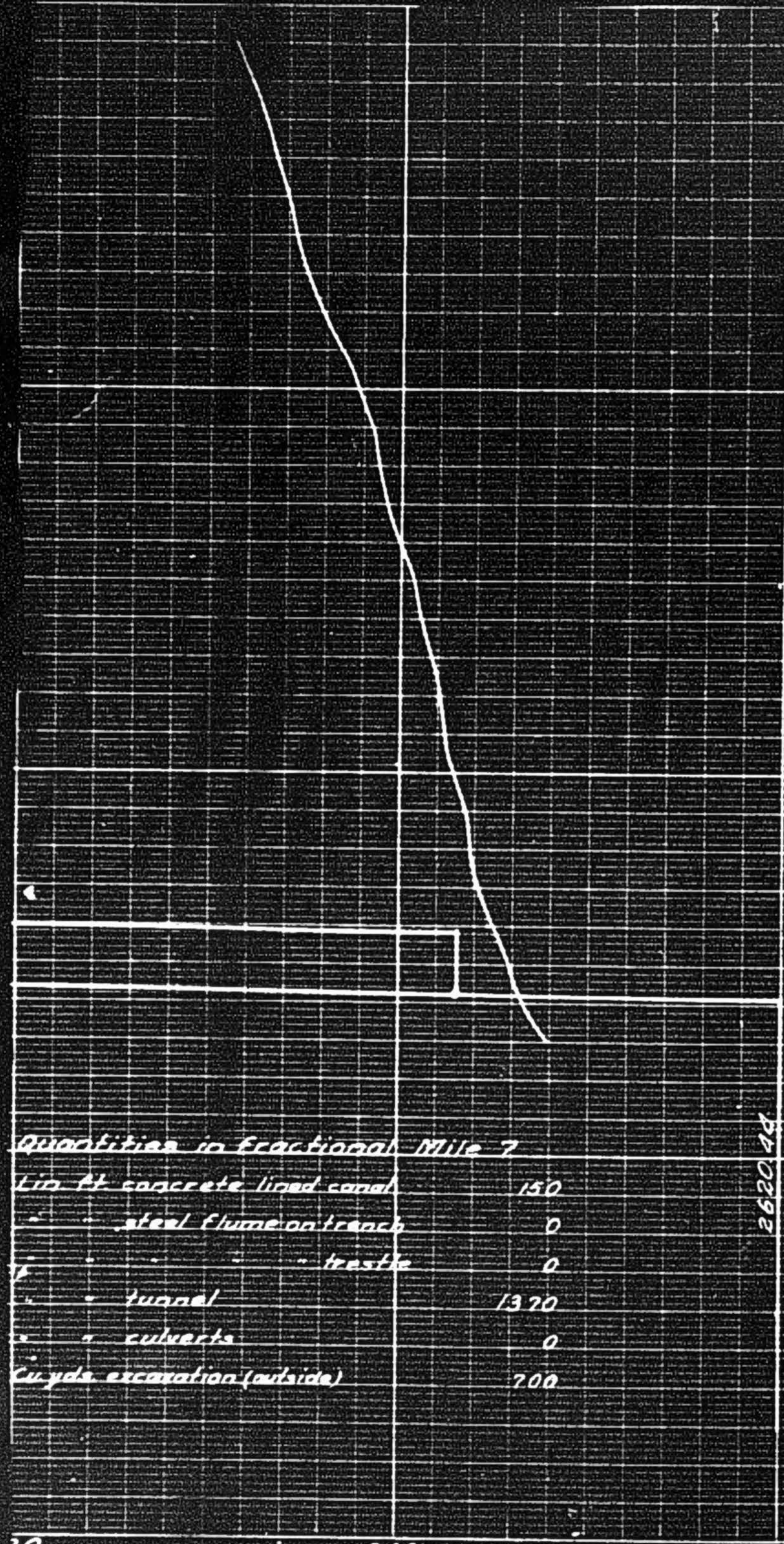
2650

2600

2550

904

81



2700

2650

2600

2550

2620.44

Quantities in Fractional Mile 7

Lin ft concrete lined canal	150
" steel flume on trench	0
" " " " " trestle	0
" tunnel	1370
" culverts	0
Cu yds excavation (outside)	700

VOLCAN LAND & WATER CO.
 PROFILE OF
 WARNER CONDUIT
 LOCATED ON A GRADE OF 0.05 PER CENT

— SCALES —
 HORIZONTAL : 1" = 400' — VERTICAL : 1" = 20'
 W.S. POST, Engr NOV. 27, 1914

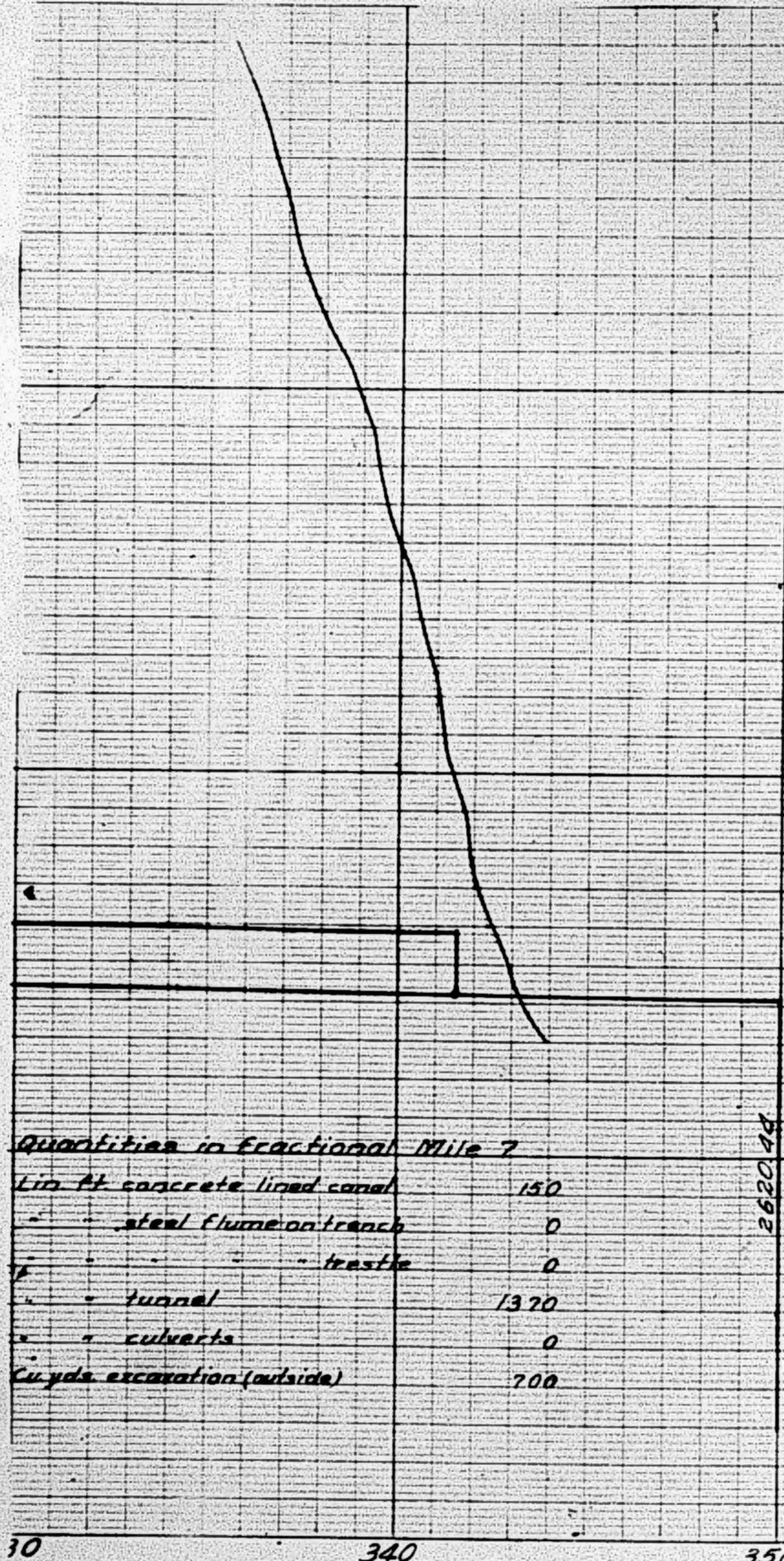
Drawing No 483
 File No B-90

30

340

350

483



2700

2650

2600

2550

2620.48

Quantities in Fractional Mile 7

Lin. Ft. concrete lined canal	150
steel flume on trench	0
trestle	0
tunnel	1370
culverts	0
Cu. yds. excavation (outside)	700

VOLCAN LAND & WATER CO.
 PROFILE OF
 WARNER CONDUIT
 LOCATED ON A GRADE OF 0.05 PER CENT

— SCALES —
 HORIZONTAL : 1" = 400' — VERTICAL : 1" = 20'
 W.S. POST, Engr. NOV. 27, 1914

Drawing No 483
 File No B-90

30

340

350

483

0.000125

0.000125

0.1%

0.07%

0.000125

0.000125

0.000125



Stress Tension
Profile Line

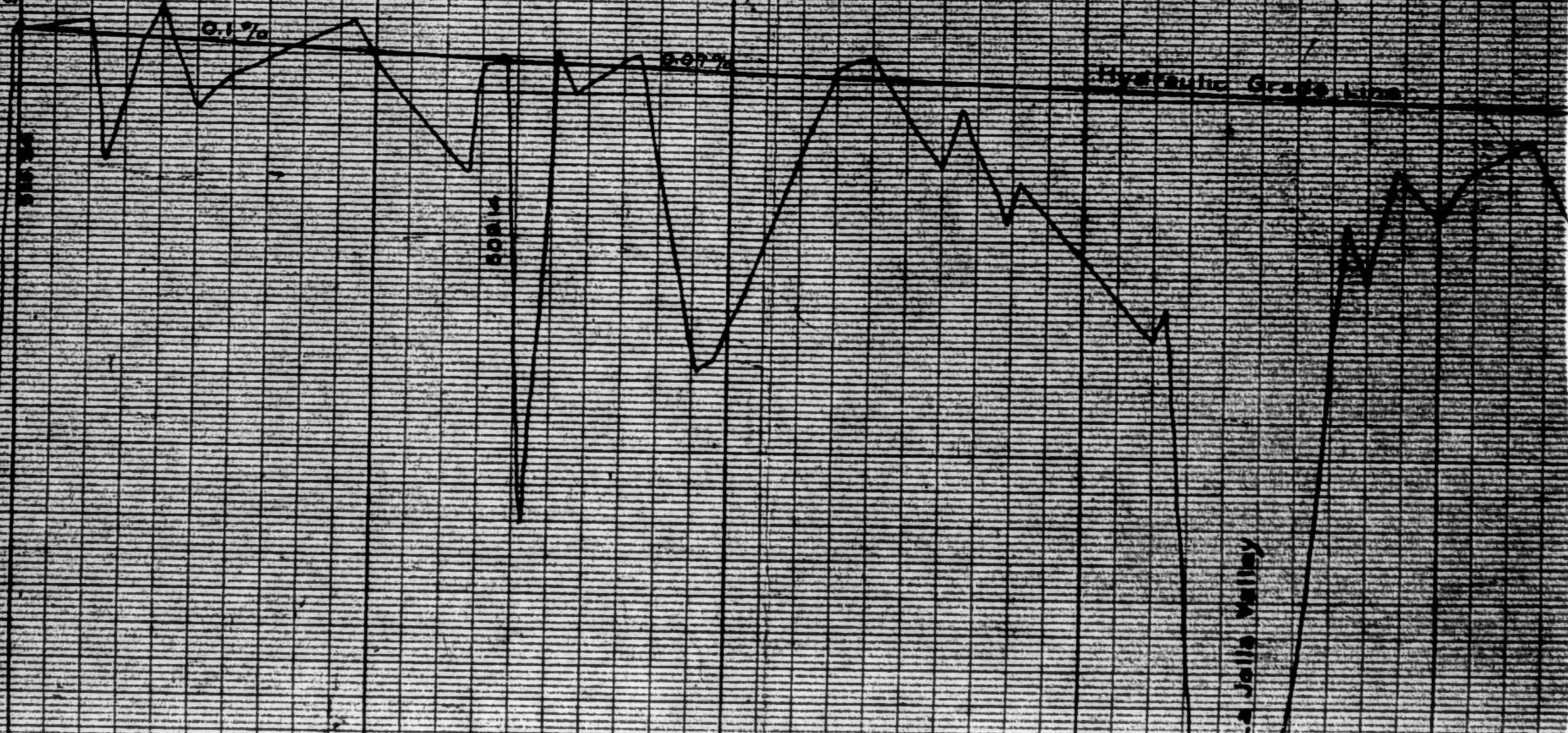
0.1%

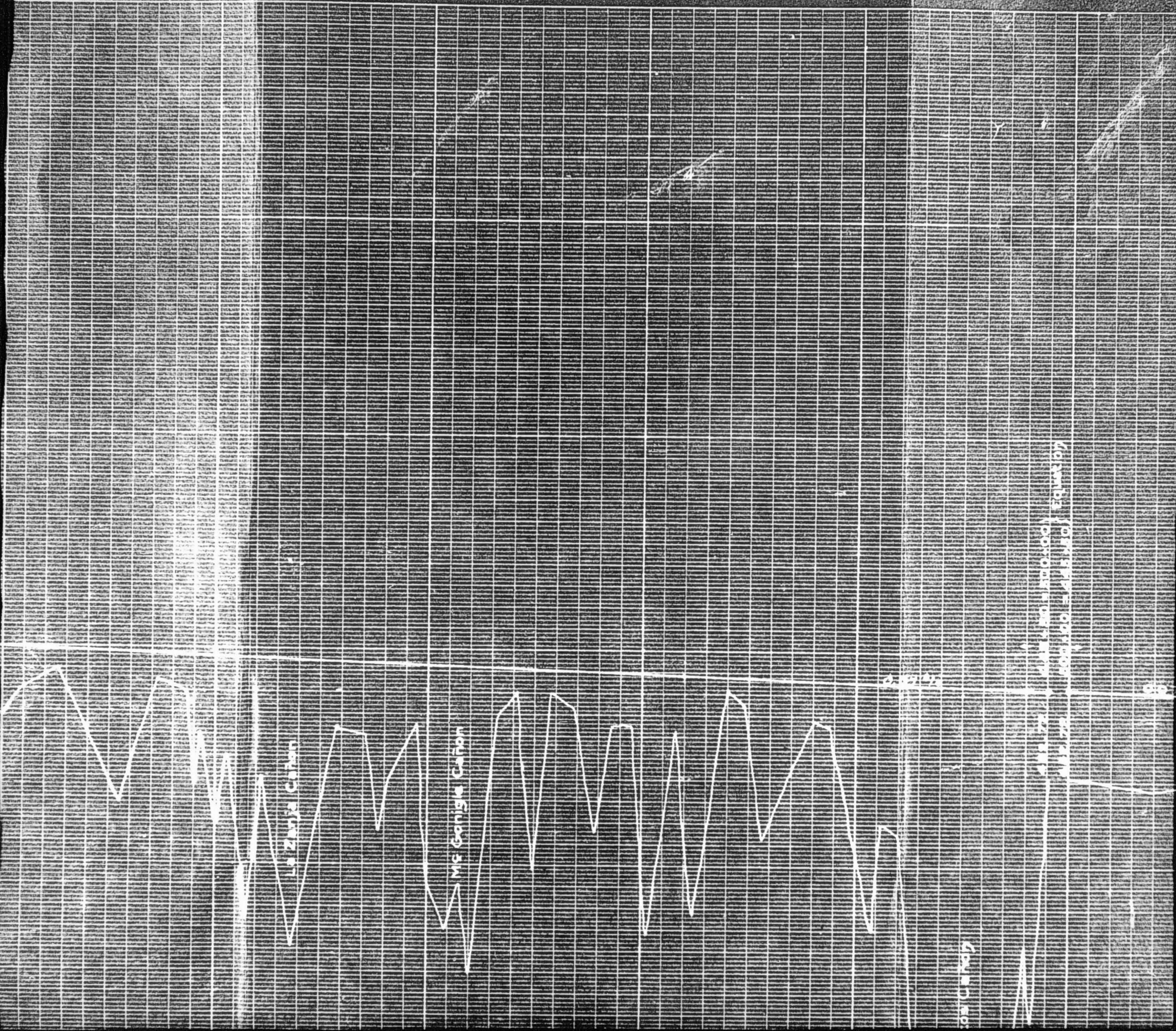
0.07%

Hydraulic Grade Line

0.01%

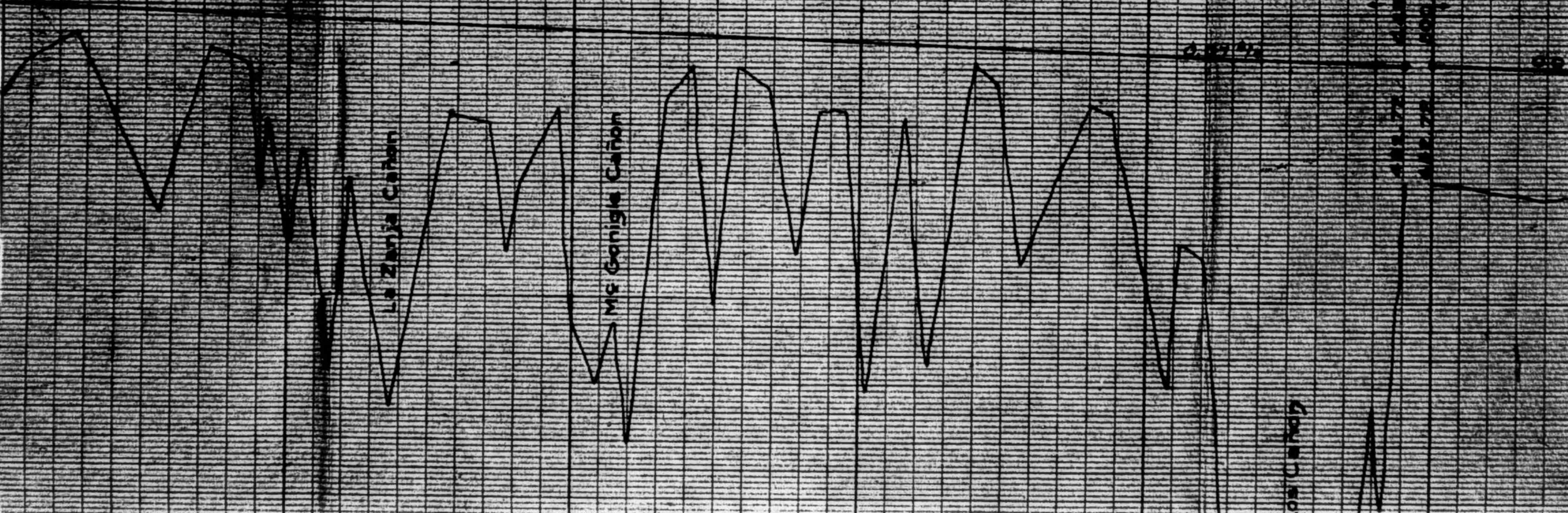
La Jolla Valley





Mc Gonigle Canyon

100



Carroll County

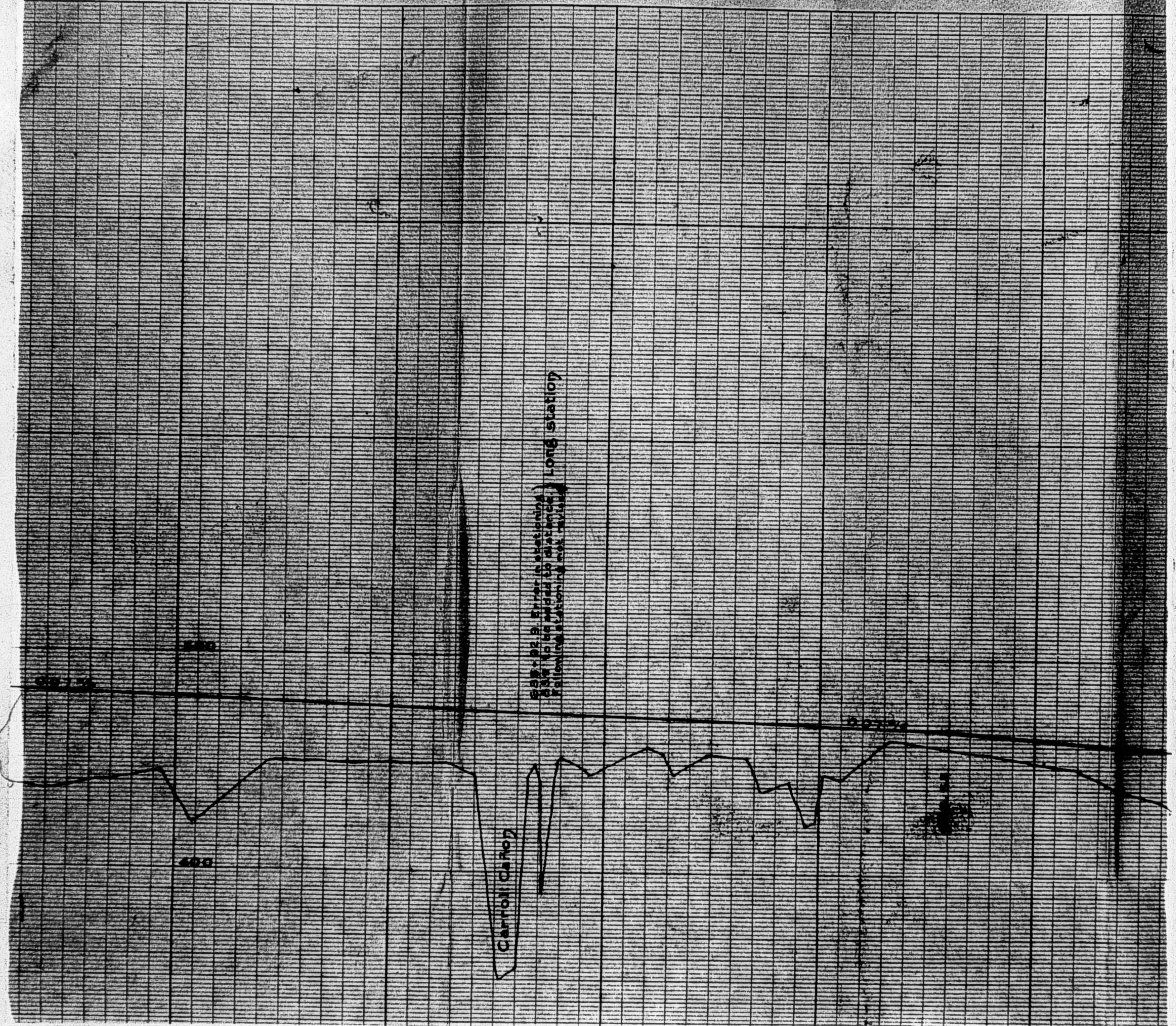
Feb. 22. 1919. (Continued)
Following is a list of the Long Station

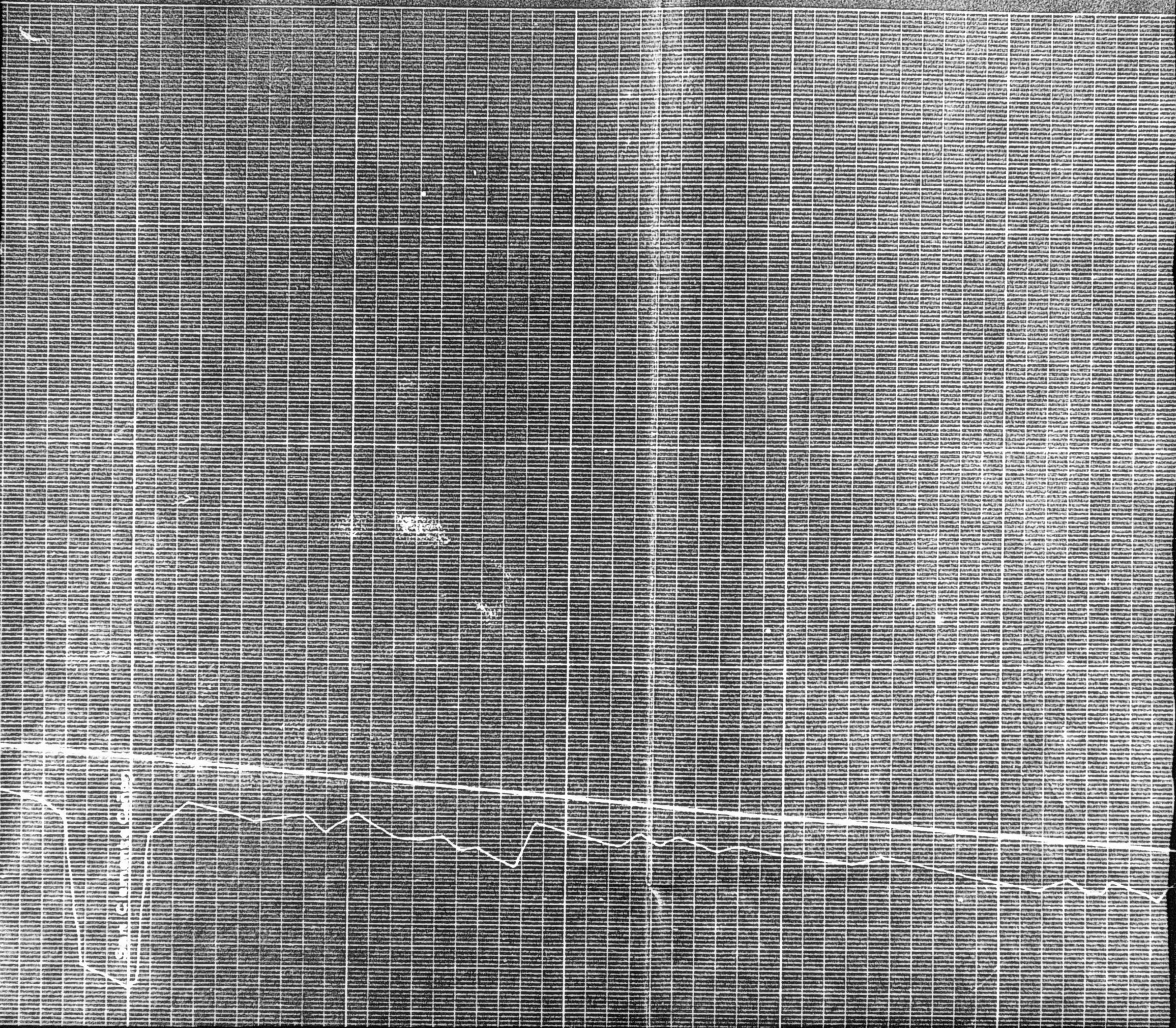
420

421

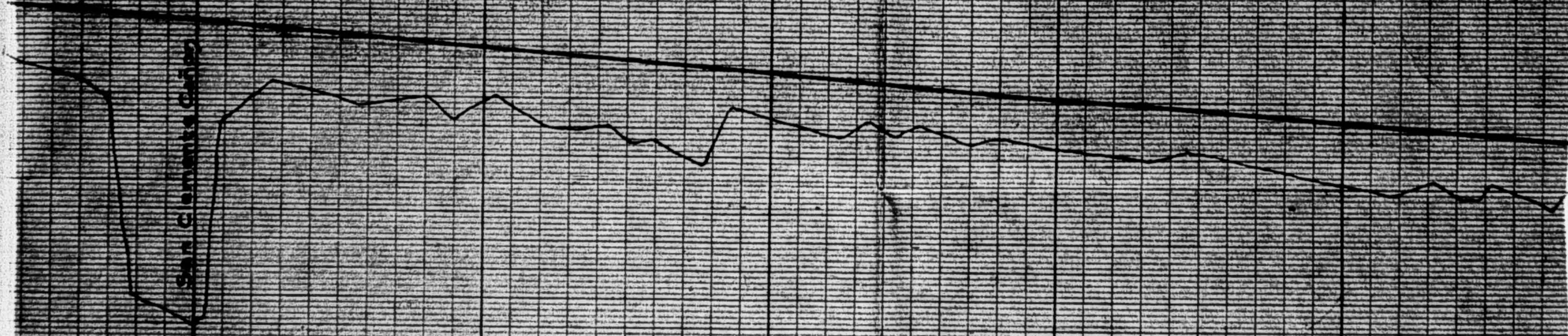
Carroll Canyon

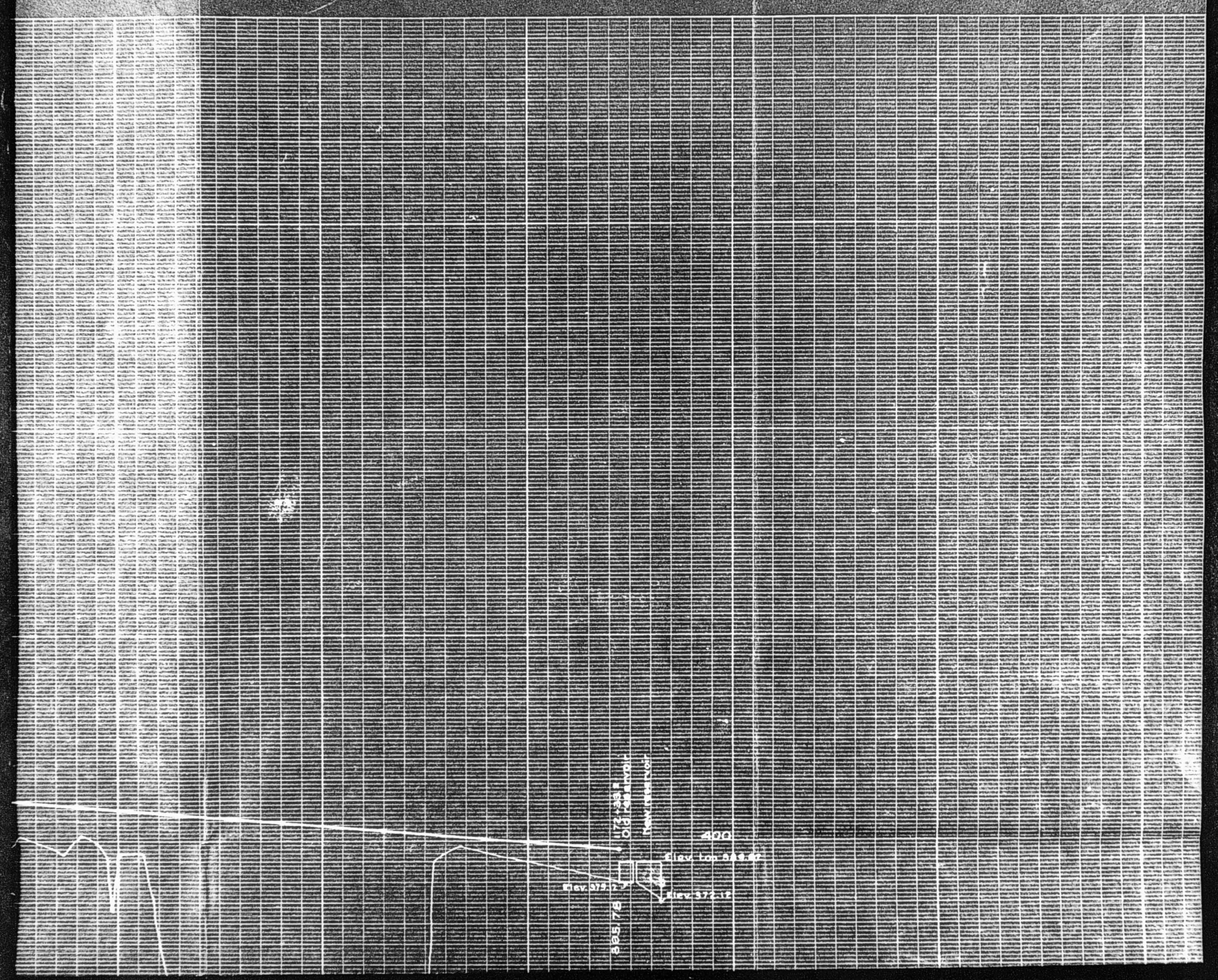
887-92.9. Error in stationing
due to be added to distance.
Following stationing not revised.





San Clemente Caño





175-381
09 24 1/2 volt

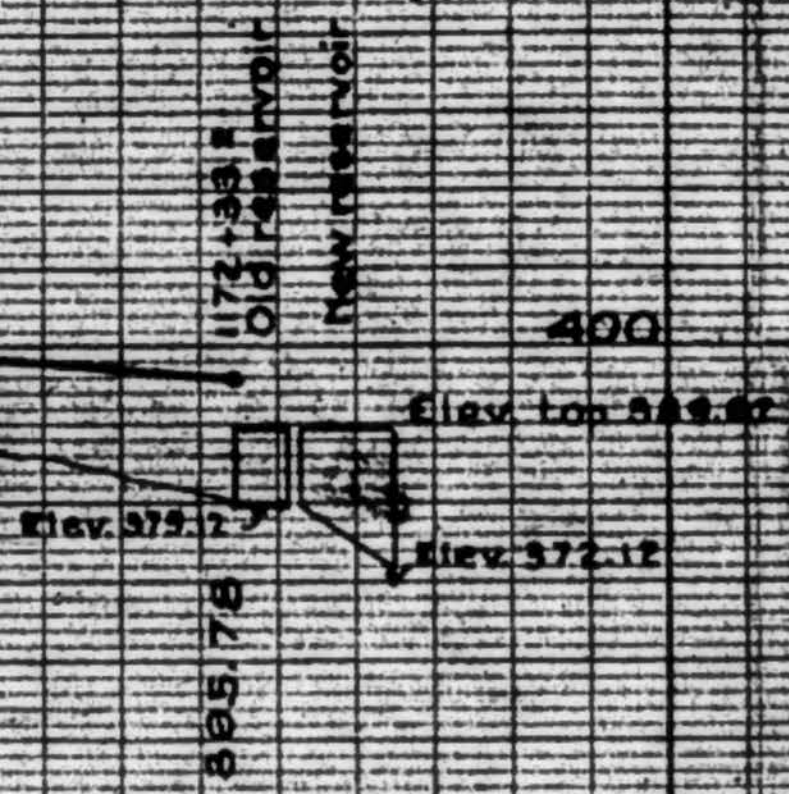
New test room

400

Elev. top 979.6

Elev. 979.7

Elev. 977.12



2100

2100

2100

Carroll Reservoir
2000 feet high dam line

2100

50

100

150

200

"Perfect" PROFILE PAPER
PLATE A.
EUGENE DIETZGEN Co.

300

200

100

Carroll Reservoir

0+00 To 1+00 - 8.75% Dam line

0+00

1+00

10+00

11+00

Canal

24" Dia. pipe

24" Dia. pipe

La Jolla Valley

0

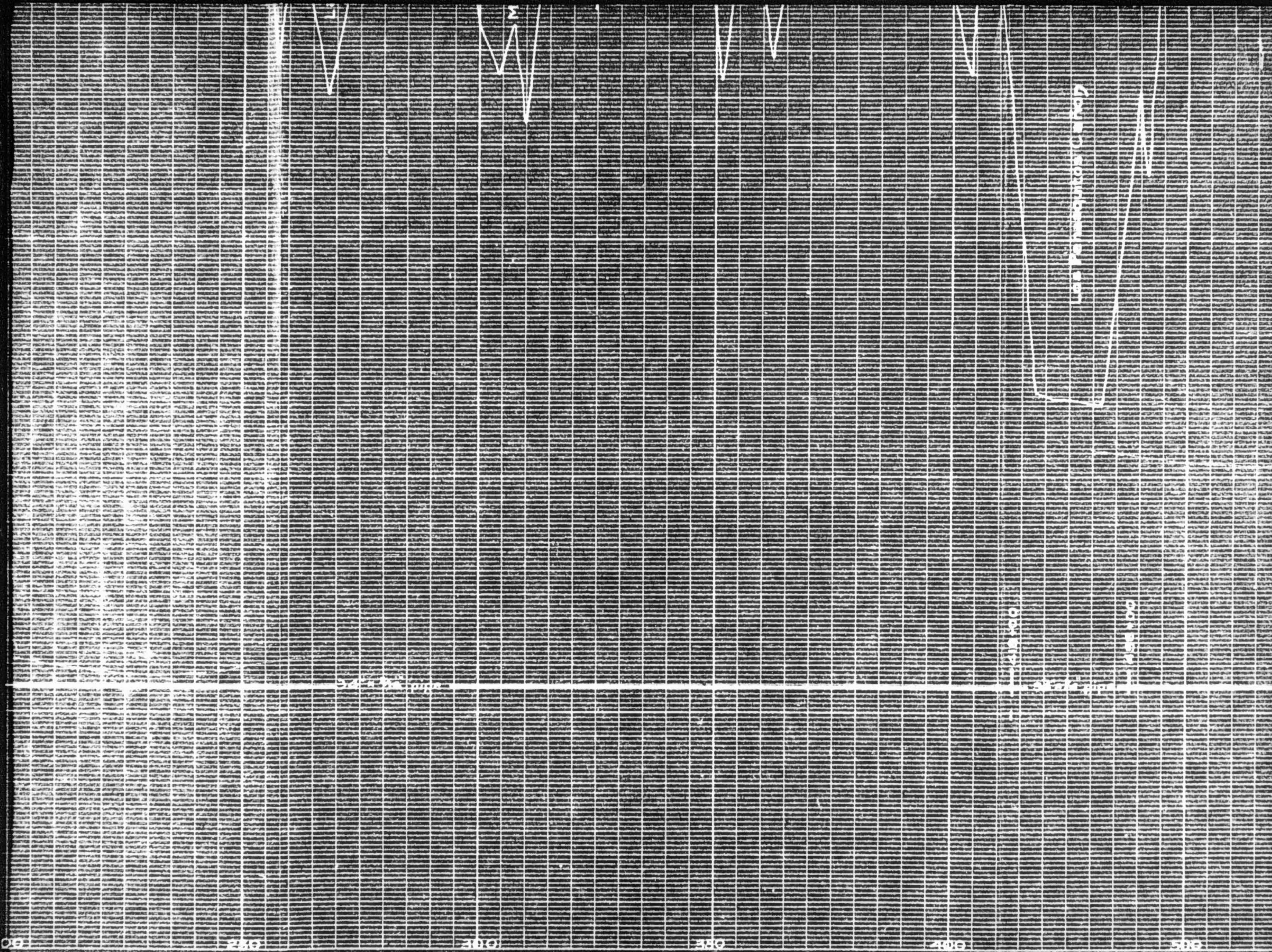
50

100

150

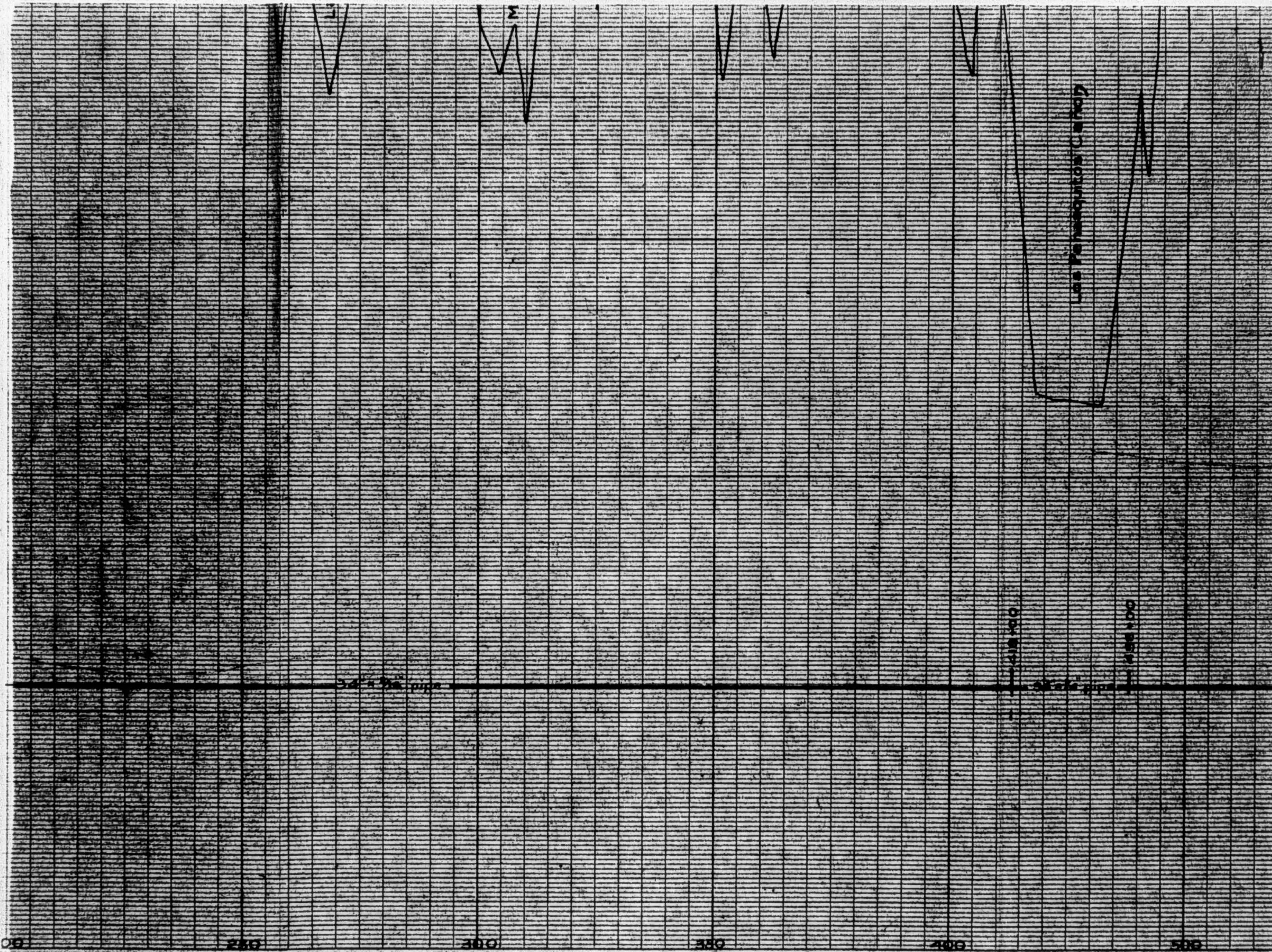
200

"Perfect" PROFILE PAPER
PLATE A.
EUGENE DIETZGEN Co.



10 210 310 410 510

Perfect PROFILE PAPER
PLATE A
EUGENE DISTZGEN Co.



"Perfect" PROFILE PAPER.
PLATE A.
EUGENE DIETZGEN Co.

CARROLL

200

400

800

1000

600

800

1000

1200

Perfect PROFILE PAPER.
PLATE A.
EUGENE DIETZGEN Co.

Carroll C

300

200

100

34 - 3/4 pipe

550

600

650

700

750

Perfect PROFILE PAPER
PLATE A.
EUGENE DIEZGEN Co.

See Cat

810

820

830

840

850

860

Perfect PROFILE PAPER
PLATE X
EUGENE DIETZEN Co.

San Cier

30" x 3/4" pipe

800

850

900

950

1000

1050

Perfect PROFILE PAPER
PLATE A.
EUGENE DIETZGEN Co.

Elev. 379.12
Elev. 372.12
Elev. Top 389.87

395.76

300

200

100

VOLCAN LAND & WATER CO.
PROFILE OF
CARROLL - UNIVERSITY PIPE LINE
SCALE
HORIZONTAL 1" = 200' VERTICAL 1" = 10'
W.S. 100' HIGH
MAY 1958
DRAWN BY
C.H. ...

1000

1100

10" x 7 1/2" pipe

10" x 7 1/2" pipe

12" x 10" connection with city main

Mitchell Valley

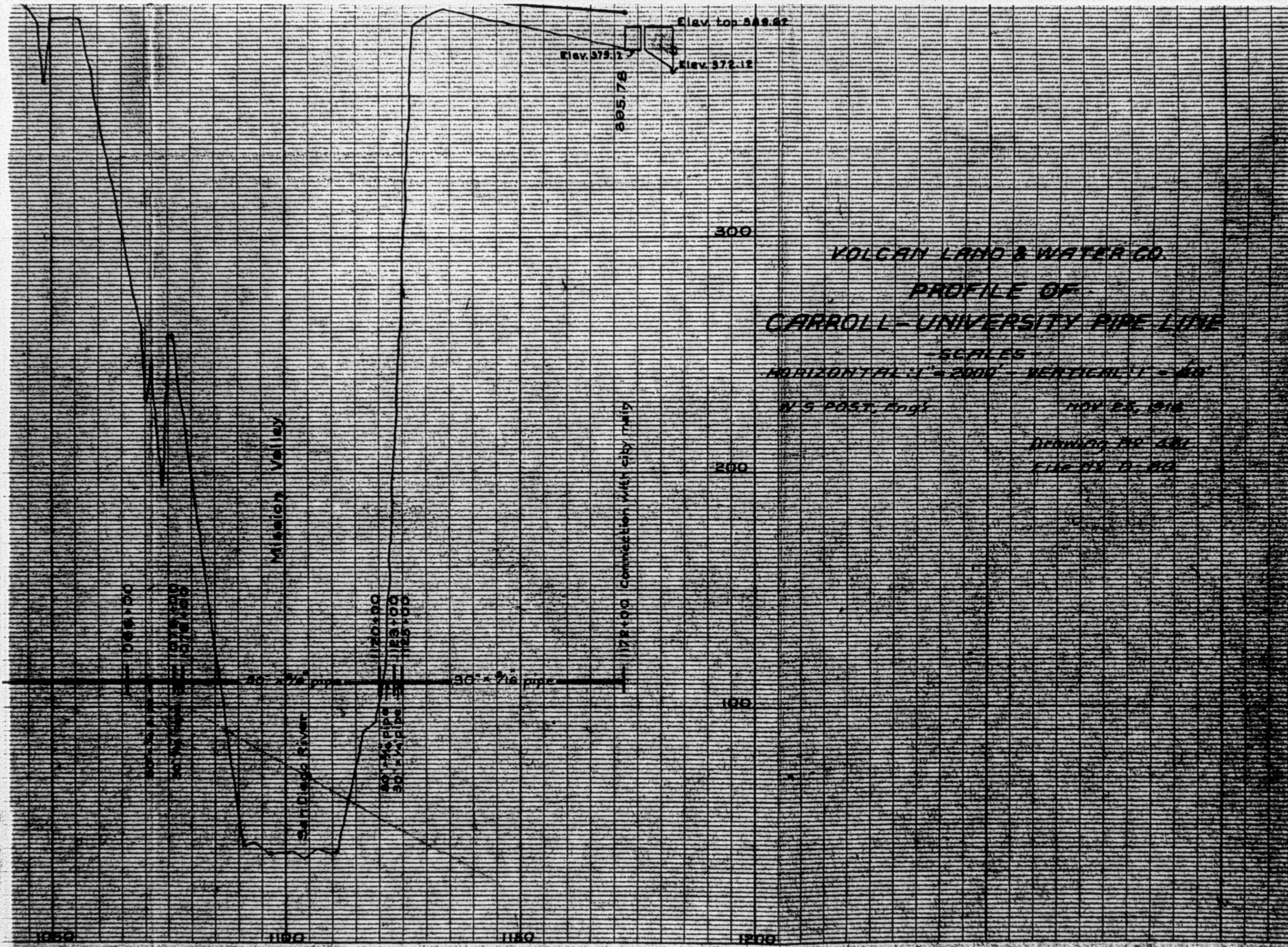
30' x 12" pipe
30' x 12" pipe
30' x 12" pipe

1150

1100

1100

1200



VOLCAN LAND & WATER CO.
 PROFILE OF
 CARROLL-UNIVERSITY PIPE LINE

SCALES
 HORIZONTAL 1" = 2000' - VERTICAL 1" = 100'

N.S. POST, Engr.

NOV. 23, 1916

DRAWING BY A.M.
 FILE NO. 11-110

Ed Fletcher Papers

1870-1955

MSS.81

Box: 51 Folder: 1

**Business Records - Water Companies - Volcan Land
and Water Company - San Dieguito System - Warner
Dam (Lake Henshaw) and associated projects -
Construction proposal: Warner-Carroll-University pipeline**



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