

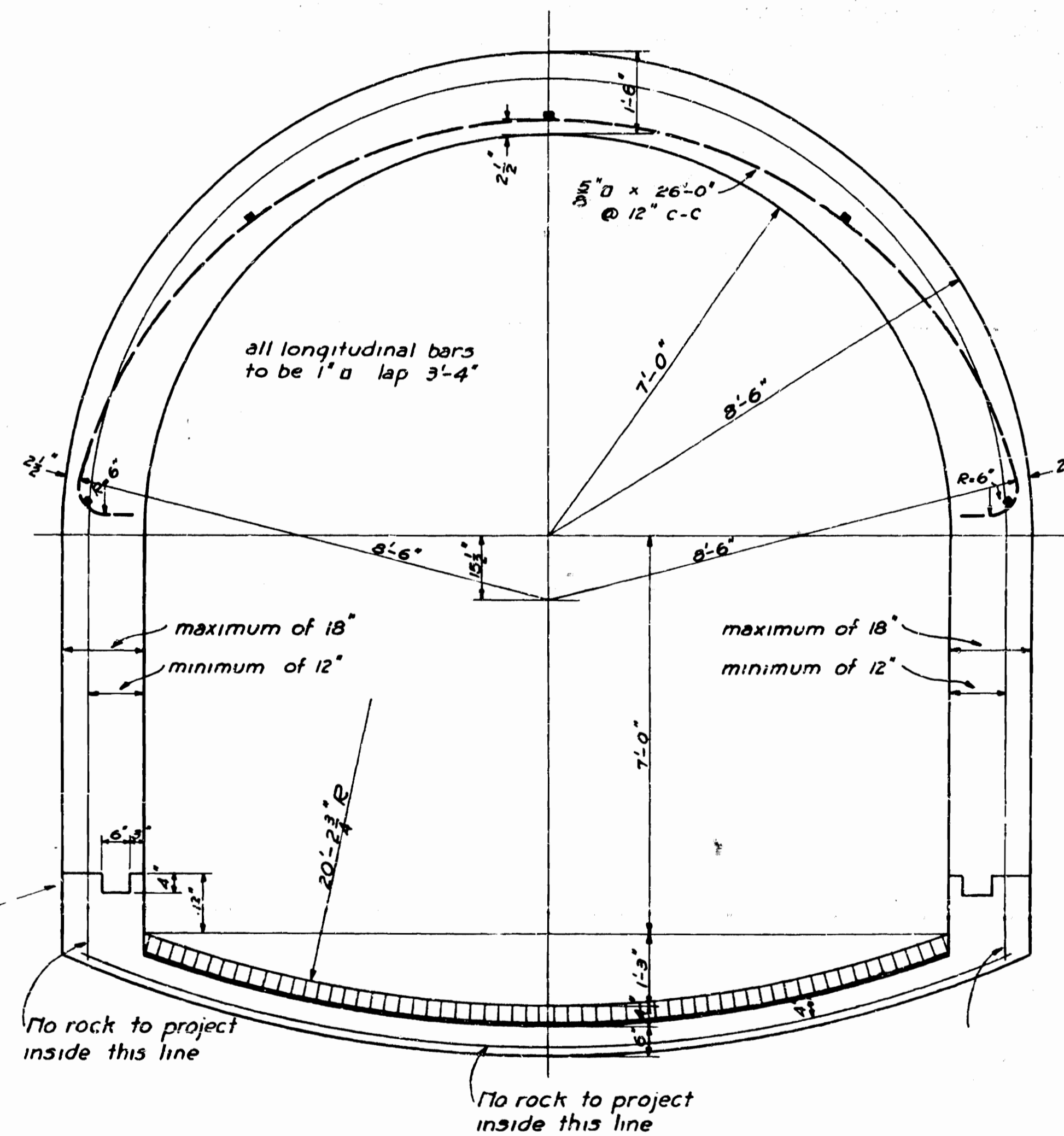
QUANTITIES PER FOOT  
 2.46 CuYds concrete 1-2-4 mix  
 0.1764 CuYds brickwork or 1.5876 sq yds  
 9.56 CuYds excavation

THIS SECTION TO BE USED WHERE  
 ROCK IS MORE THAN 14 FEET ABOVE  
 THE SPRING LINE

STATION TO STATION

TYPE A

# TUNNEL SECTIONS



QUANTITIES PER FOOT  
 26 Lin Ft 3/8" dia bars = 33.10"  
 5 Lin Ft 1" dia bars = 17.15"  
 2.46 CuYds concrete 1-2-4 mix  
 0.1764 CuYds brickwork or 1.5876 sq yds  
 9.56 CuYds excavation

THIS SECTION TO BE USED WHERE  
 POOR ROCK IS FOUND ABOVE THE  
 SPRING LINE

STATION TO STATION

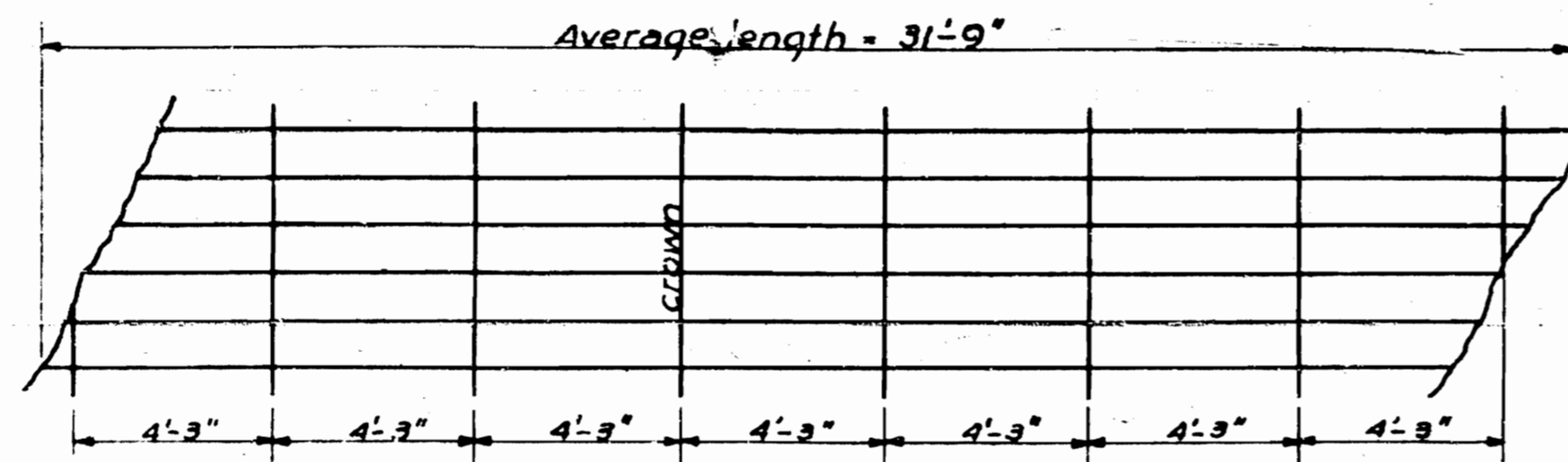
TYPE B

ELM PARK RELIEF SEWER

OFFICE OF THE CITY ENGINEER  
 TULSA OKLAHOMA

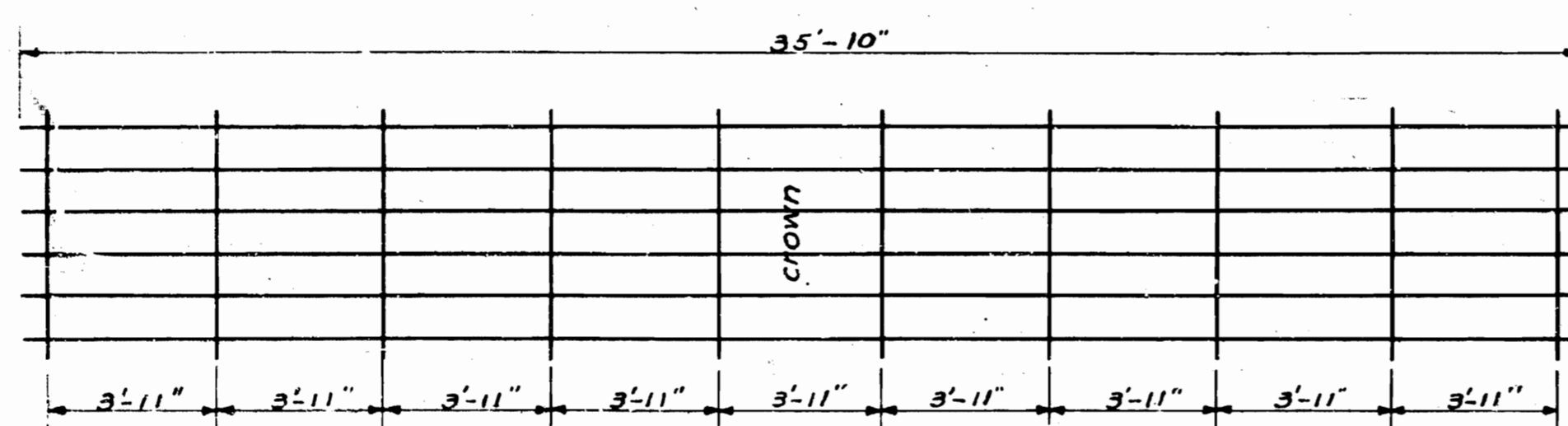
DRAWN BY *MWB*  
 TRACED BY *PLW*  
 CHECKED BY *J.E.W.*  
 SCALE 1/2"=1'

APPROVED  
 DATED *October 1922*  
 NO 3

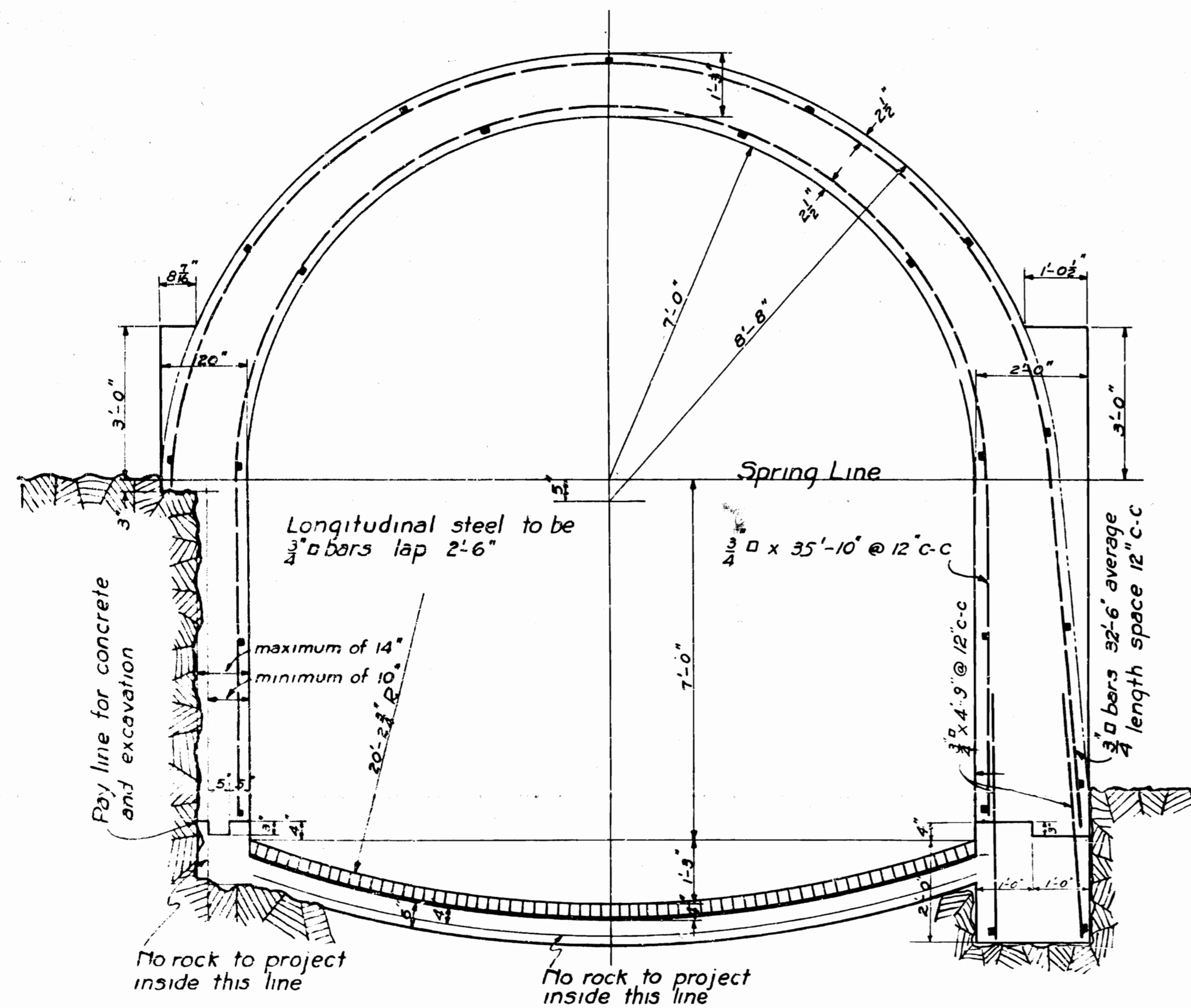


Note: All bars to be  $\frac{3}{4}$ "  $\square$

Extrados Bars



Intrados Bars



QUANTITIES PER FOOT  
 3093 Lin. Ft.  $\frac{3}{4}$ " bars = 195.804  
 2623 Cu. Yds. concrete 1-2-4 mix  
 0.1764 Cu. Yds. brickwork or 1.5876 sq. yds.

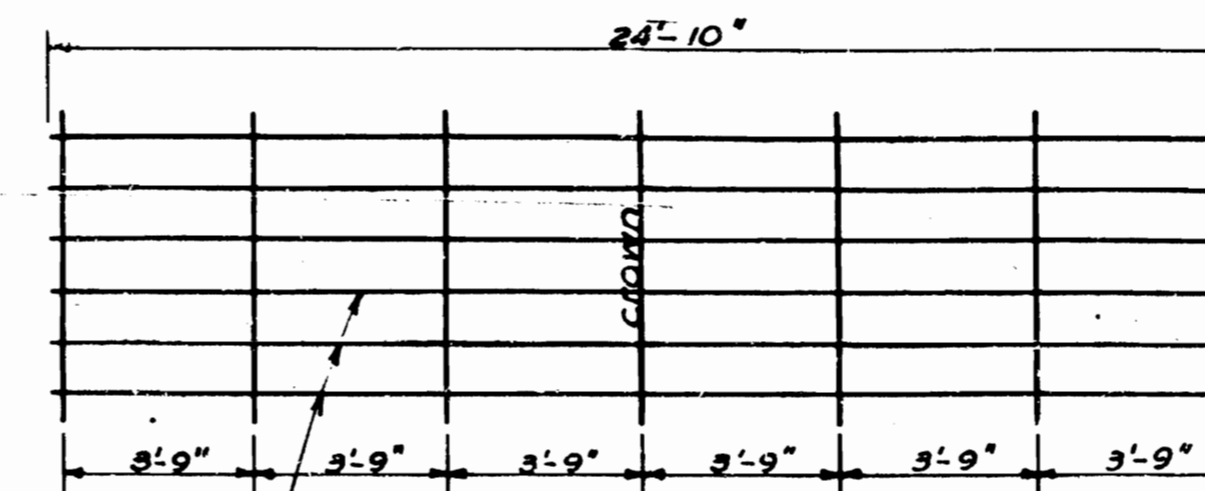
THIS SECTION TO BE USED WHERE TOP  
 OF ROCK IS BETWEEN SPRING LINE  
 AND 6' BELOW SPRING LINE

STATION TO STATION

TYPE C

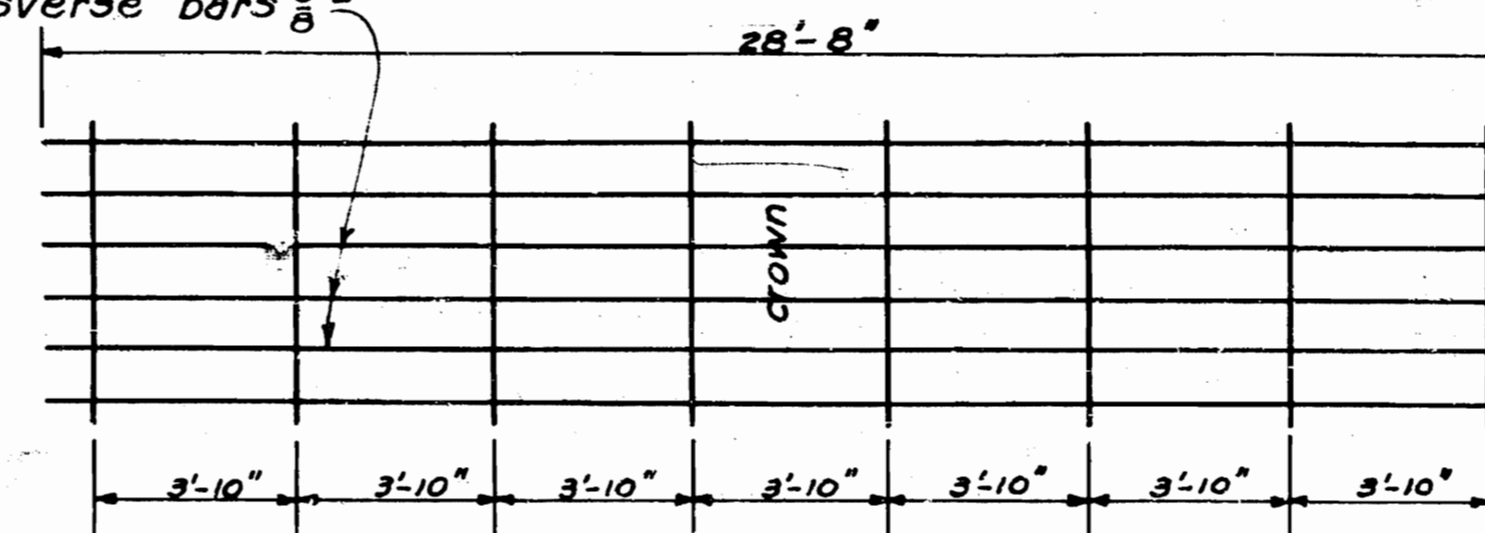
Note:  
 Construction joints are  
 optional with contractor

OPEN CUT SECTIONS

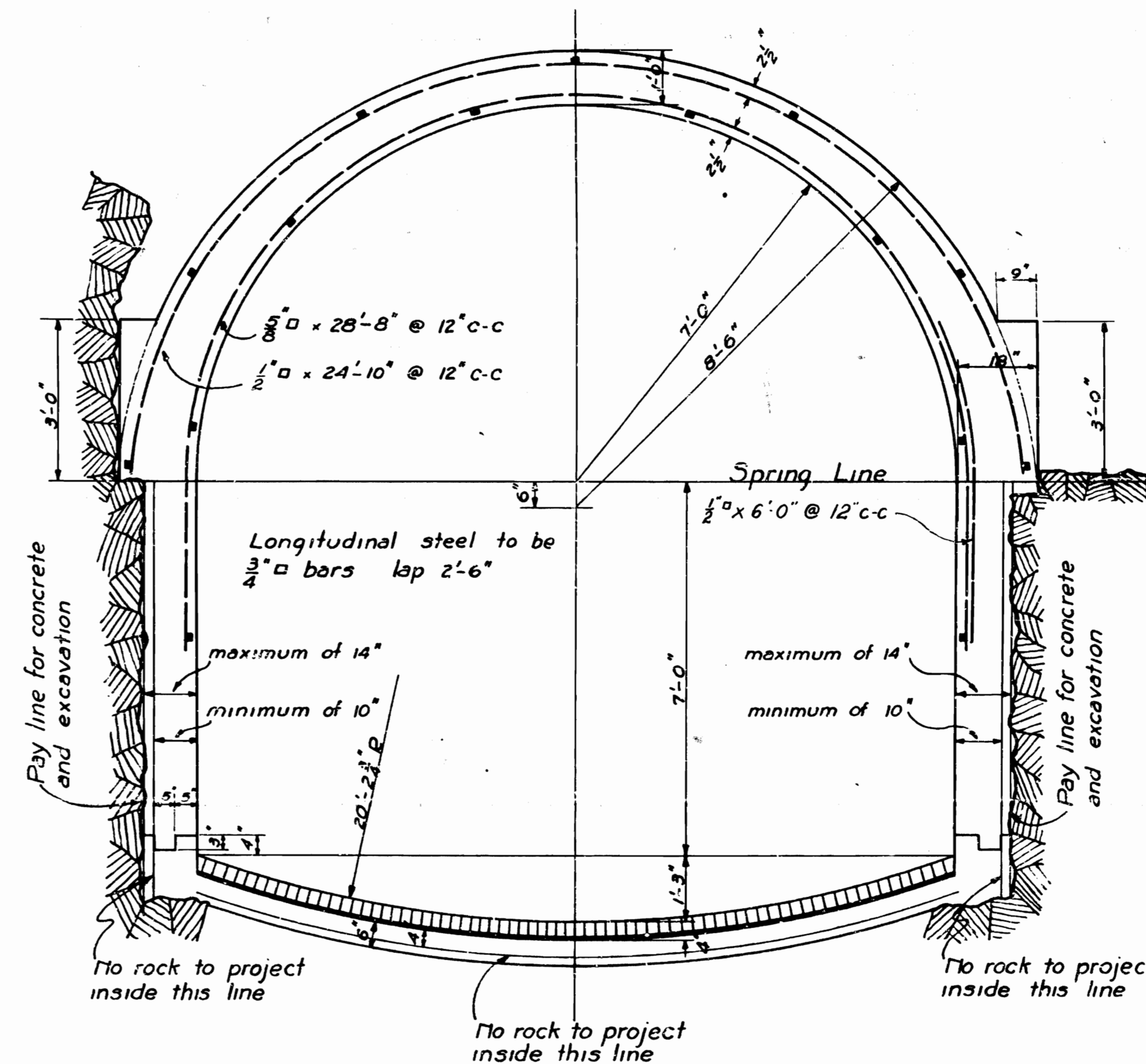


Note:  
 Transverse bars  $\frac{1}{2}$ "  $\square$   
 Longitudinal bars  $\frac{3}{4}$ "  $\square$   
 Transverse bars  $\frac{5}{8}$ "  $\square$

Extrados Bars



Intrados Bars



THIS SECTION TO BE USED WHERE  
 ROCK IS ABOVE SPRING LINE

STATION TO STATION

TYPE D

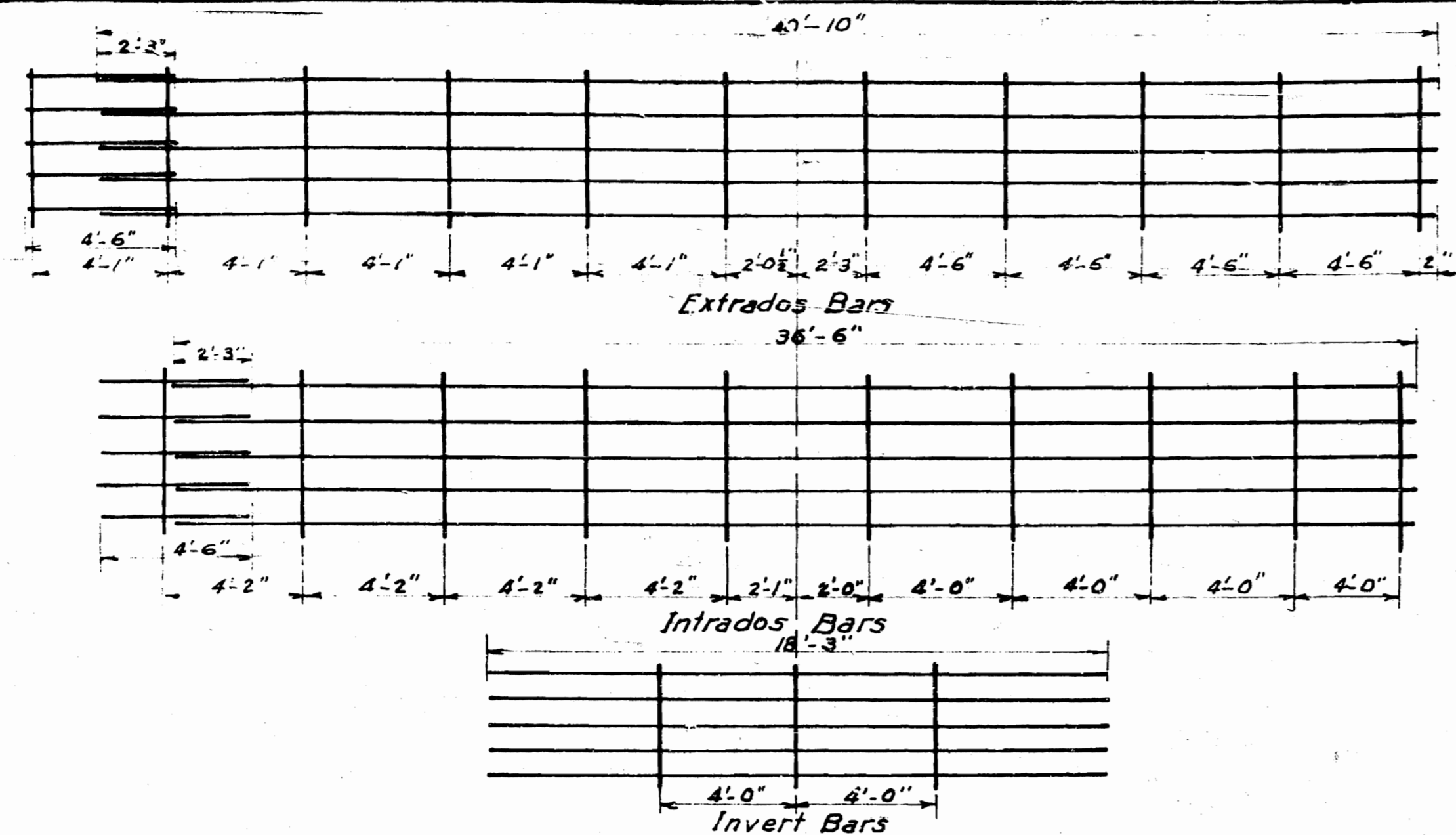
QUANTITIES PER FOOT  
 2483 Lin. Ft.  $\frac{1}{2}$ " bars = 21.36  
 16.5 Lin. Ft.  $\frac{3}{4}$ " bars = 32.010  
 28.67 Lin. Ft.  $\frac{5}{8}$ " bars = 38.70  
 2.052 Cu. Yds. concrete 1-2-4 mix  
 0.1764 Cu. Yds. brickwork or 1.5876 sq. yds.  
 12.00 Lin. Ft.  $\frac{1}{2}$ " bars = 10.32  
 Additional if Rock is not  
 3' above Spring Line

ELM PARK RELIEF SEWER

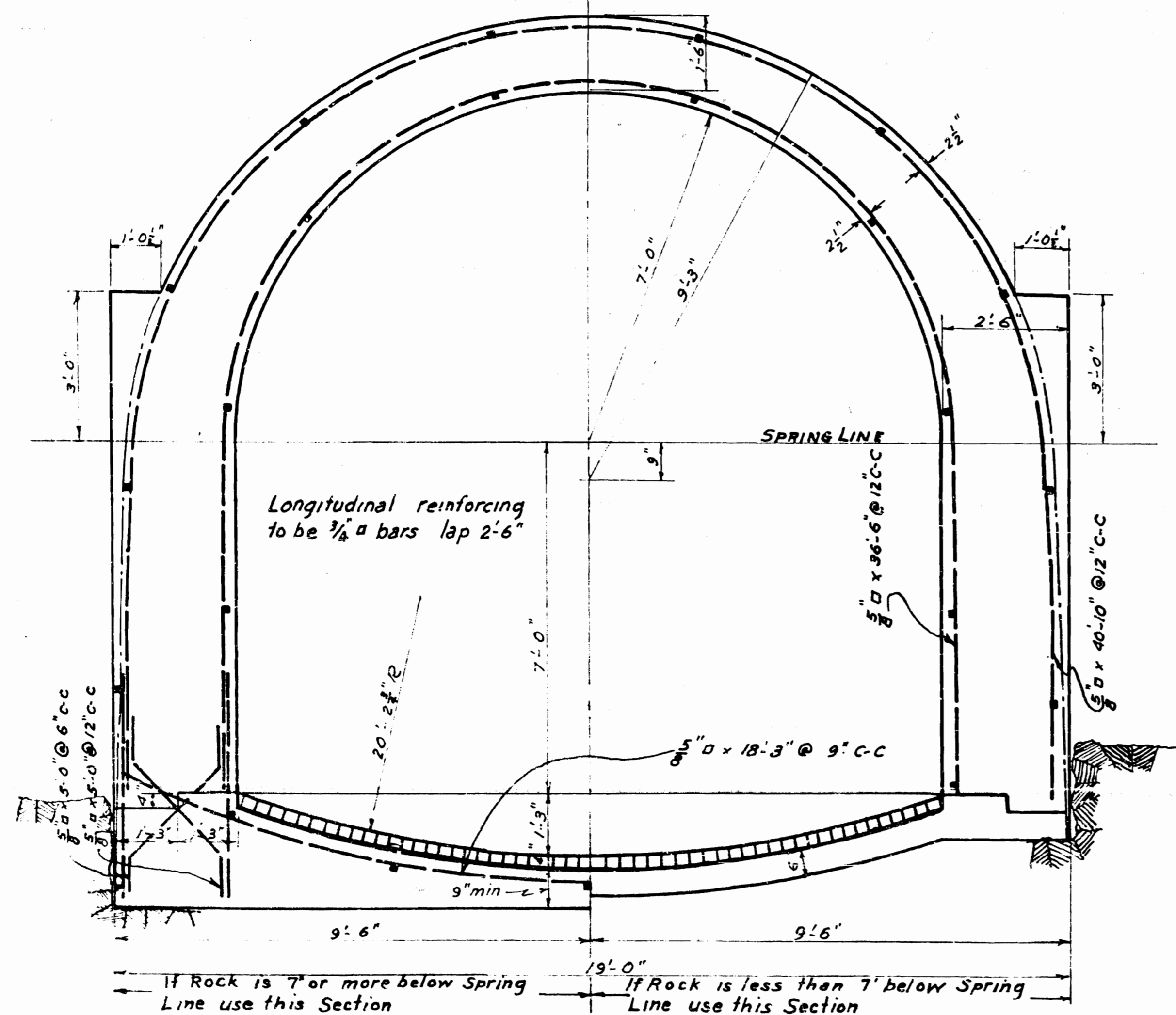
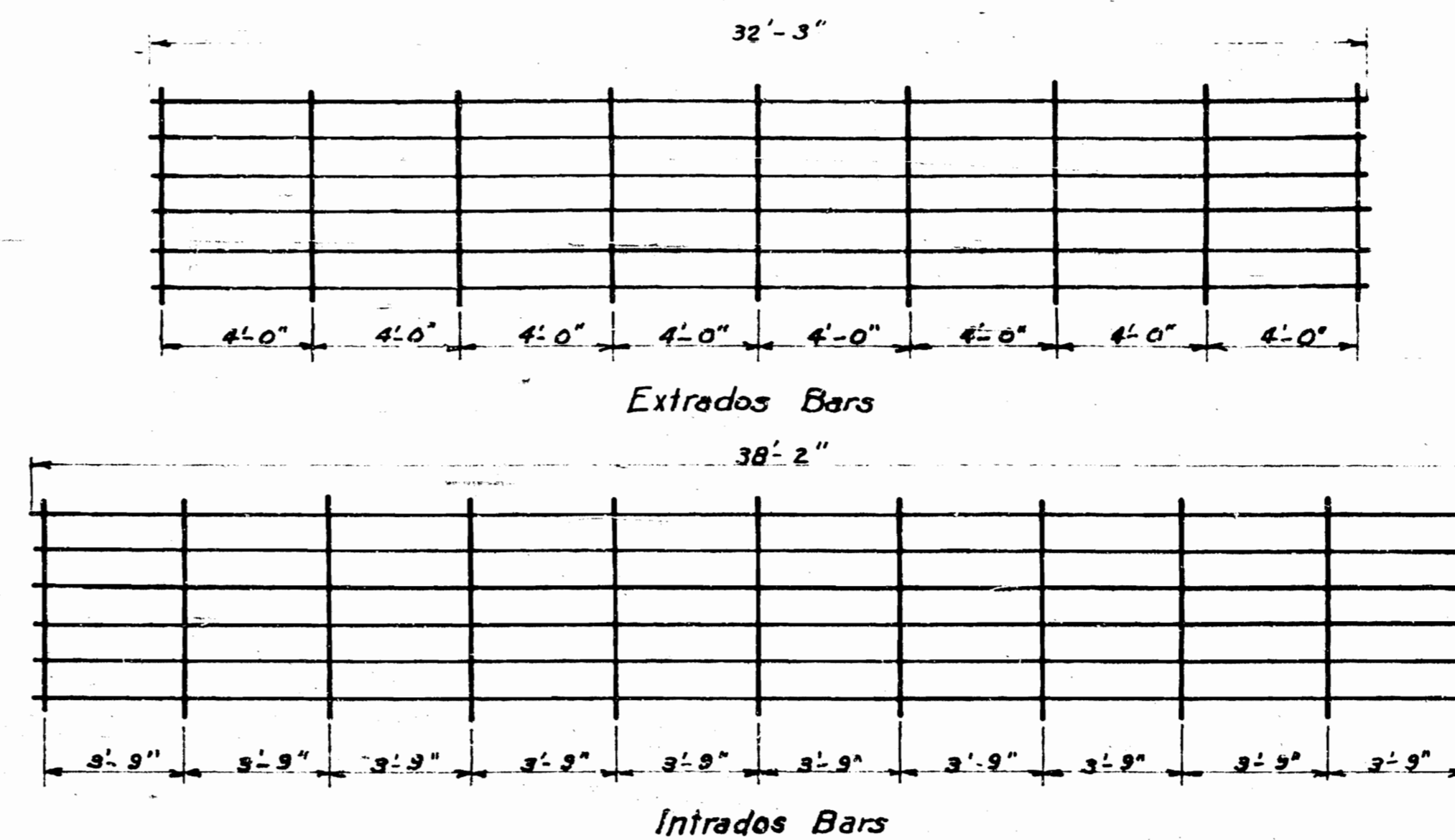
OFFICE OF THE CITY ENGINEER  
 TULSA OKLAHOMA

DRAWN BY J.M.M.  
 TRACED BY B.W.  
 CHECKED BY A.B.W.  
 SCALE  $\frac{1}{2}$ " = 1'

APPROVED  
 DATED October 1922  
 NO 4



Transverse bars  $\frac{3}{8}$ "  
Longitudinal bars  $\frac{1}{2}$ "

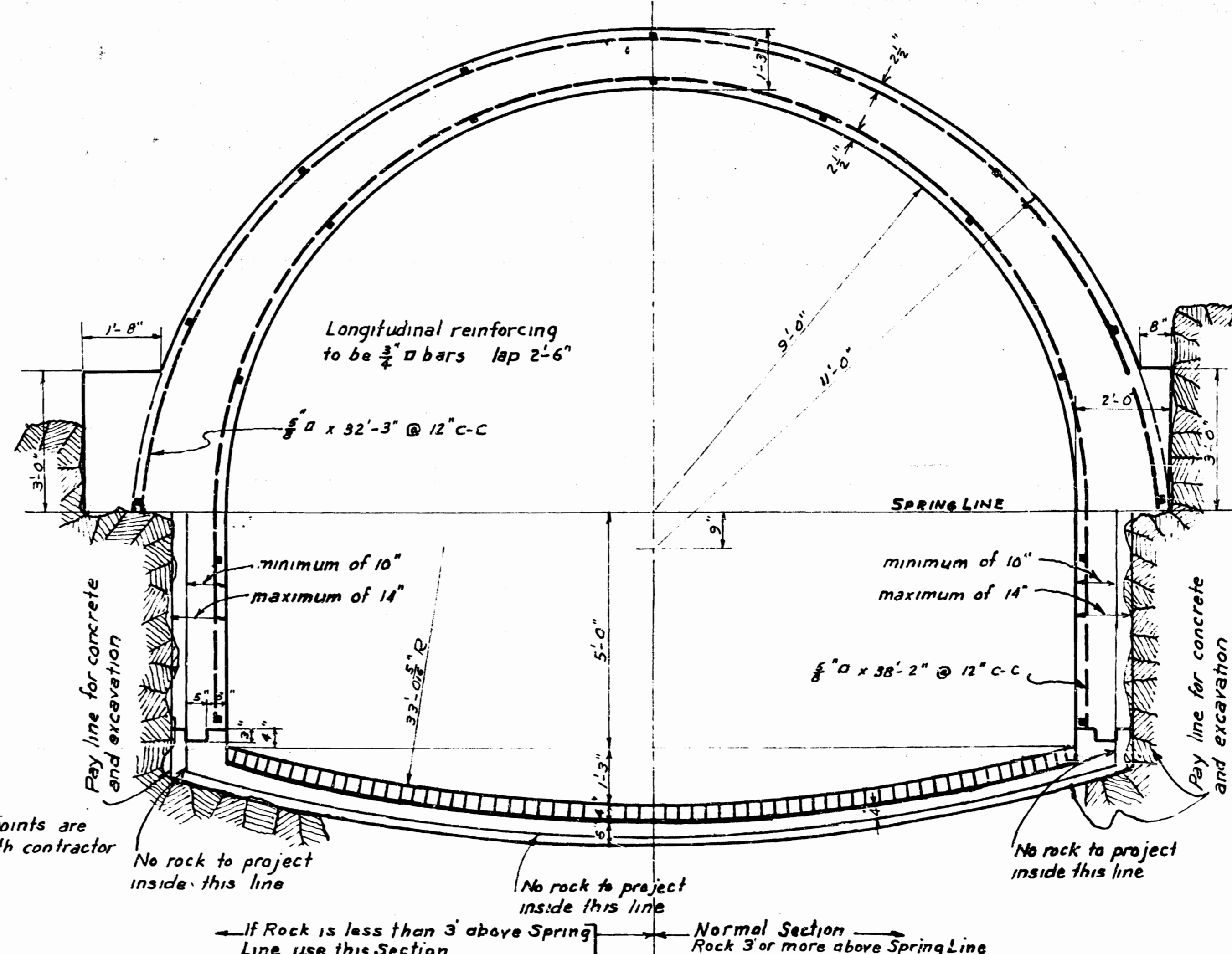


TUNNEL SECTION  
STATION TO STATION

Note:-  
Calculations based on a fill  
of 25 feet of wet earth

TYPE E

QUANTITIES PER FOOT  
If Rock is 7' below Spring Line  
4.057 cu yds concrete 1-2-4 mix  
27.50 lin ft  $\frac{3}{8}$ " steel = 53.35"  
149.667 lin ft  $\frac{5}{8}$ " steel = 202.05"  
0.1764 cu yds brickwork or 1.5876 sq yds.  
11.16 cu yds excavation  
If Rock is less than 7' below Spring Line  
3.482 cu yds concrete 1-2-4 mix  
22.00 lin ft  $\frac{3}{8}$ " steel = 42.68"  
77.33 lin ft  $\frac{5}{8}$ " steel = 104.40"  
0.1764 cu yds brickwork or 1.5876 sq yds.  
10.543 cu yds excavation



OPEN CUT SECTION  
STATION TO STATION

Note:-  
Calculations based on a fill  
of 15 feet of dry earth

TYPE F

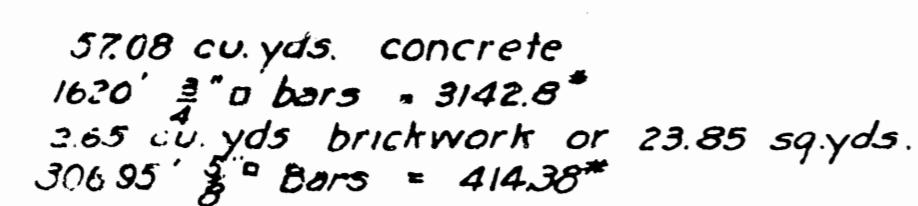
QUANTITIES PER FOOT  
22.0 lin ft  $\frac{3}{8}$ " steel = 42.68"  
70.417 lin ft  $\frac{5}{8}$ " steel = 95.063"  
2.597 cu yds concrete 1-2-4 mix  
0.225 cu yds brickwork or 2.025 sq yds.  
0.222 cu yds additional concrete  
if Rock is less than 3' above  
the Spring Line

ELM PARK RELIEF SEWER

OFFICE OF THE CITY ENGINEER  
TULSA OKLAHOMA

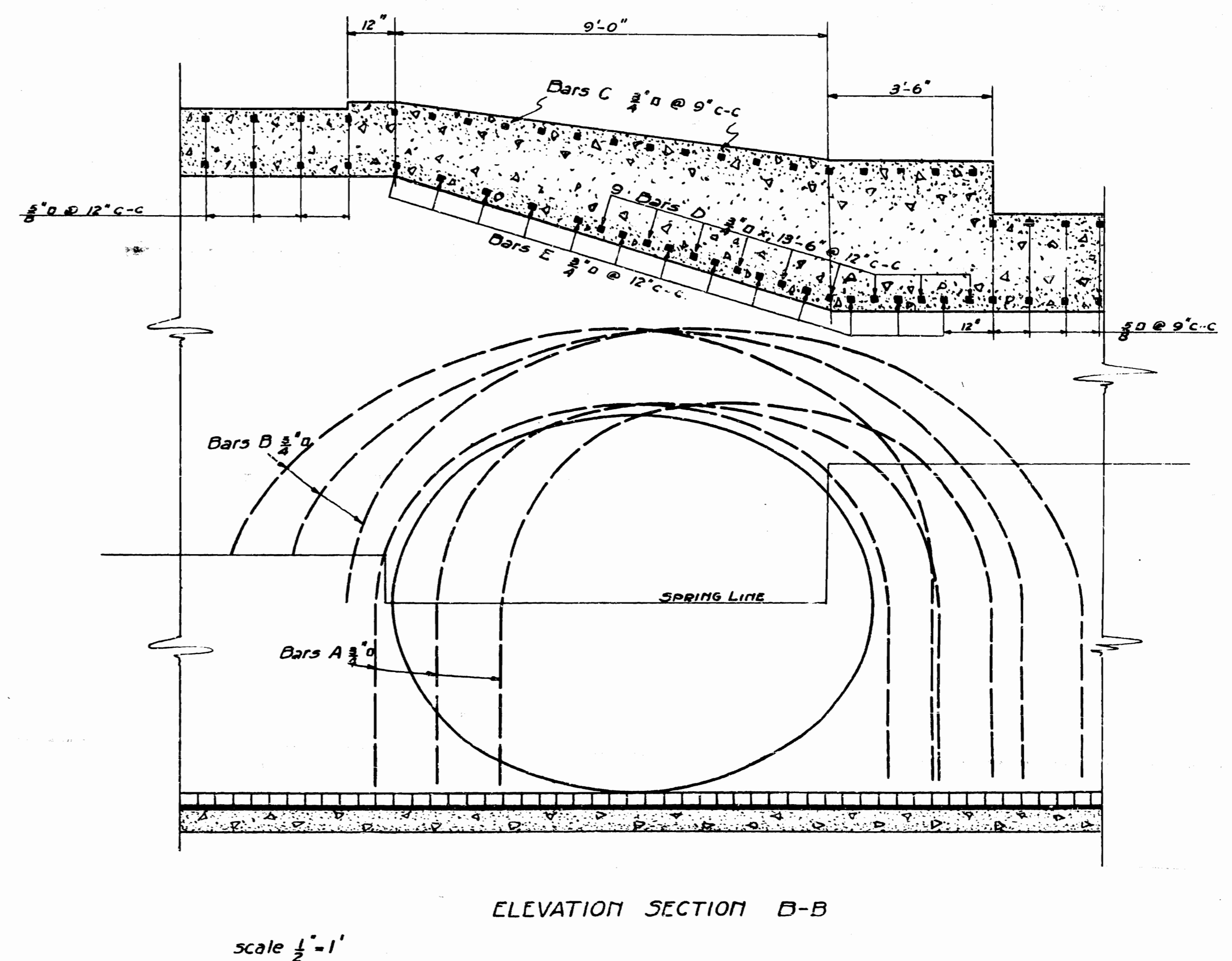
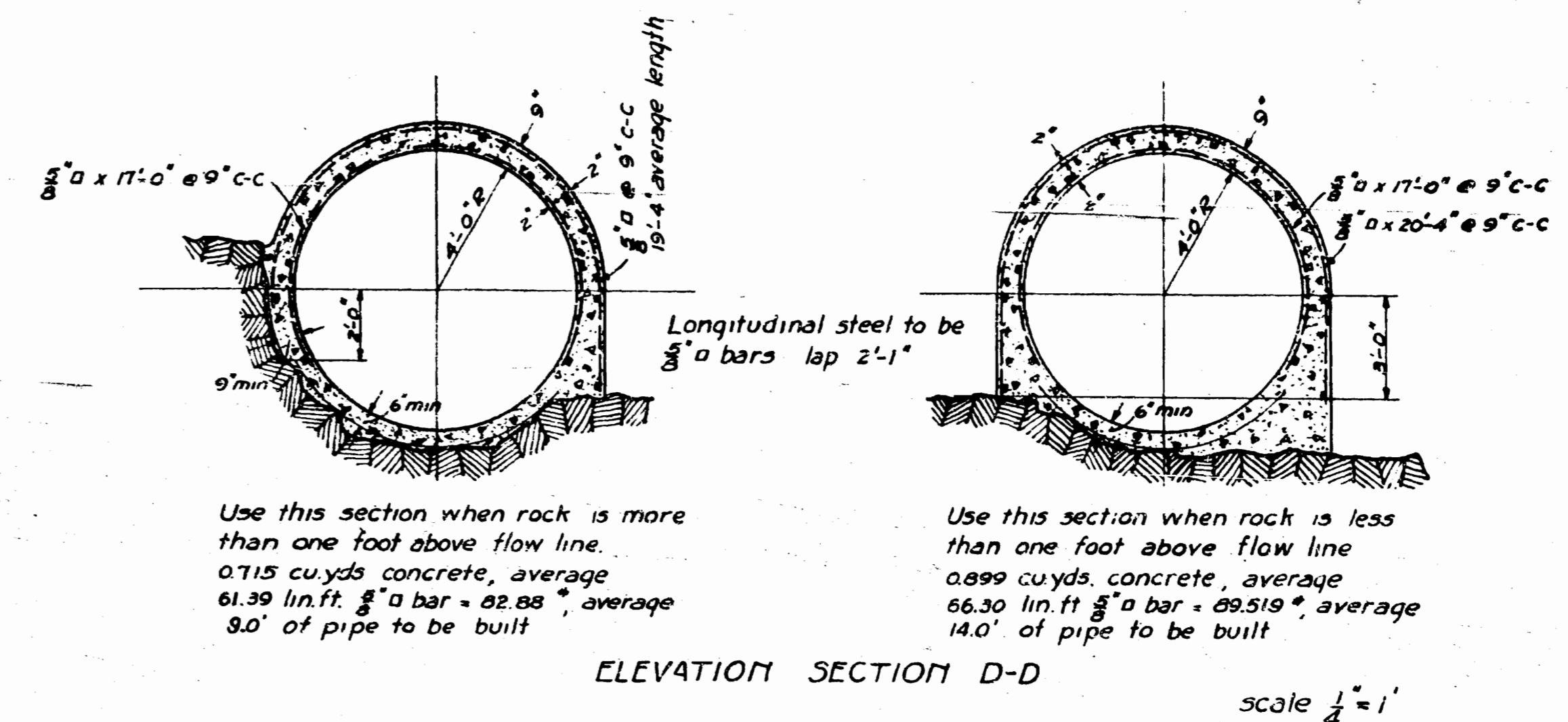
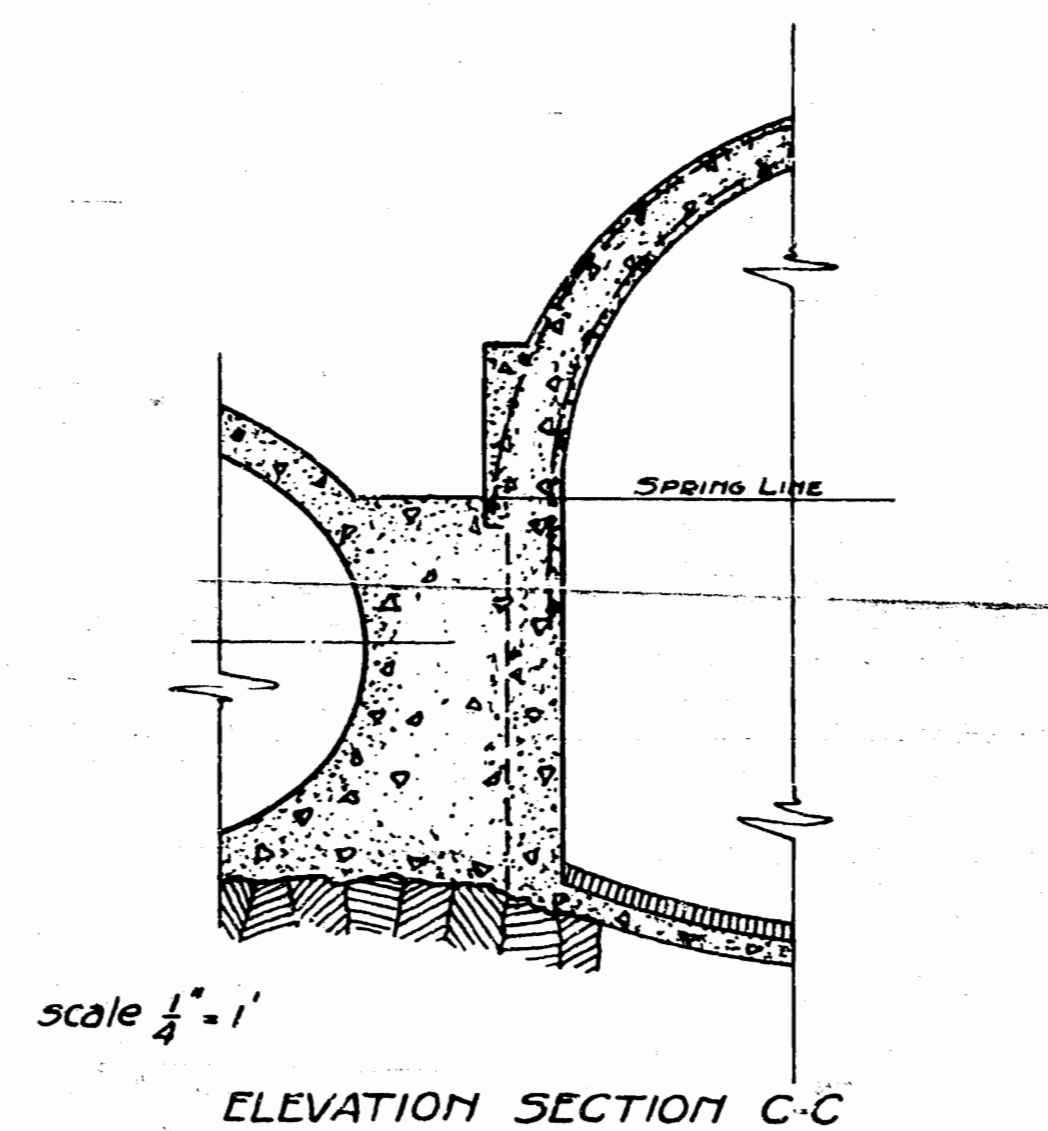
DRAWN BY *J.M.M.*  
TRACED BY *J.M.M.*  
CHECKED BY *J.E.W.*  
SCALE  $\frac{1}{2}$ " = 1'

APPROVED  
DATED October 1, 1922  
NO 5



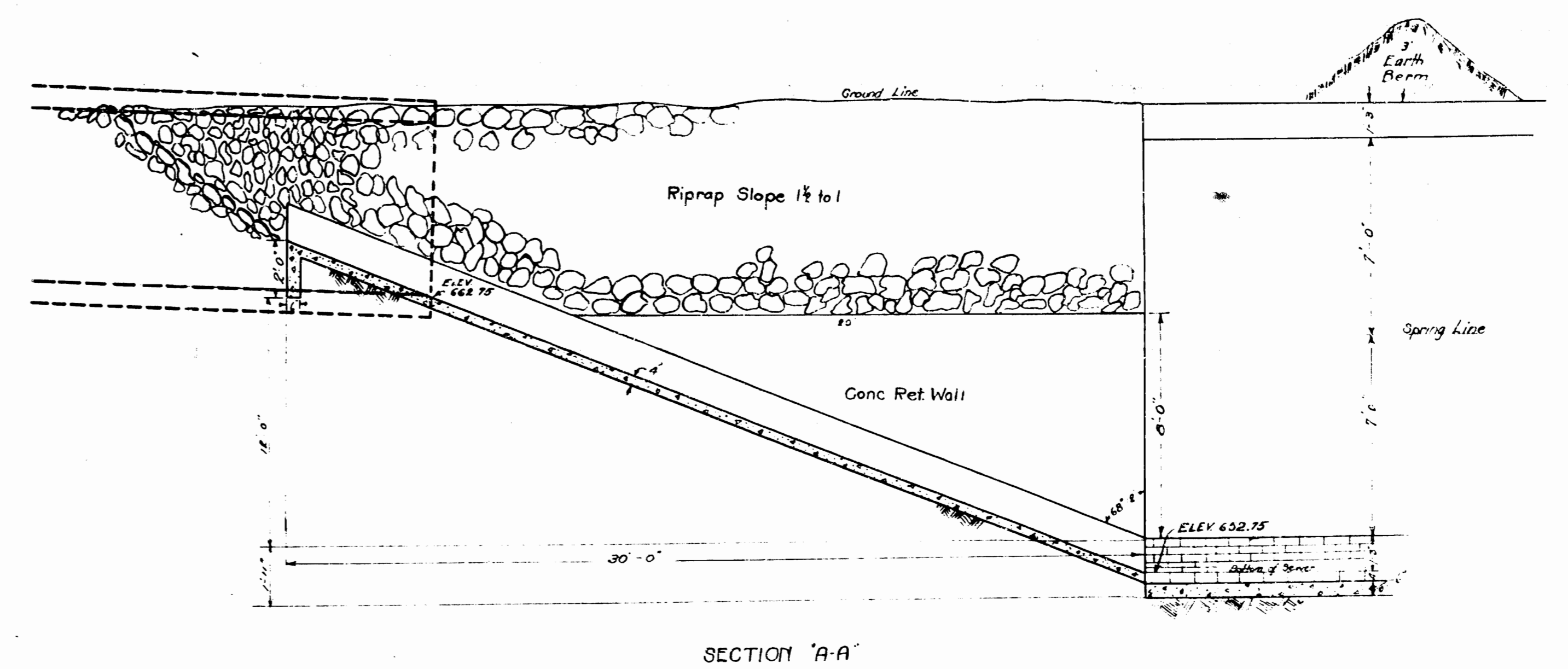
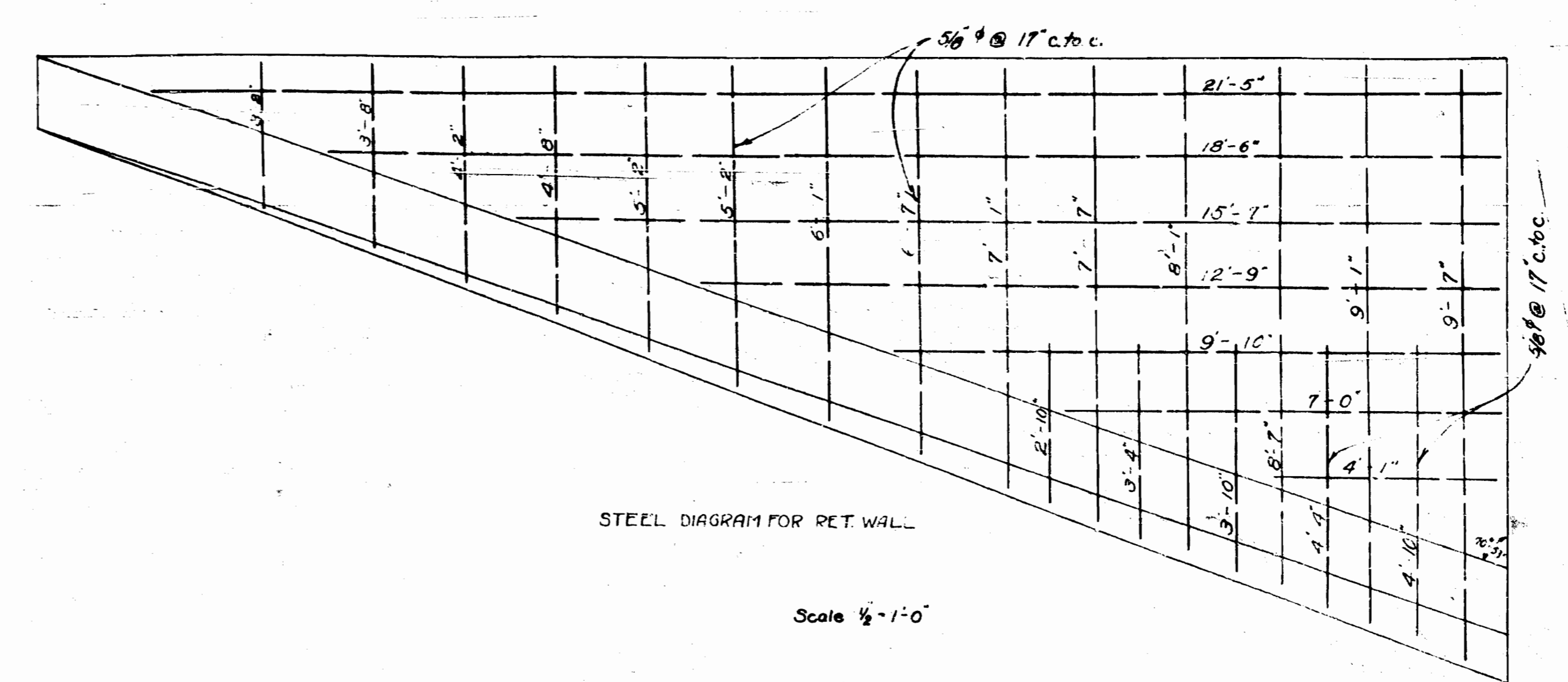
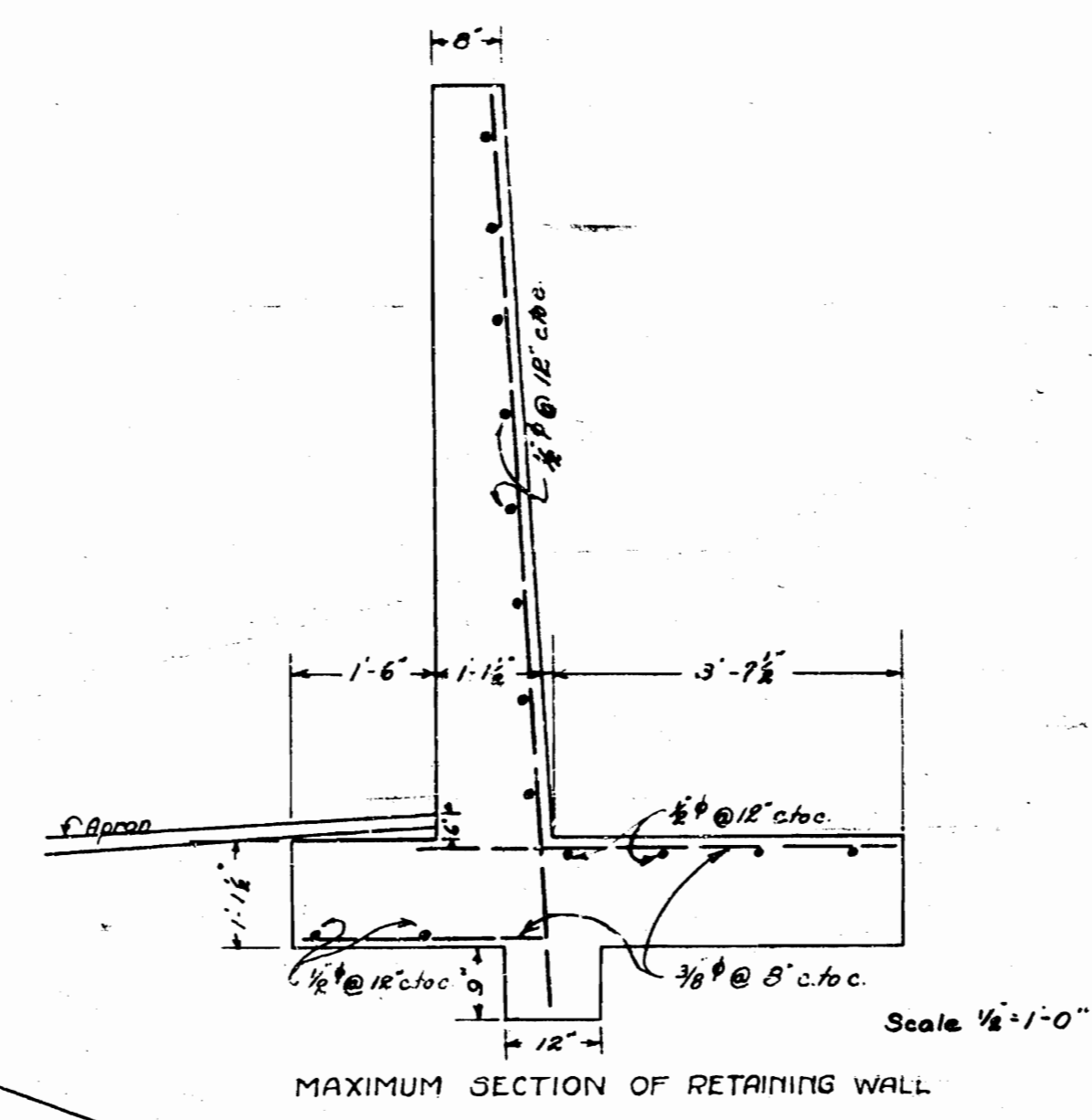
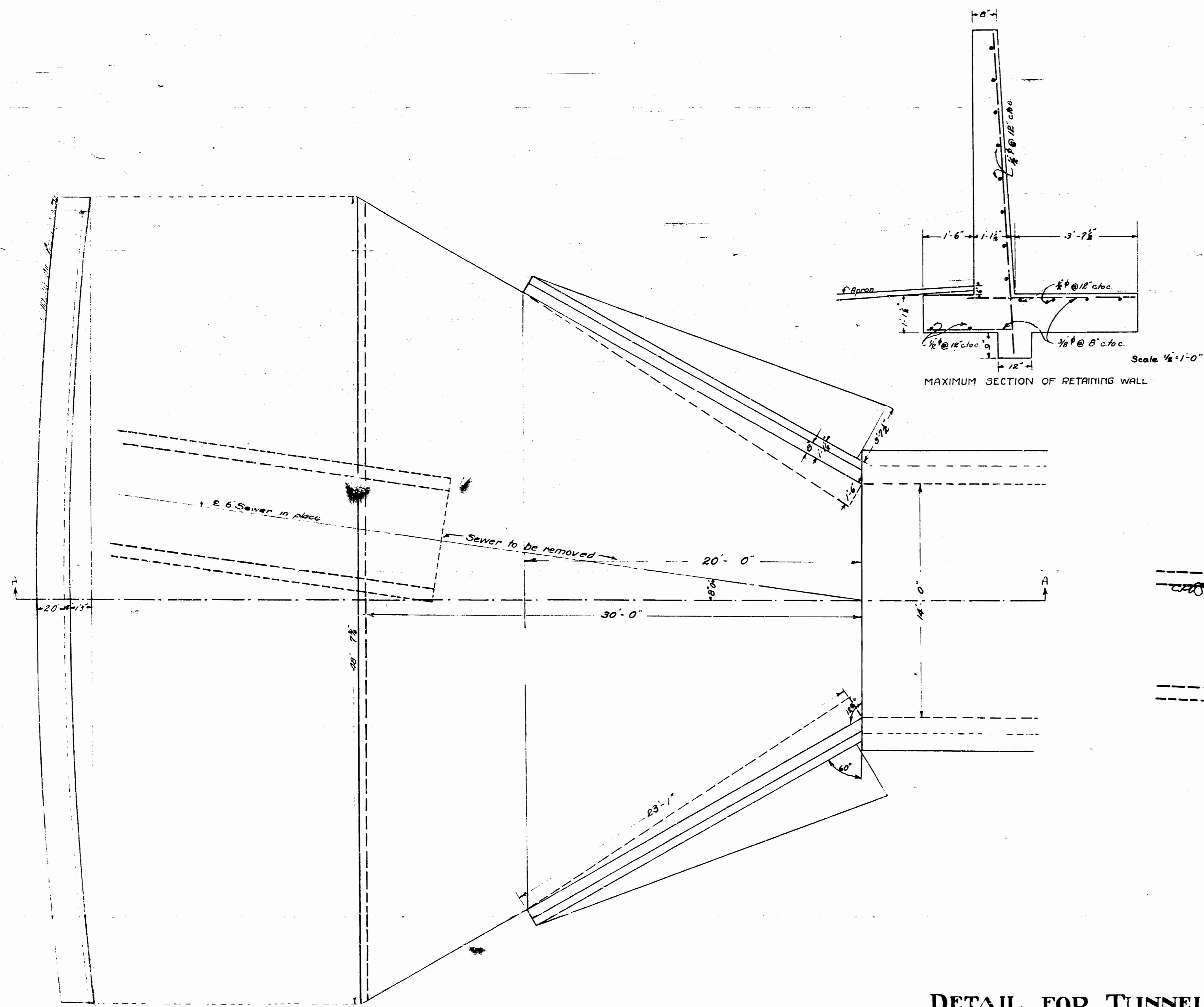
scale  $\frac{1}{2}'' = 1'$

ELEVATION SECTION A-A



SEWER CONNECTION AT 18<sup>TH</sup> STREET  
AND ALLEY BETWEEN MAIN AND  
BALTIMORE STREETS

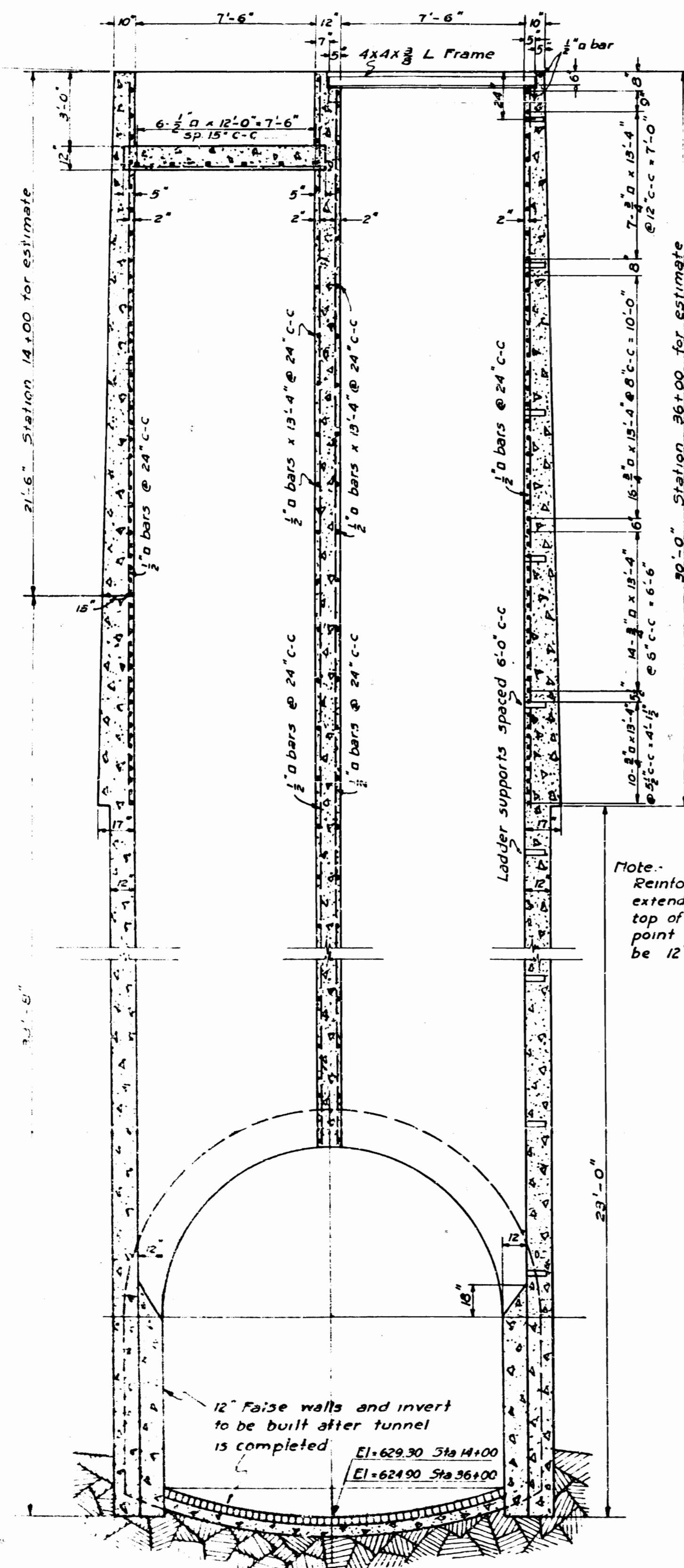
ELM PARK RELIEF SEWER	
OFFICE OF THE CITY ENGINEER TULSA OKLAHOMA	
DRAWN BY <i>J.M.N.</i> TRACED BY <i>FWL</i> CHECKED BY <i>AG.W.</i> SCALE <i>as noted</i>	APPROVED _____ DATED <u>October, 1922</u> NO 6



# DETAIL FOR TUNNEL INLET NORTH OF ELEVENTH STREET

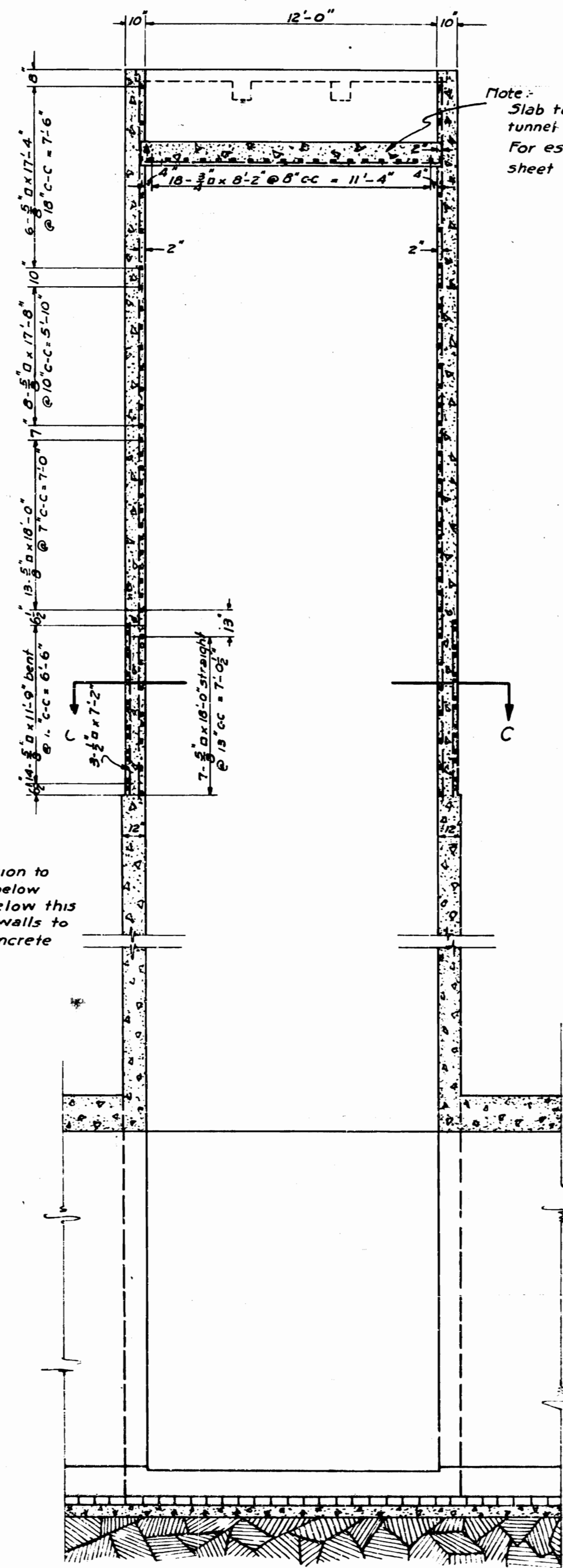
2075 Cubic Yards Concrete  
60602 Lbs. Reinforcing Steel  
13500 Sq. Yds. Rip-Rap

ELM PARK RELIEF SEWER	
OFFICE OF THE CITY ENGINEER TULSA OKLAHOMA	
DRAWN BY: <i>H. White</i>	APPROVED
TRACED BY: <i>Brown</i>	DATED <i>October 1922</i>
CHECKED BY: <i>A. G. W.</i>	NO 7
SCALE 1/4" = 1'-0"	



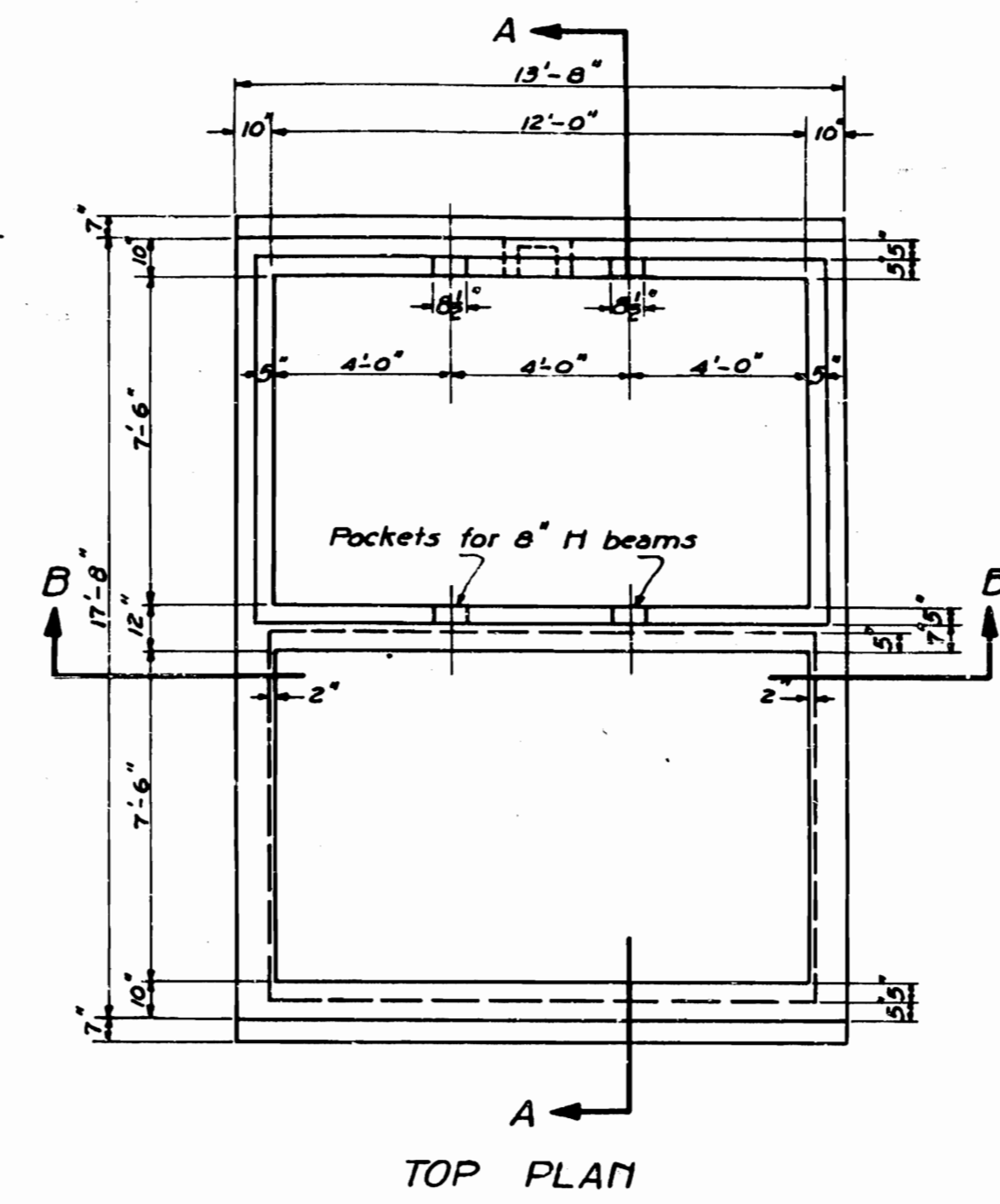
ELEVATION THROUGH SECTION A-A

Note:  
Reinforced section to  
extend 2 feet below  
top of rock. Below this  
point outside walls to  
be 12" plain concrete

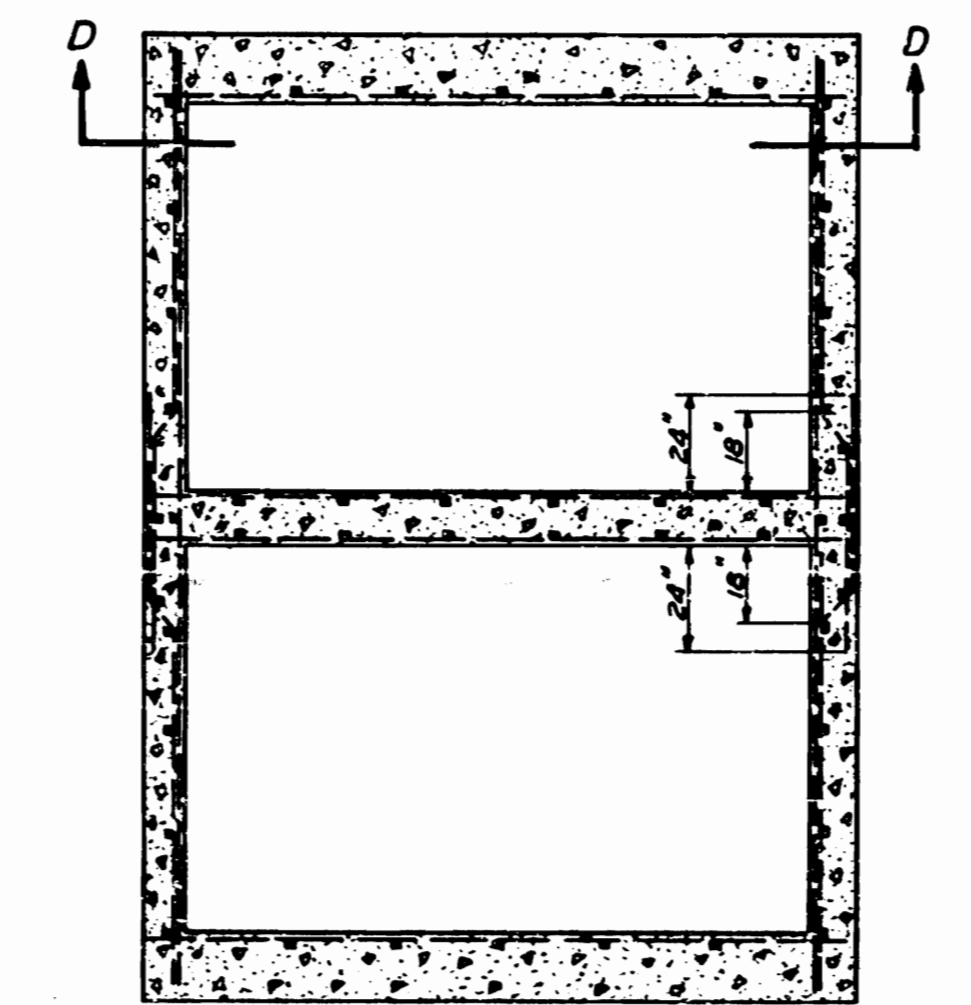


ELEVATION THROUGH SECTION B-B

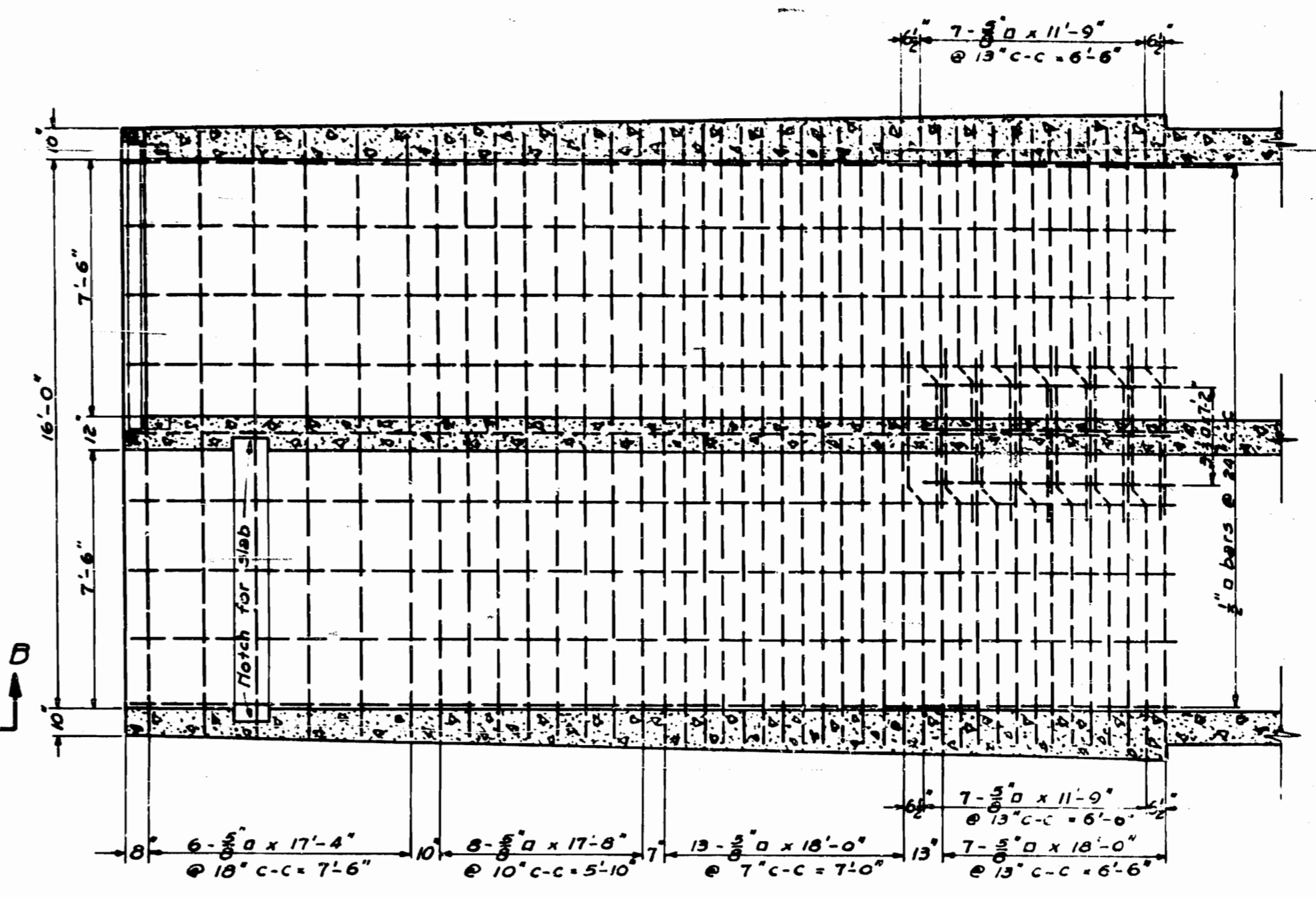
Note:  
Slab to be built after  
tunnel is completed  
For estimate see  
sheet No 9



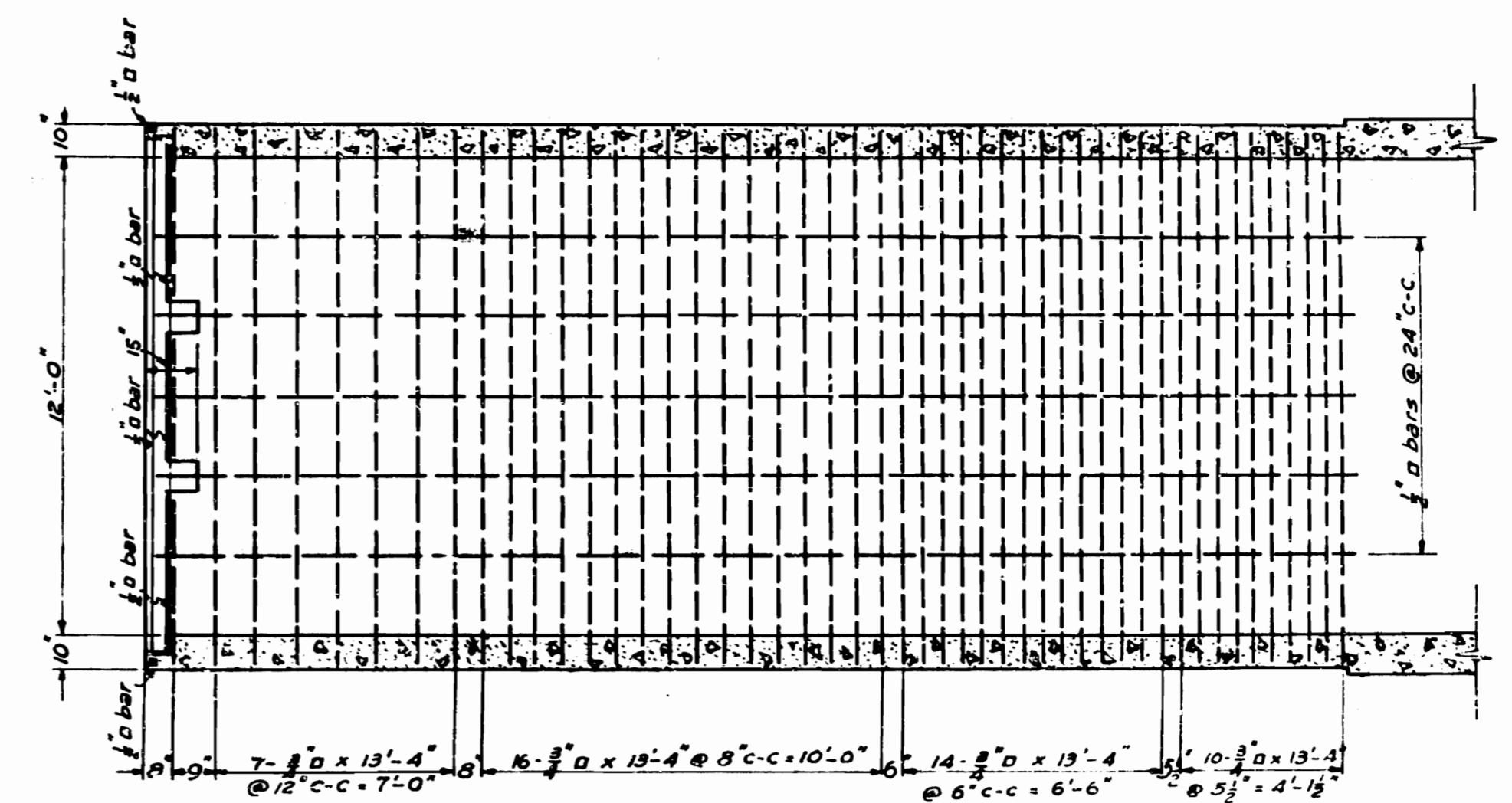
TOP PLAN



PLAN THROUGH SECTION C-C



SECTION THROUGH A-A SHOWING STEEL ARRANGEMENT



SECTION THROUGH D-D SHOWING STEEL ARRANGEMENT

STATION 14+00  
115.176 cu. yds. concrete  
786.66 lin. ft. 3/4 inch bar = 1526.133  
886.66 - - 3/8 inch bar = 1197.0  
1789.33 - - 1/2 inch bar = 1468.827  
182.6 cu yds. earth  
248.36 - - rock

STATION 36+00  
102.923 cu yds. concrete  
1266.66 lin. ft. 3/4 inch bar = 2457.33  
1539.66 - - 3/8 inch bar = 2078.55  
1906.33 - - 1/2 inch bar = 1639.45  
276.45 cu yds. earth  
93.56 - - rock

(SUPERSEDED BY  
DRAWING No. 8-B)

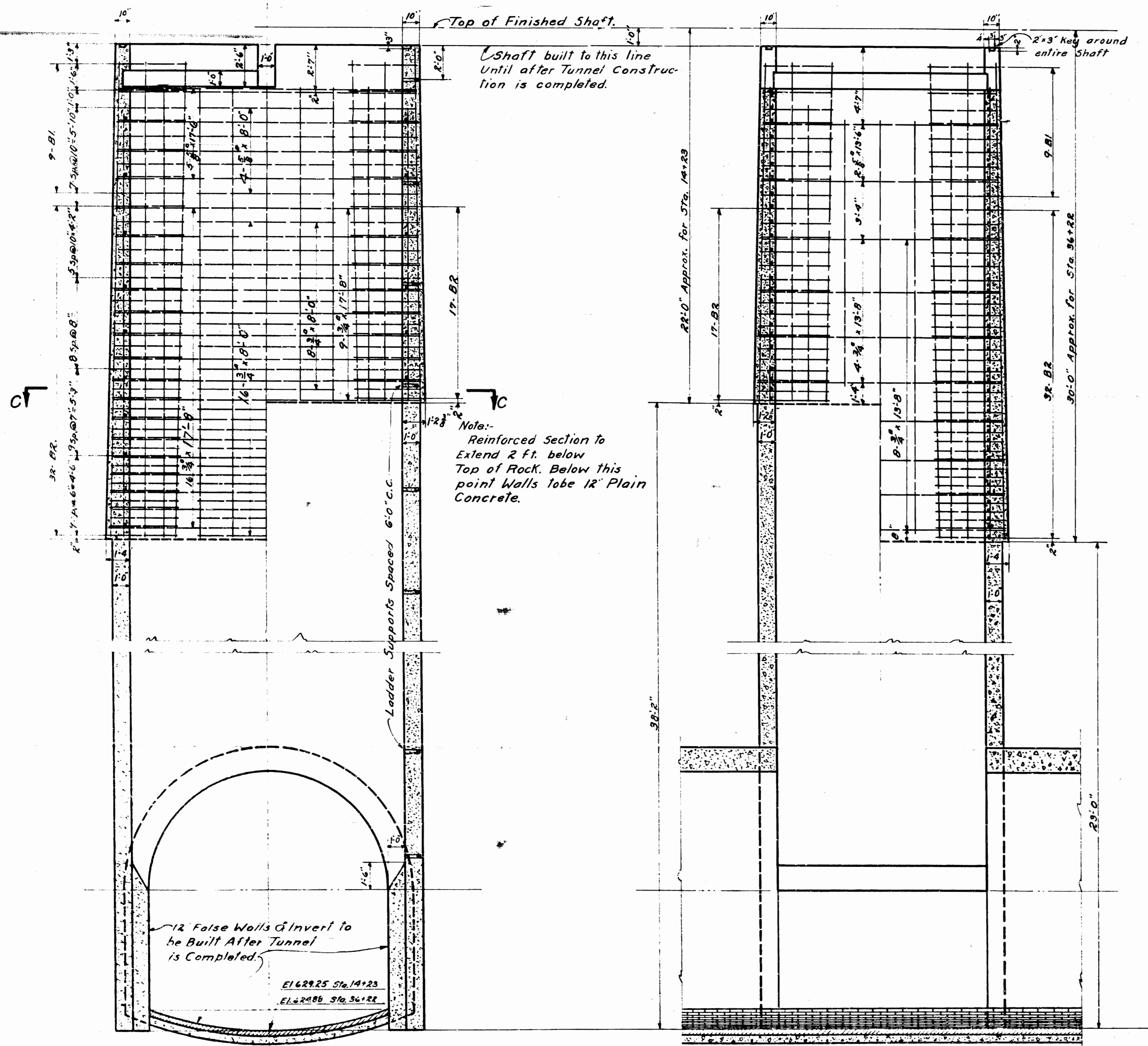
CONSTRUCTION SHAFT

ELM PARK RELIEF SEWER

OFFICE OF THE CITY ENGINEER  
TULSA OKLAHOMA

DRAWN BY J.M.M.  
TRACED BY K.L.W.  
CHECKED BY A.B.W.  
SCALE 1/4" = 1'

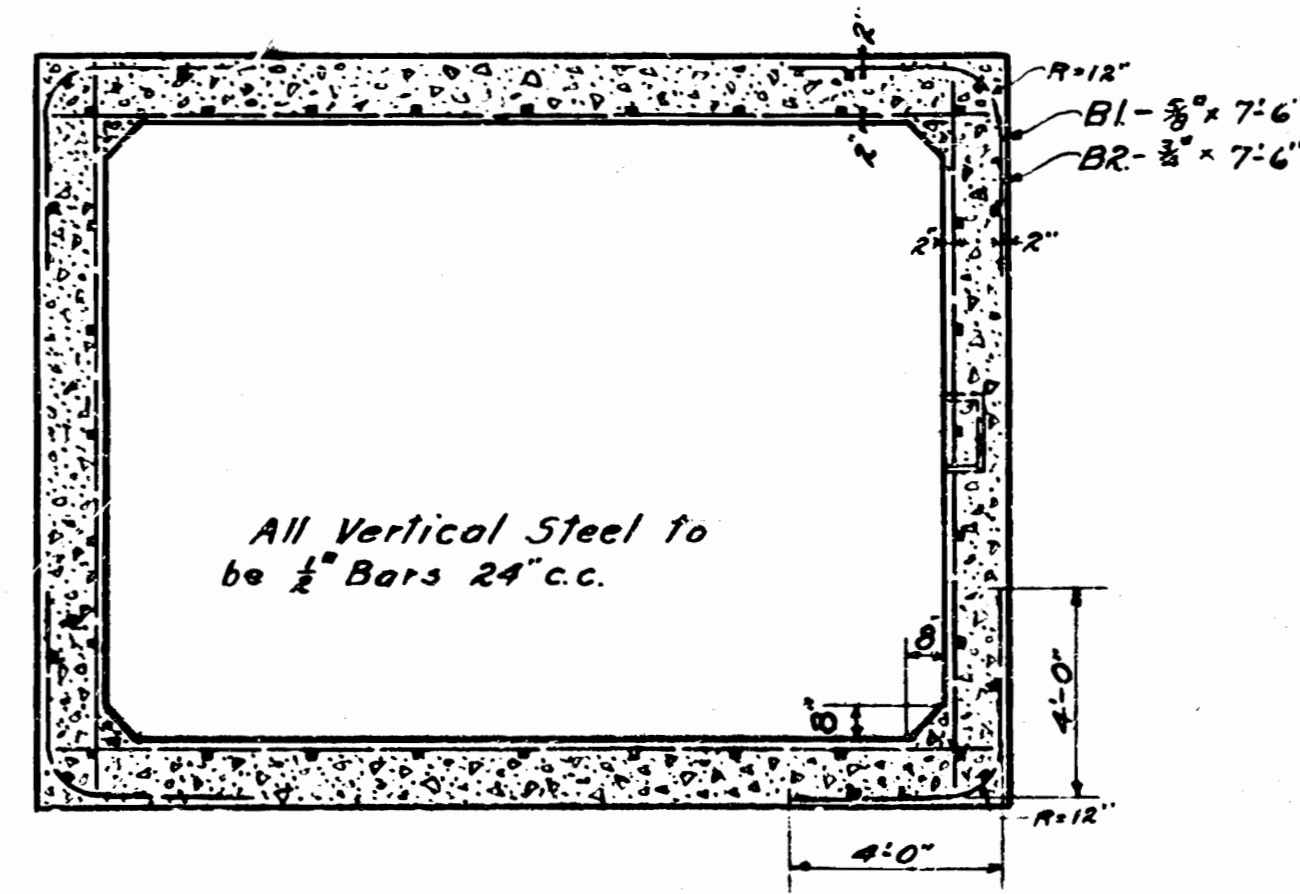
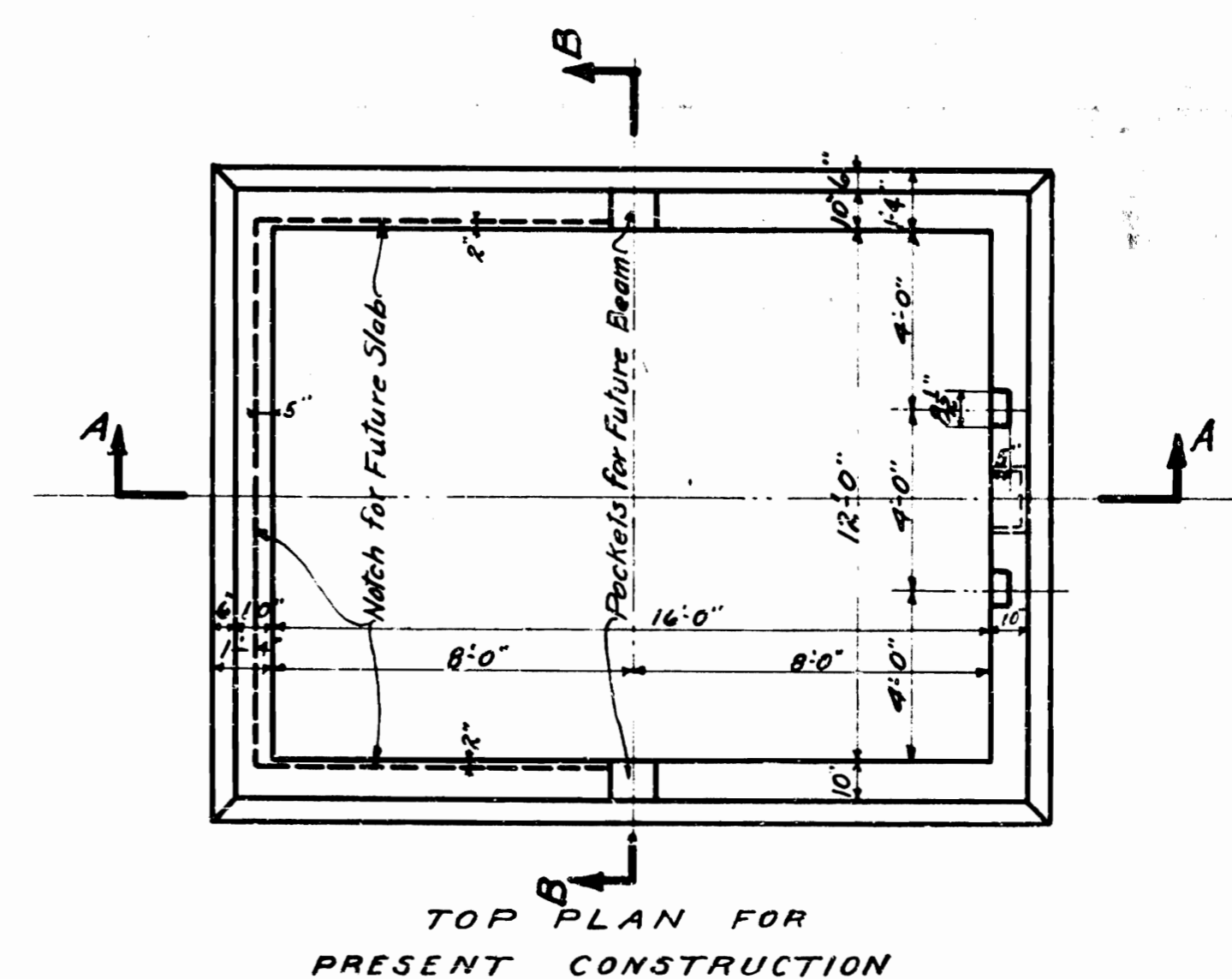
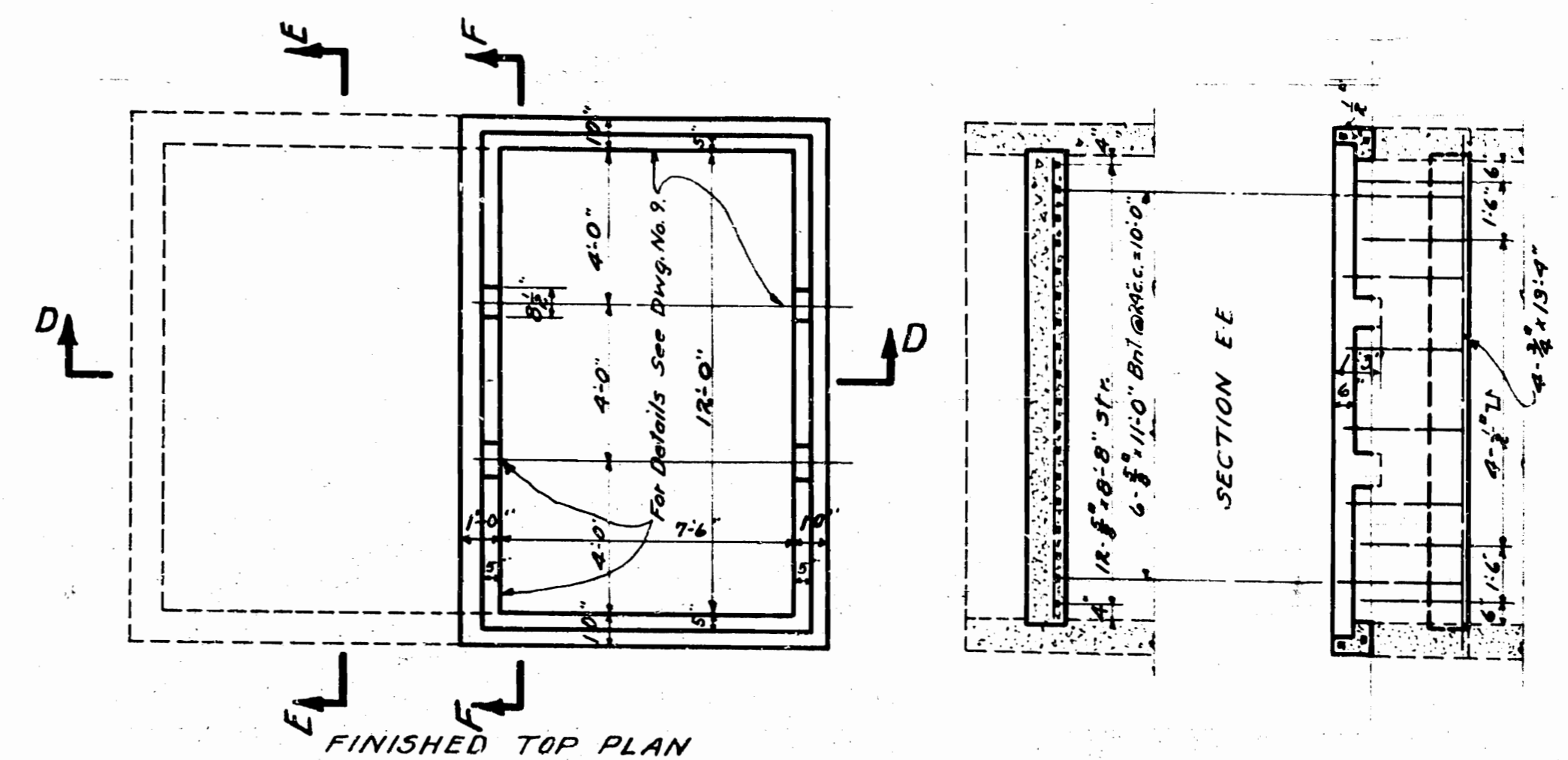
APPROVED  
DATED October 1922  
NO 8



SECTION A-A

SECTION B-B

SECTION C-C



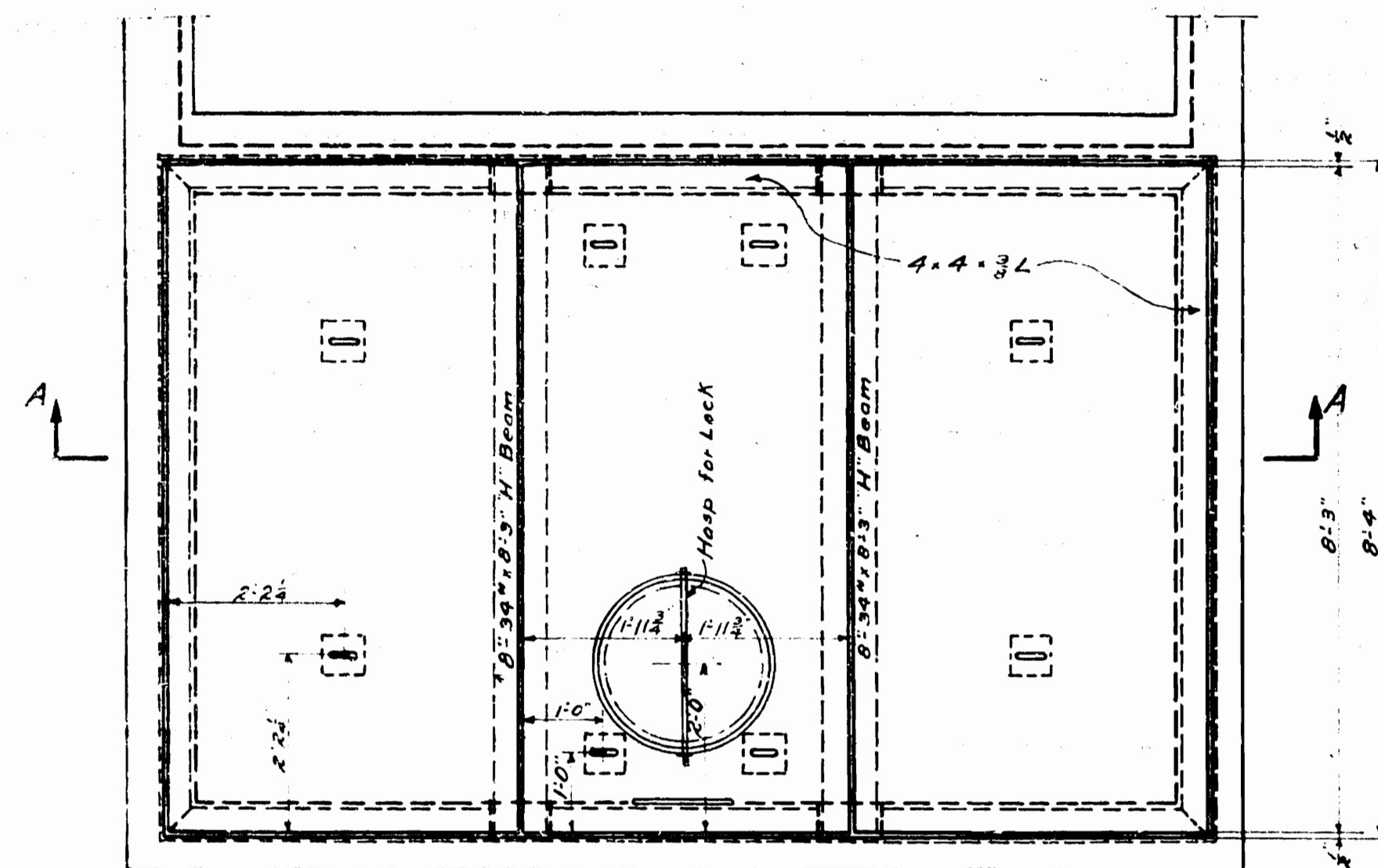
CONSTRUCTION SHAFT  
This Drawing Supersedes Drawing No. 8.

ELM PARK RELIEF SEWER

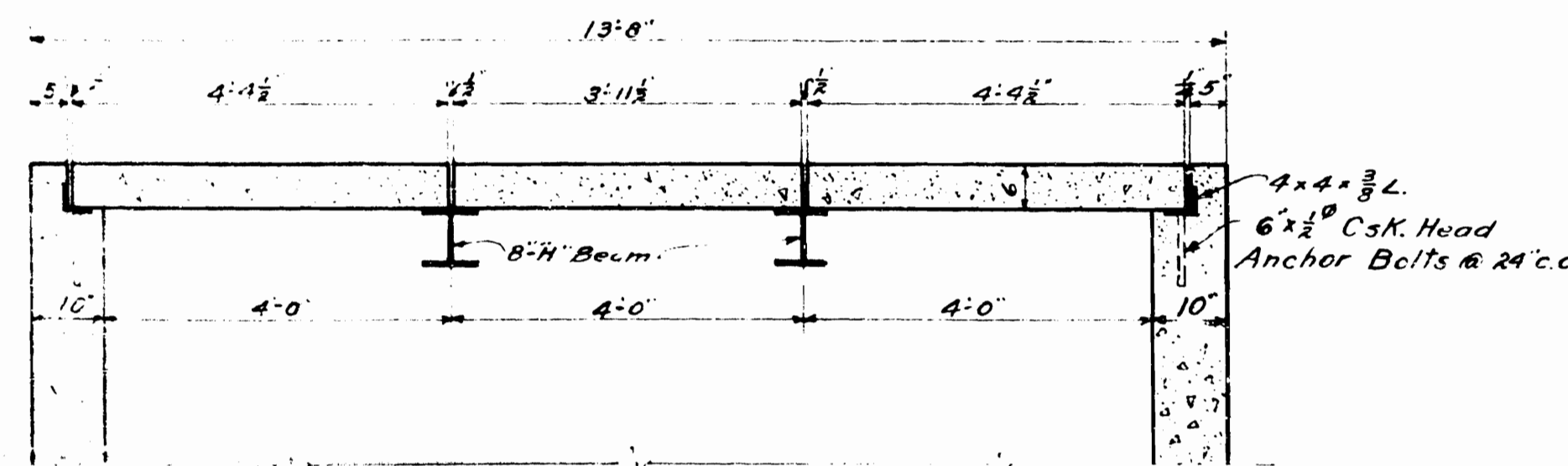
OFFICE OF THE CITY ENGINEER  
TULSA, OKLAHOMA

DRAWN BY J.M.W.  
TRACED BY J.M.W.  
CHECKED BY J.C.W.  
SCALE: 1/4"=1'-0"

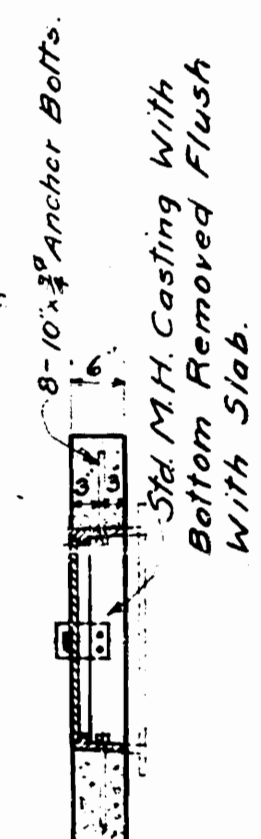
APPROVED  
DATE DEC 15 1922  
NO. 8-B



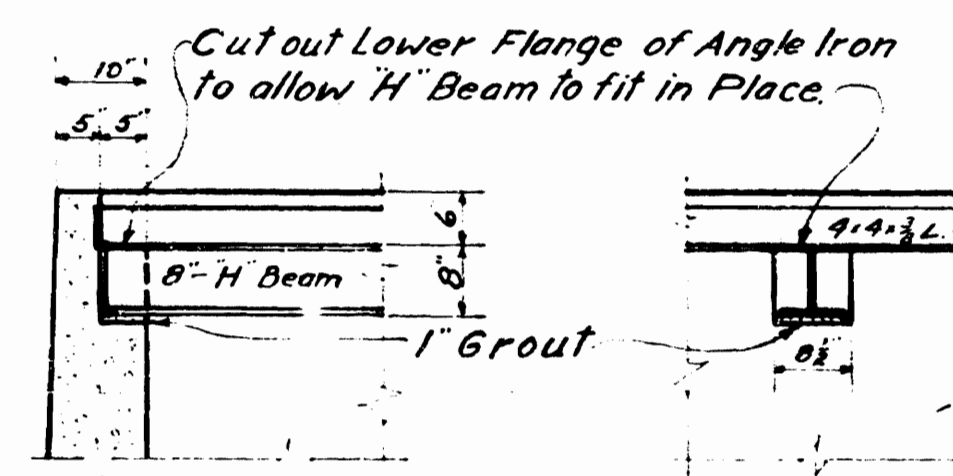
PLAN  
OF SIDE OF SHAFT TO BE USED FOR MANHOLE  
Scale:  $\frac{1}{2}$ " = 1'-0"



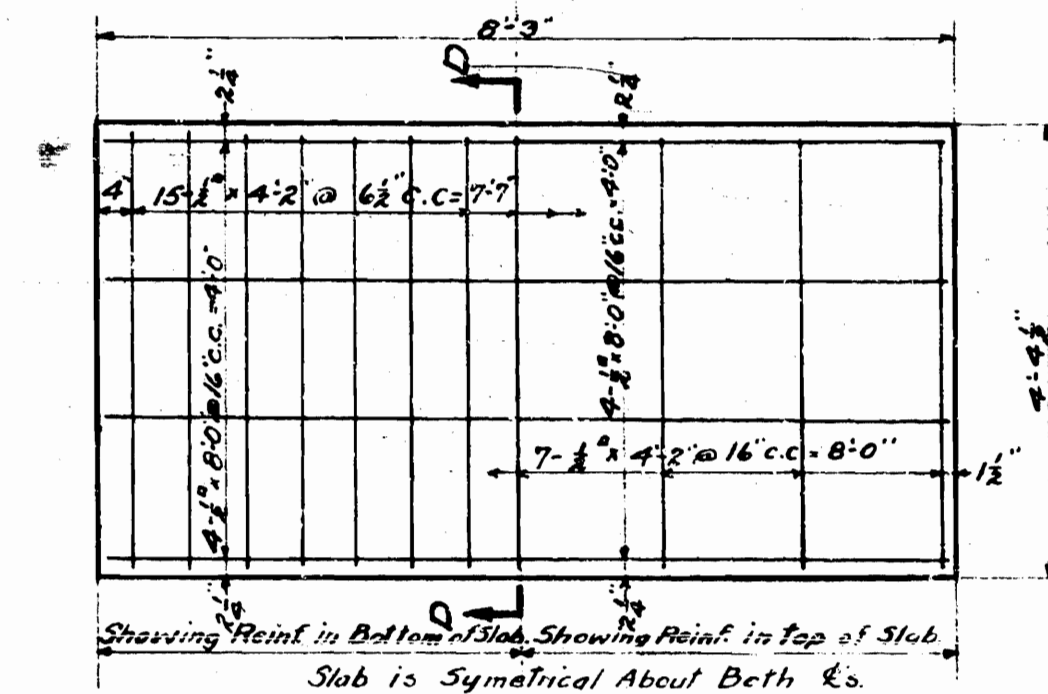
SECTION A-A. ②  
For Reinf. see Slab Details.



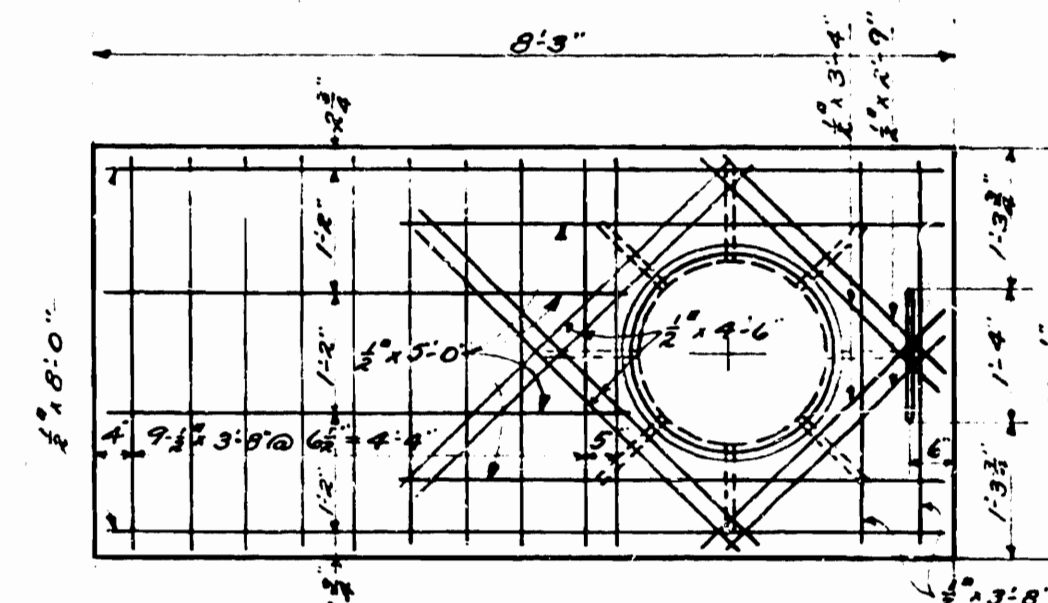
SECTION G-G.



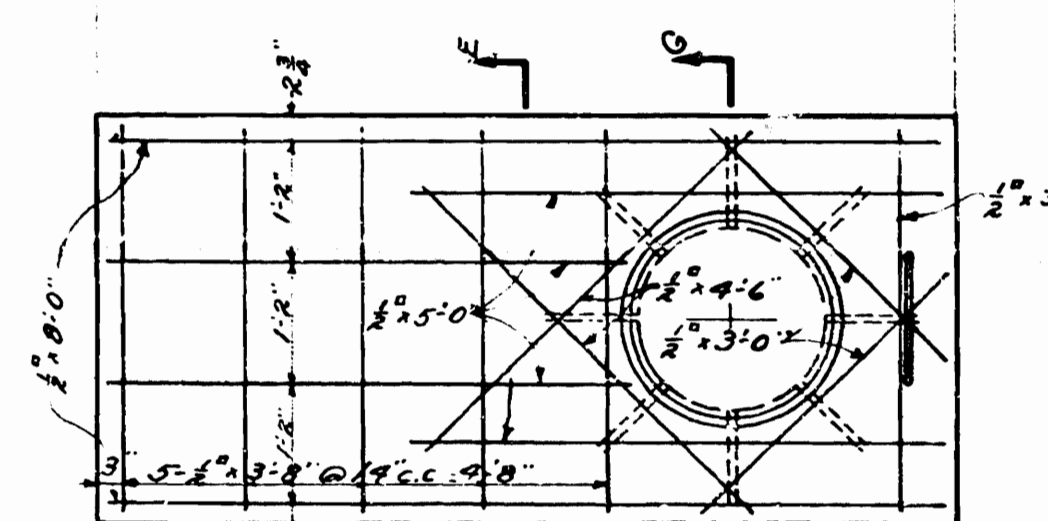
DETAIL  
OF  
BEAM SEAT  
Scale:  $\frac{1}{2}$ " = 1'-0"



PLAN  
OF END SLABS  
Scale:  $\frac{1}{2}$ " = 1'-0"  
Materials for Two Slabs.  
1.937 Cu. Yds. Concrete.  
311.33 Lin. Ft.  $\frac{3}{4}$ " Bars = 267.748"

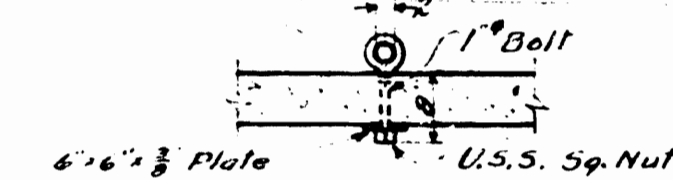


PLAN SHOWING REINF. IN BOTTOM  
OF SLAB

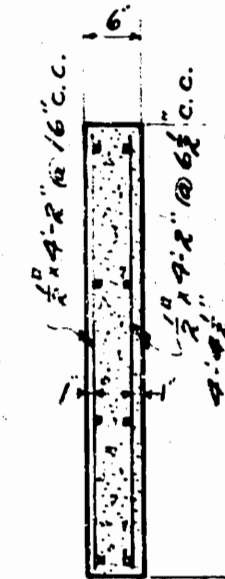


PLAN SHOWING REINF. IN TOP  
OF SLAB

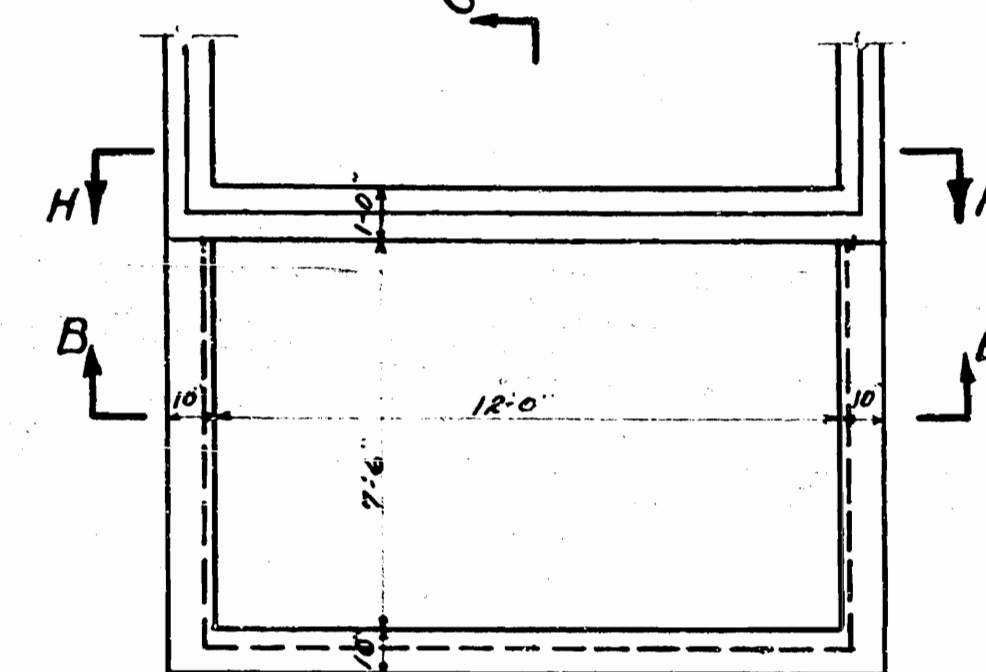
PLAN  
OF CENTER SLAB  
Scale:  $\frac{1}{2}$ " = 1'-0"  
0.537 Cu. Yds. Concrete.  
183.166 Lin. Ft.  $\frac{3}{4}$ " Bars = 157.518"



EYE BOLT.  
For Raising Removable Slabs.  
Scale:  $\frac{1}{2}$ " = 1'-0"



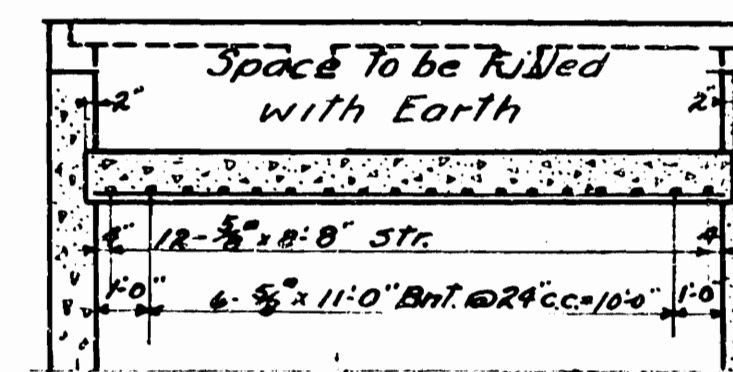
SECTION D-D



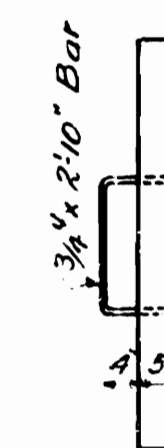
PLAN ①  
OF SIDE OF SHAFT TO BE  
ABANDONED AFTER CONSTRUCTION IS COMPLETED.

Scale:  $\frac{1}{2}$ " = 1'-0"

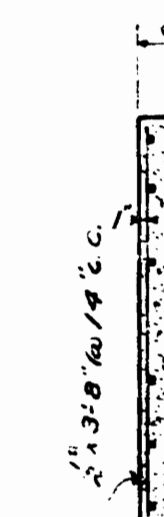
3.807 Cu. Yds. Concrete  
147.00 Lin. Ft.  $\frac{3}{4}$ " Bars = 285.18"  
72.00 " " " " = 61.92"



SECTION B-B

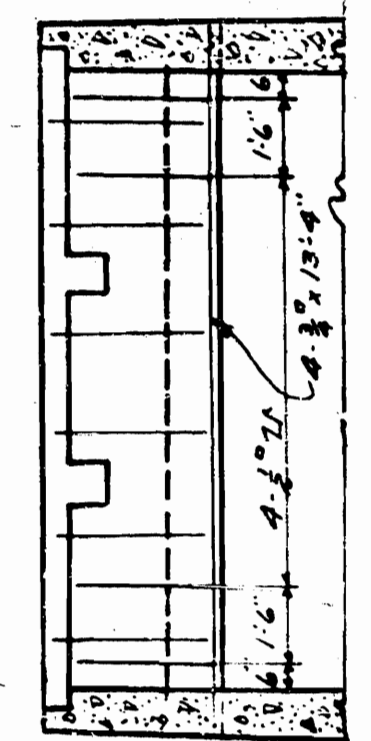


END VIEW

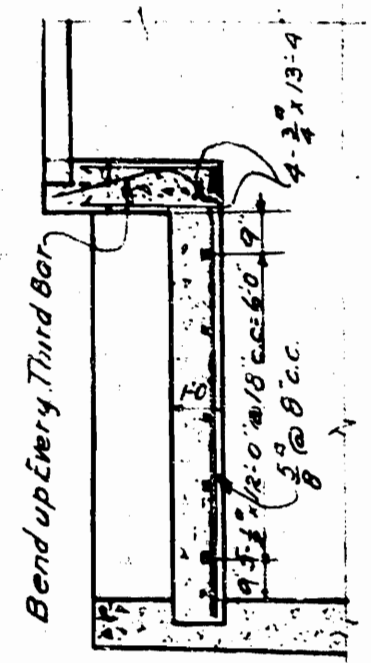


SECTION E-E

DETAILS FOR COVERING SHAFT  
AFTER CONSTRUCTION HAS BEEN  
COMPLETED



SECTION H-H



SECTION C-C

REVISIONS  
① 12-18-22 J.M.W.  
② 12-18-22 J.M.W.

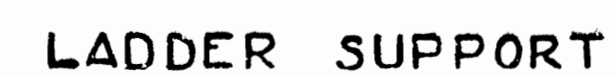
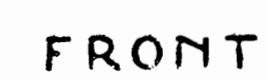
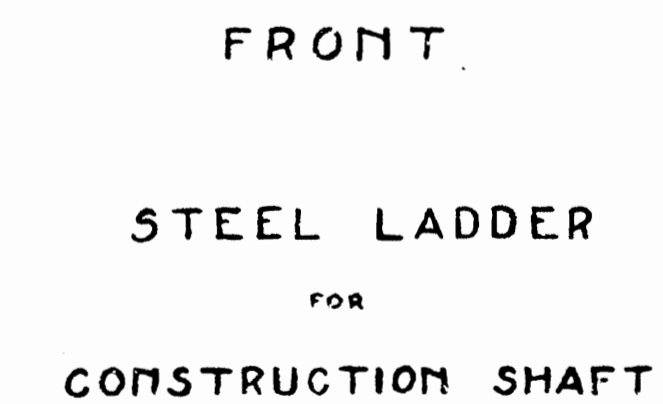
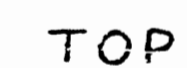
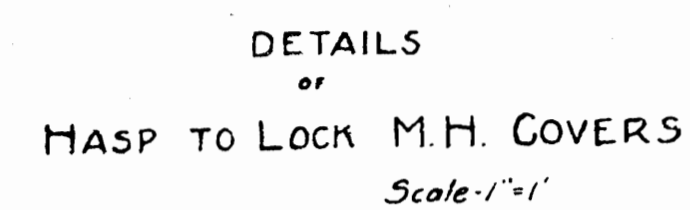
Note:-  
All Metal Work to be Painted with  
Two Coats of Asphaltic Paint.

ELM PARK RELIEF SEWER

OFFICE OF THE CITY ENGINEER  
TULSA OKLAHOMA

DRAWN BY *W.P.*  
TRACED BY *W.P.*  
CHECKED BY *W.P.*  
SCALE  $\frac{1}{2}$ " = 1'-0"

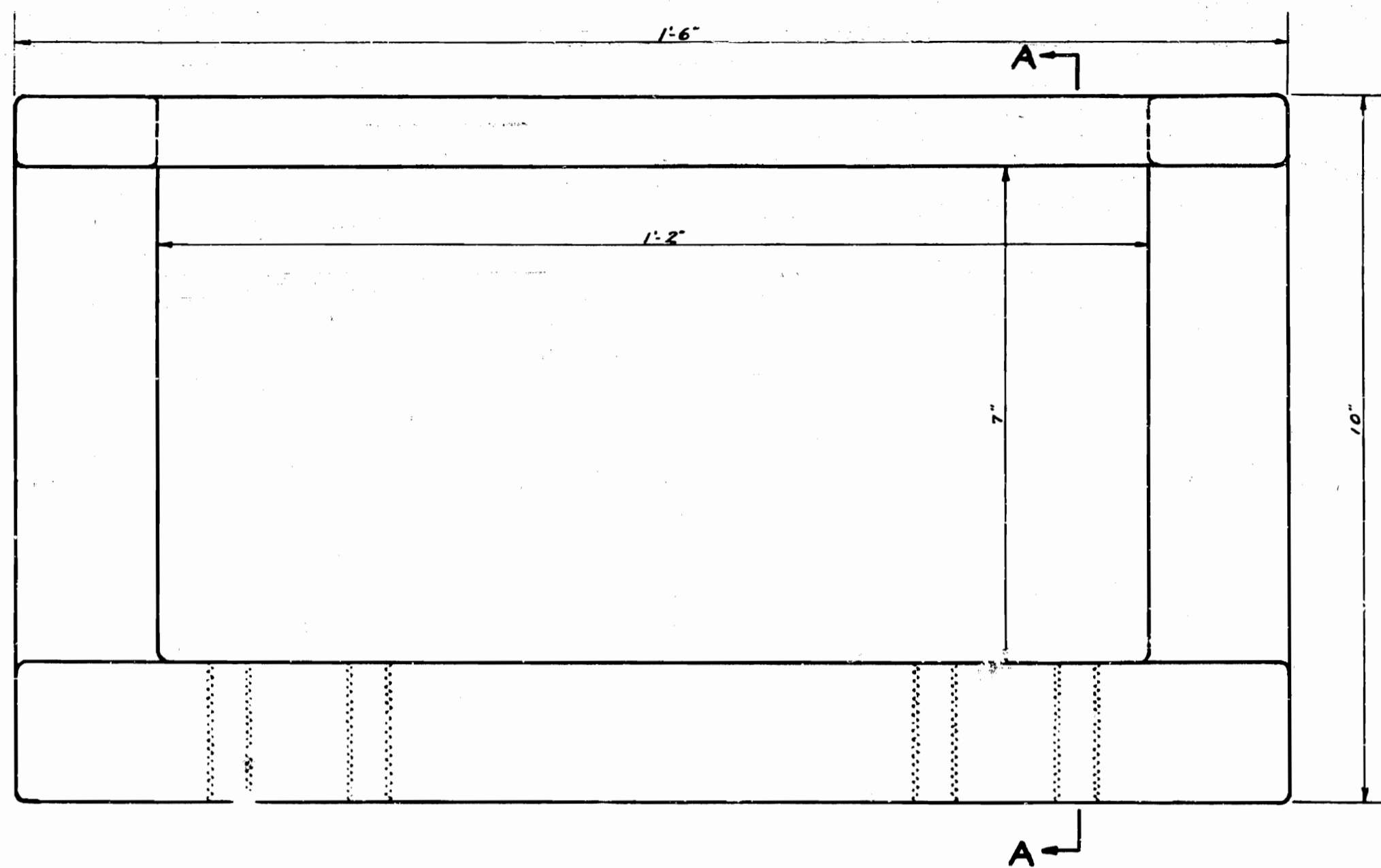
APPROVED  
DATED *October 1929*  
NO 9



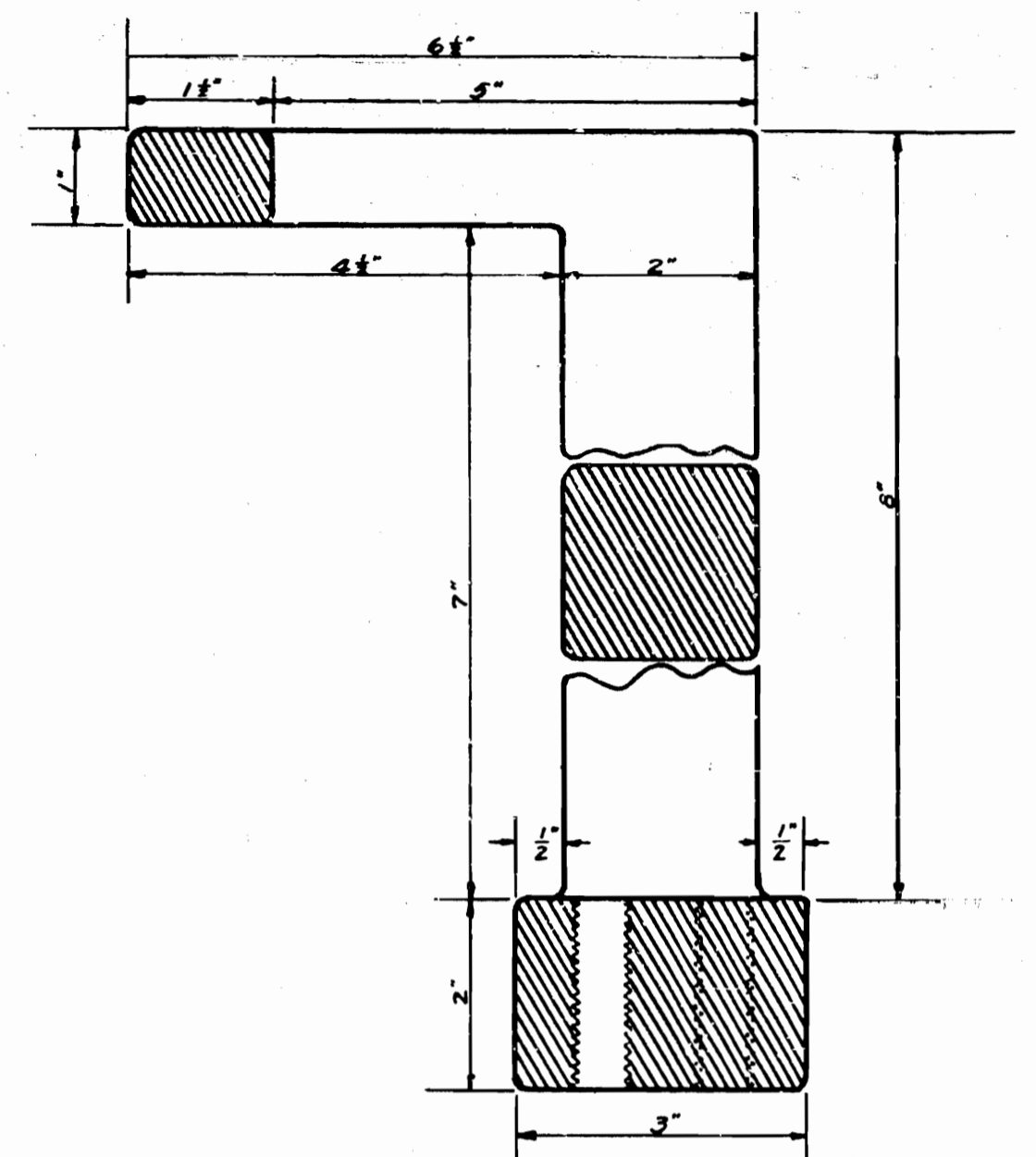
Drill holes in ladder support and anchor plate at the same time.

Scale:  $\frac{1}{4}'' = 1'$

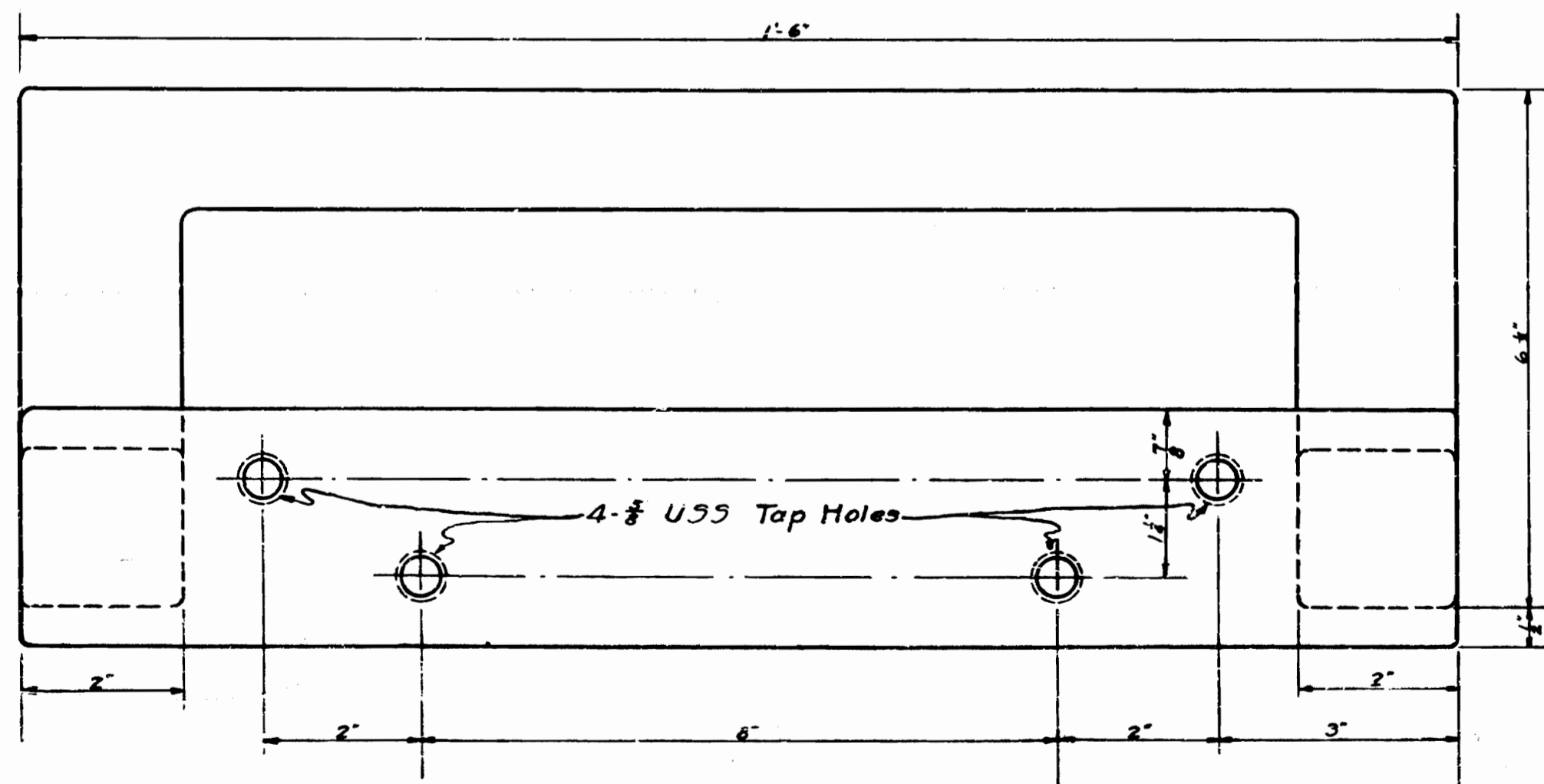
NO 10



PLAN



SECTION "AA"



FRONT VIEW

LADDER ANCHOR PLATE  
FOR  
CONSTRUCTION SHAFT.

Weight of casting about 55 lbs.

ELM PARK RELIEF SEWER

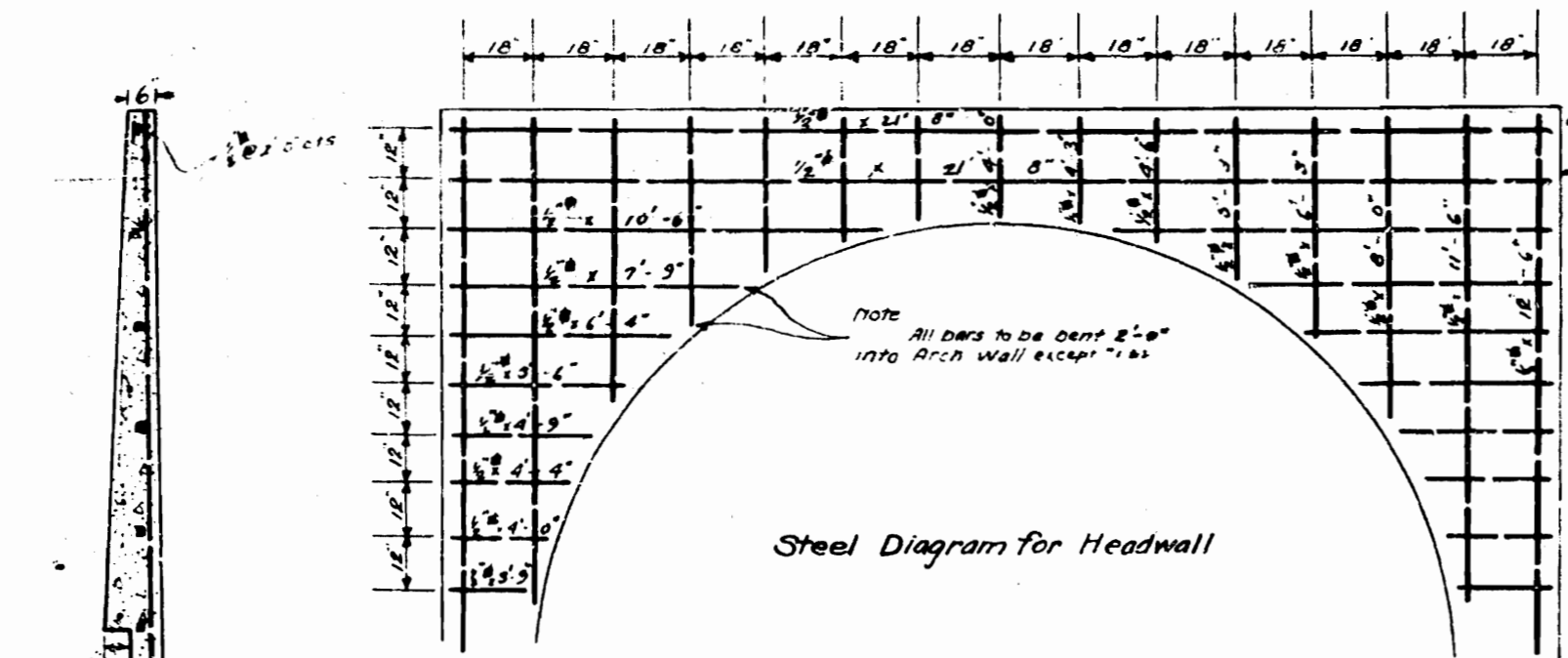
OFFICE OF THE CITY ENGINEER  
TULSA OKLAHOMA

DRAWN BY *W.E.*  
TRACED BY *W.E.*  
CHECKED BY *A.E.W.*  
SCALE 1/2" = 1"

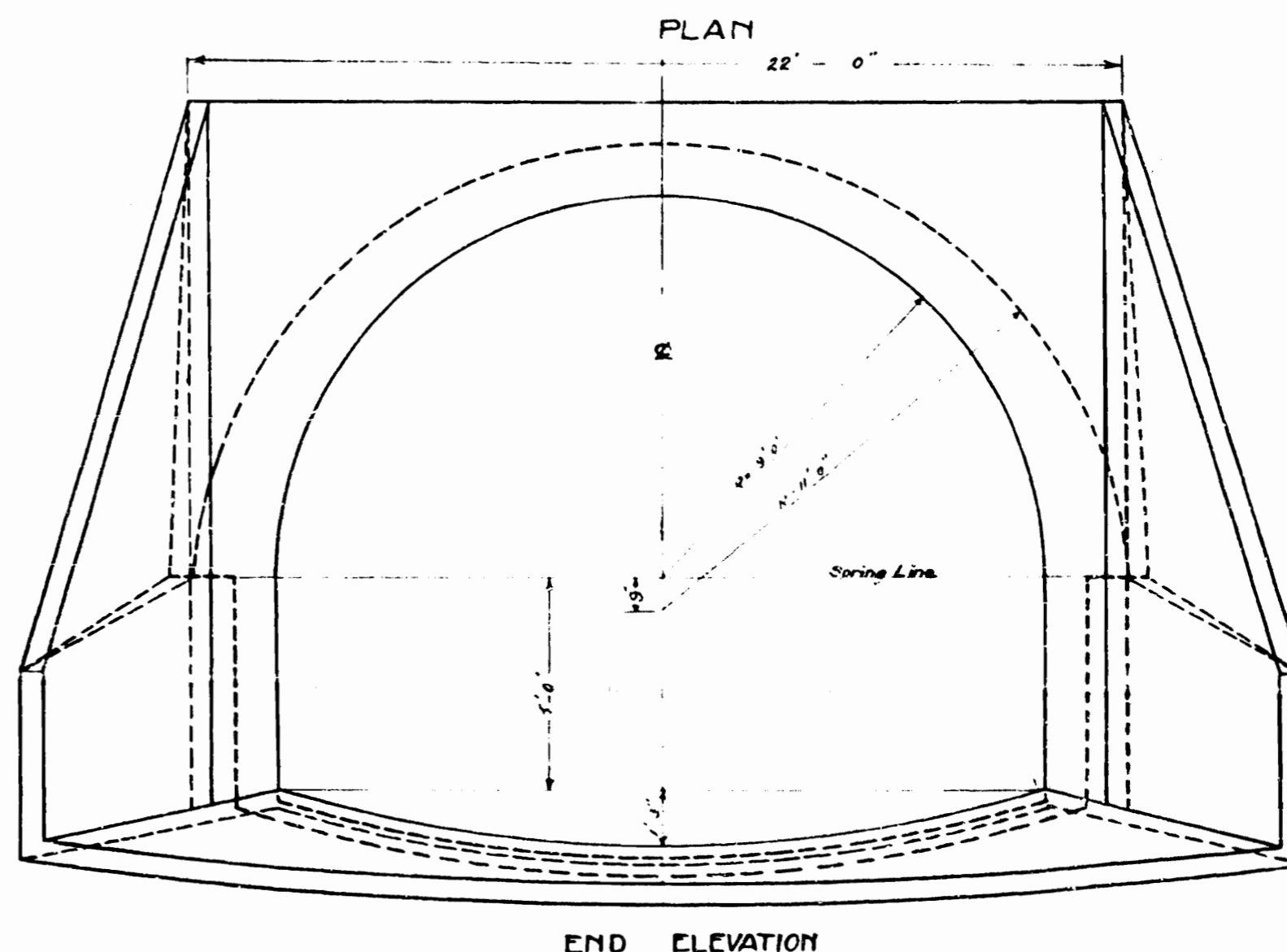
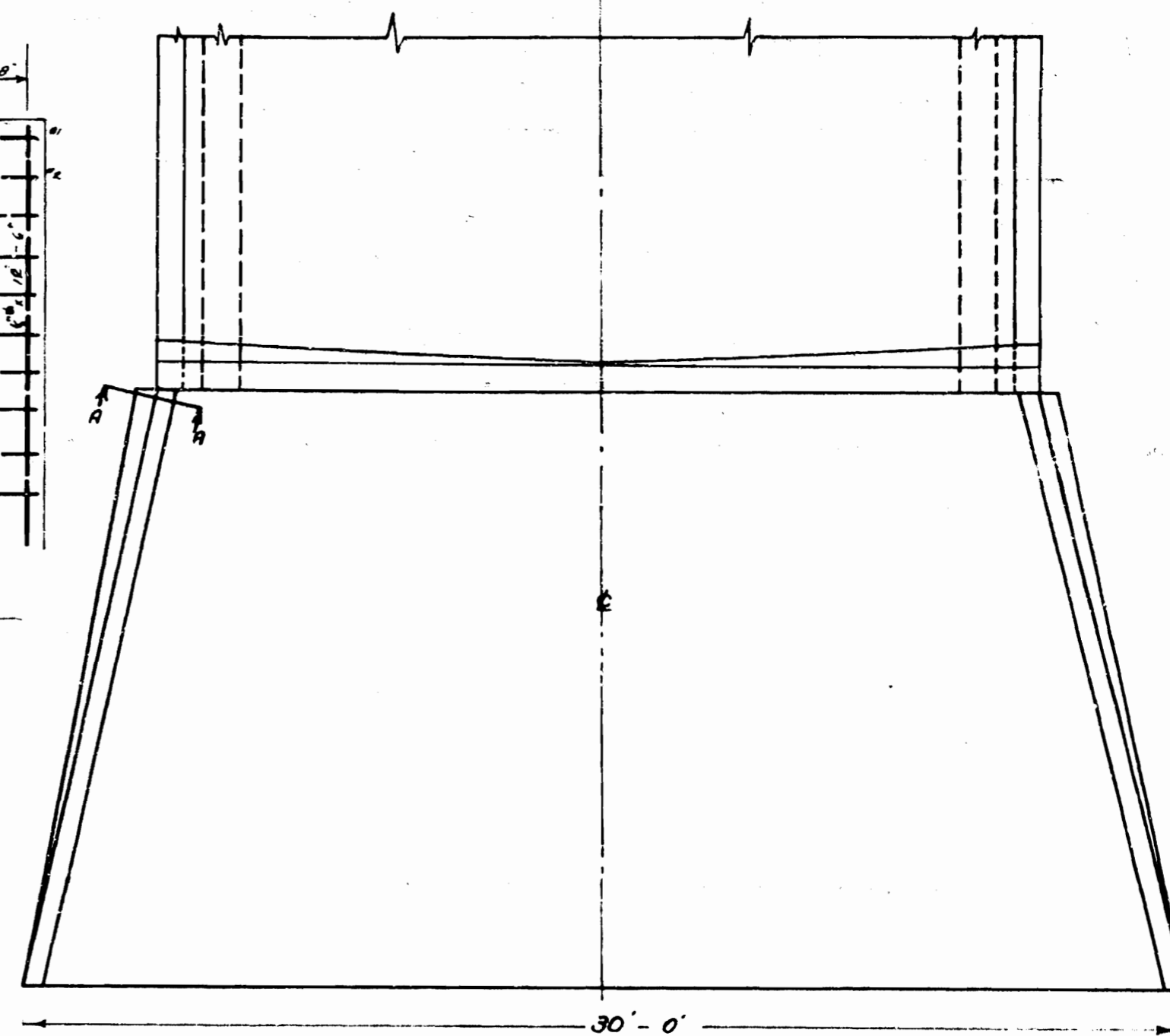
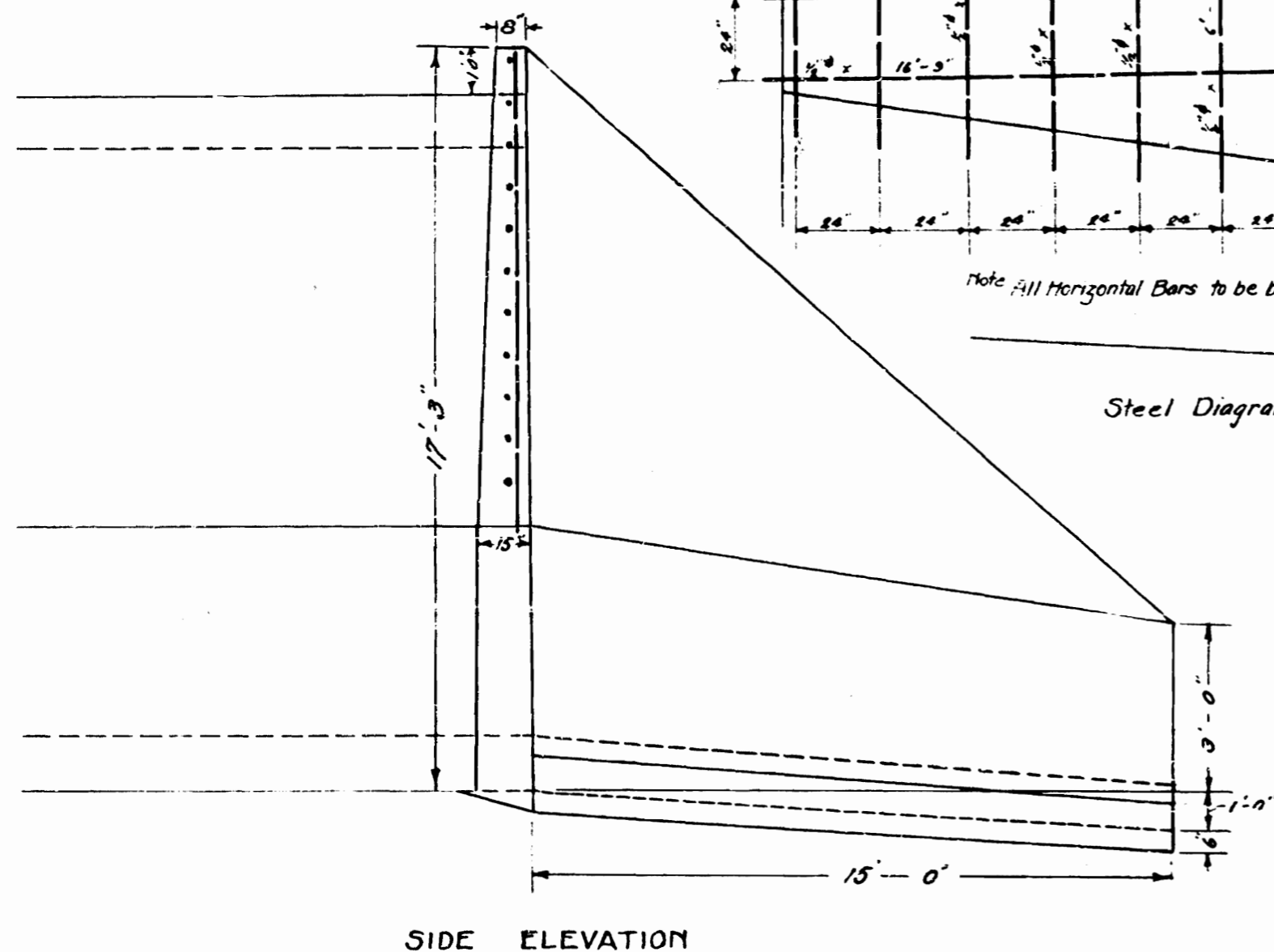
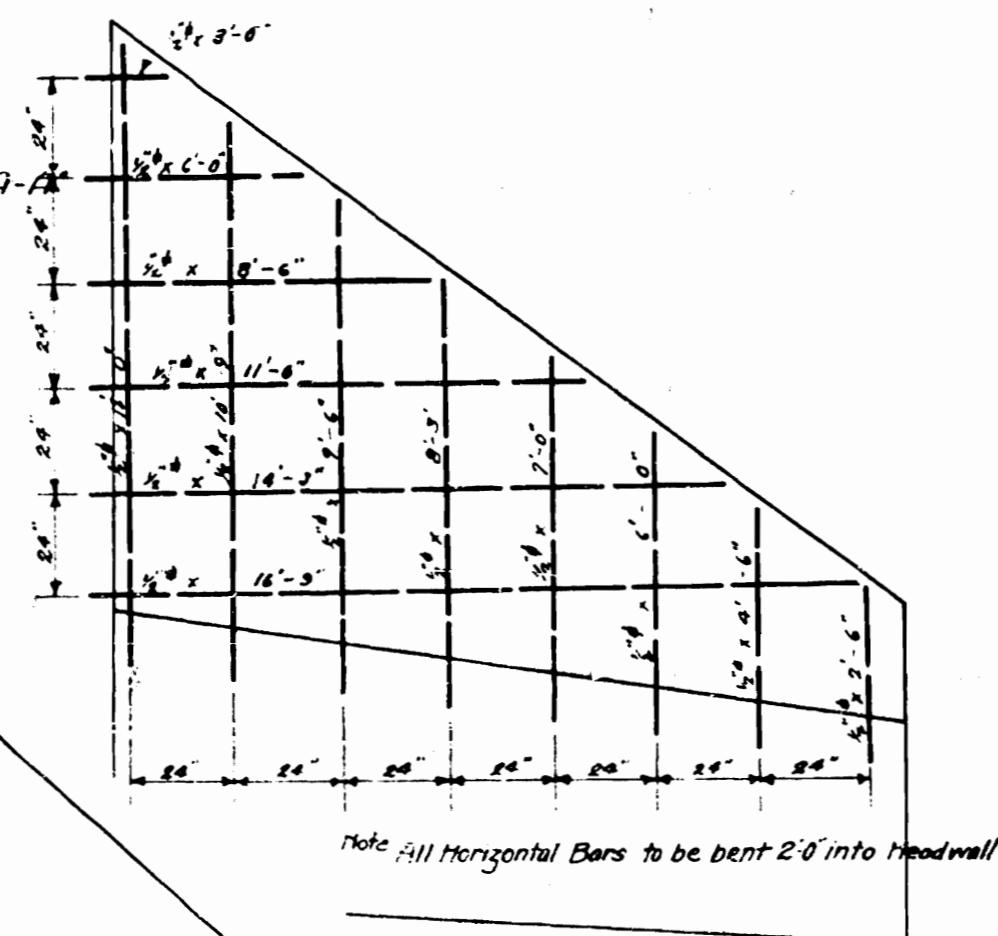
APPROVED

DATED *October, 1922.*

NO 11



MAXIMUM SECTION  
OF WINGWALL AT A-A



3898 Cu Yds. Concrete  
41939 Lbs. Reinf. Steel

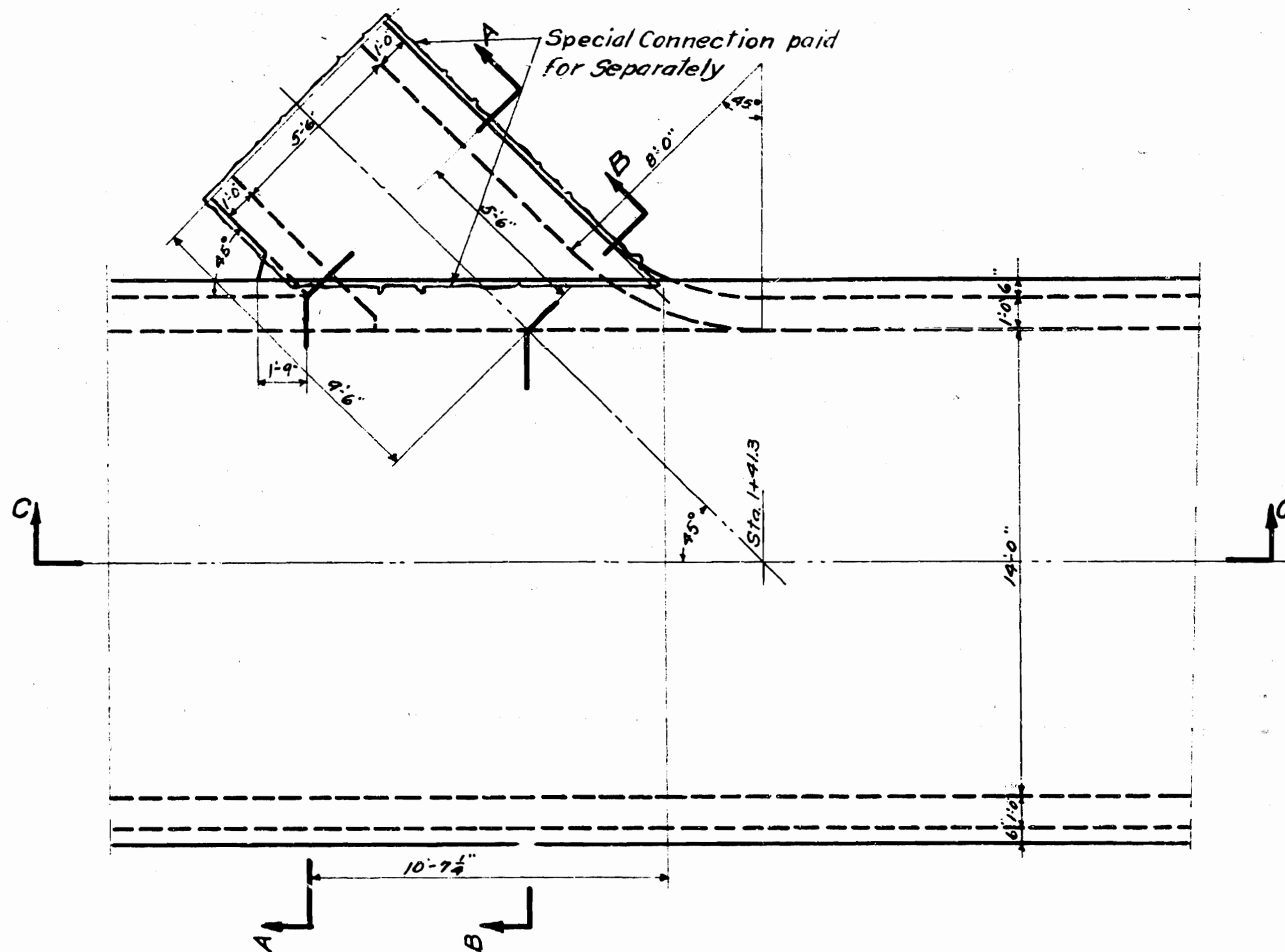
DETAIL OF HEADWALL  
AT OUTLET

ELM PARK RELIEF SEWER

OFFICE OF THE CITY ENGINEER  
TULSA OKLAHOMA

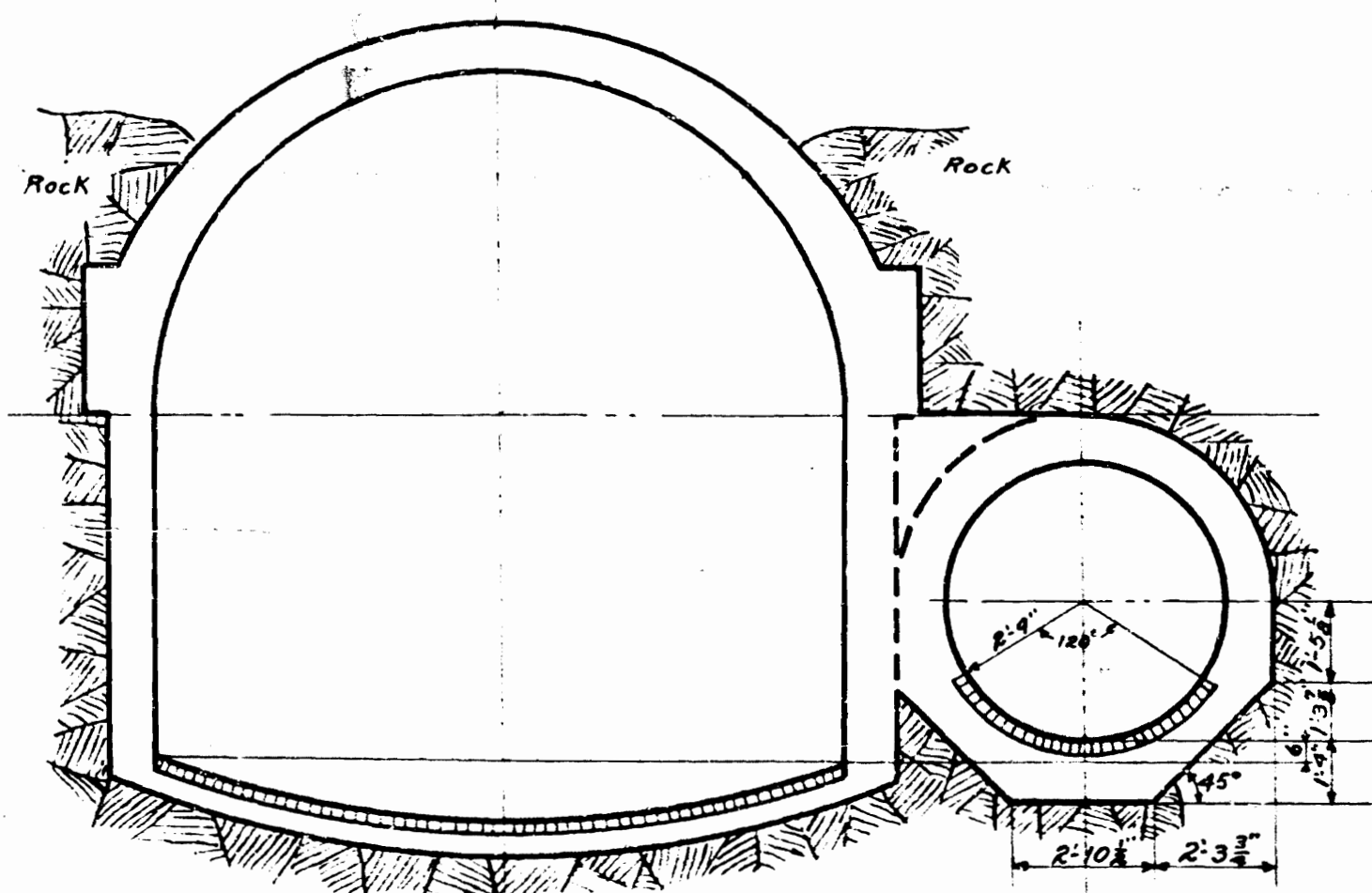
DRAWN BY: *Reanon*  
TRACED BY: *Reanon*  
CHECKED BY: *H.E.W.*  
SCALE  $\frac{1}{4} = 1'-0"$

APPROVED  
DATED *October 1922*  
NO 12

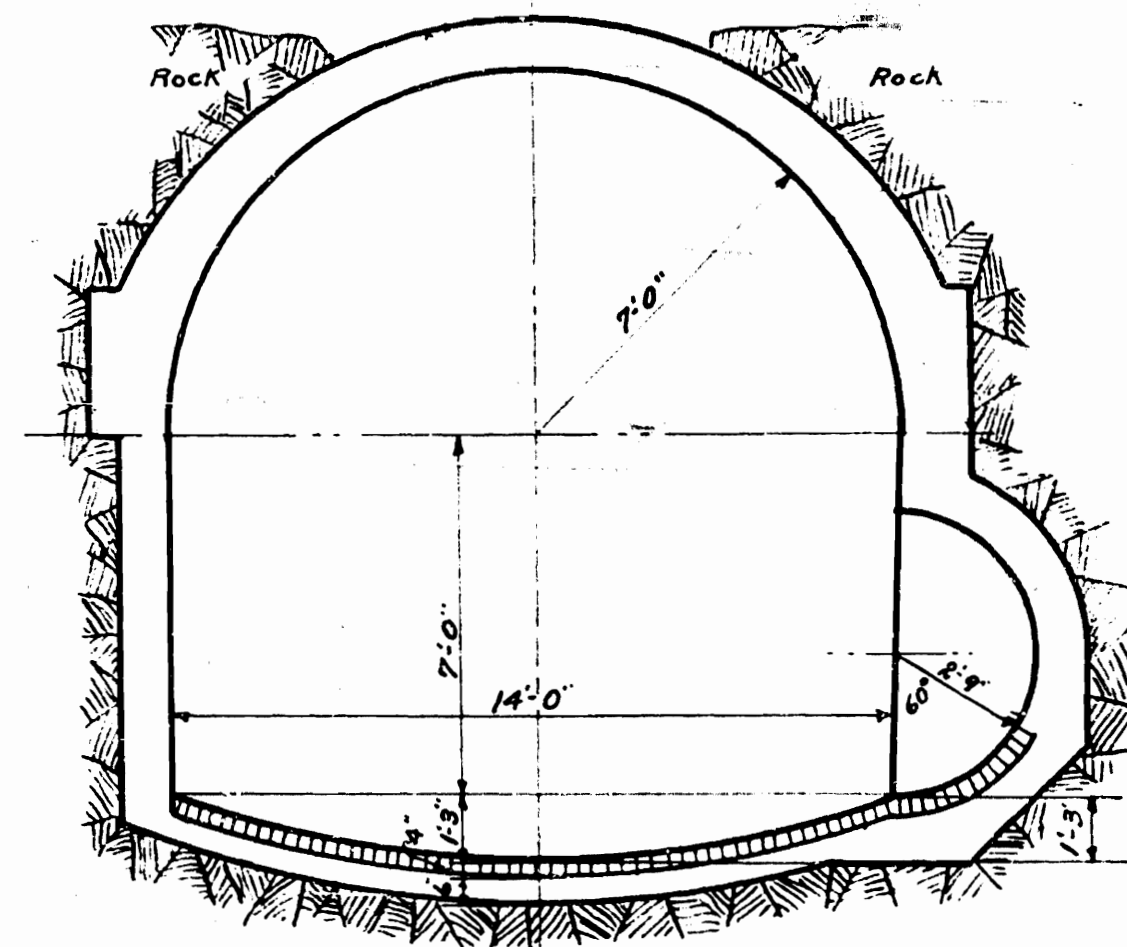


### PLAN

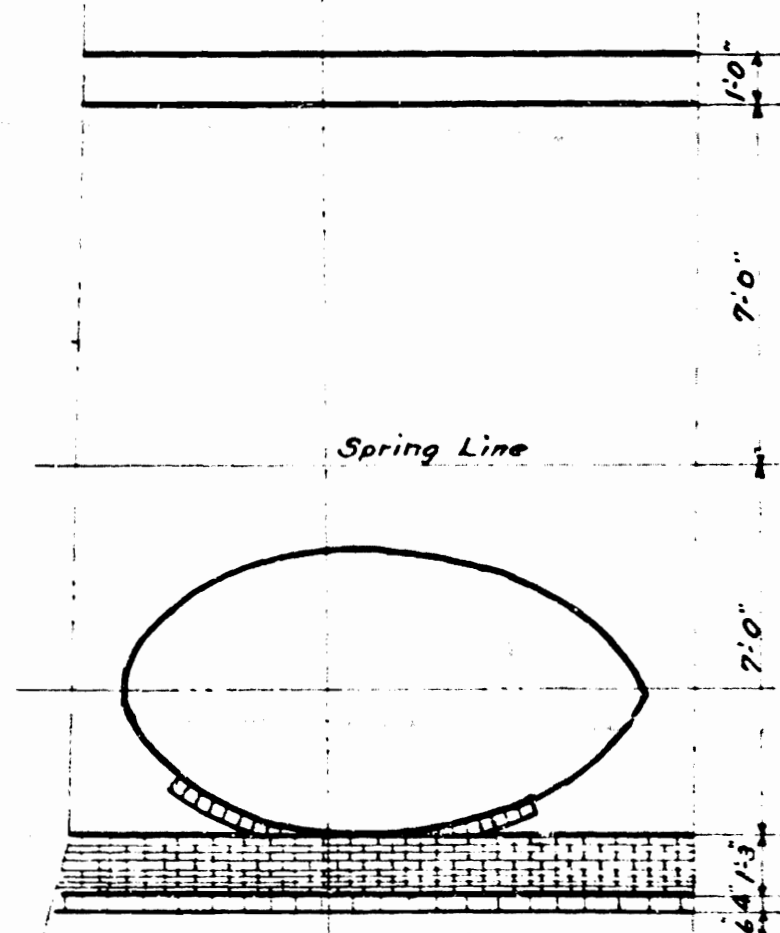
7.293 Cu.Yds. Concrete  
 0.590 Cu.Yds. Brick or 5.31 Sq.Yds.  
 15.244 Cu.Yds. Rock Excav.



SECTION A-A



SECTION B-B



SECTION C-C

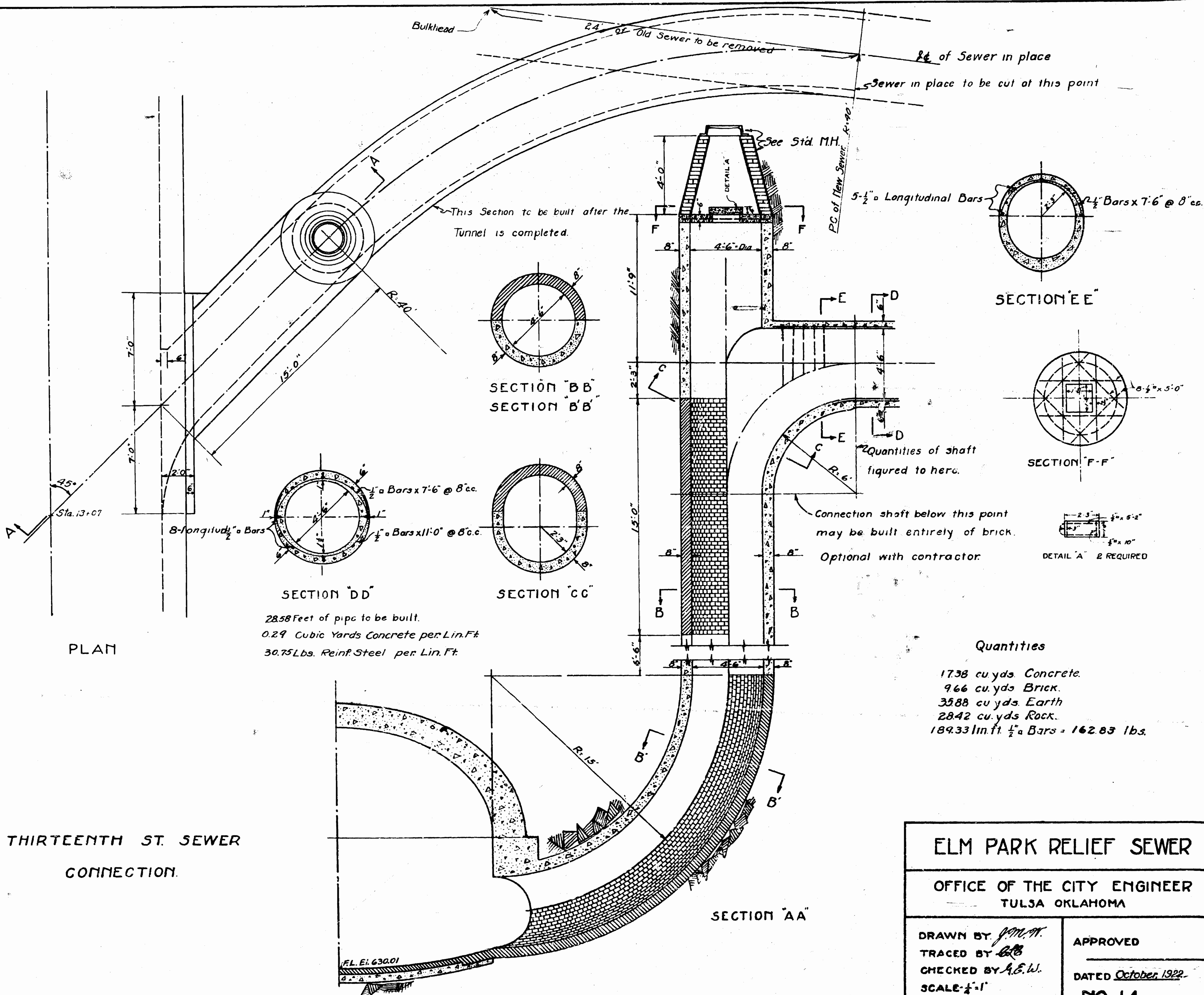
SPECIAL CONNECTION  
 TO BE USED AT ELEVENTH ST.

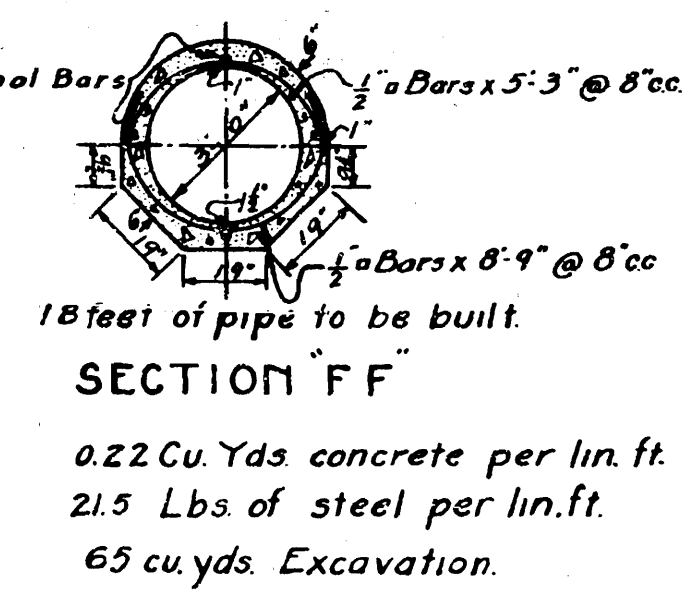
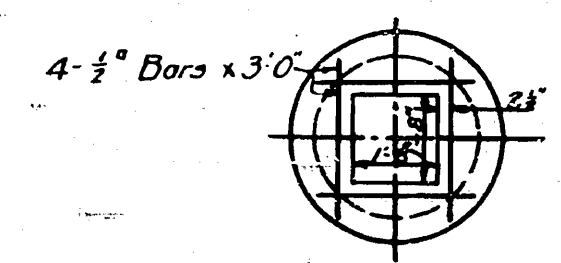
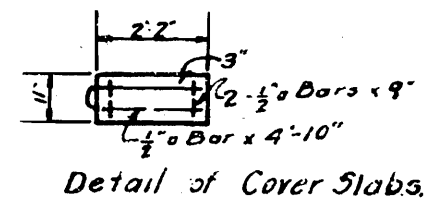
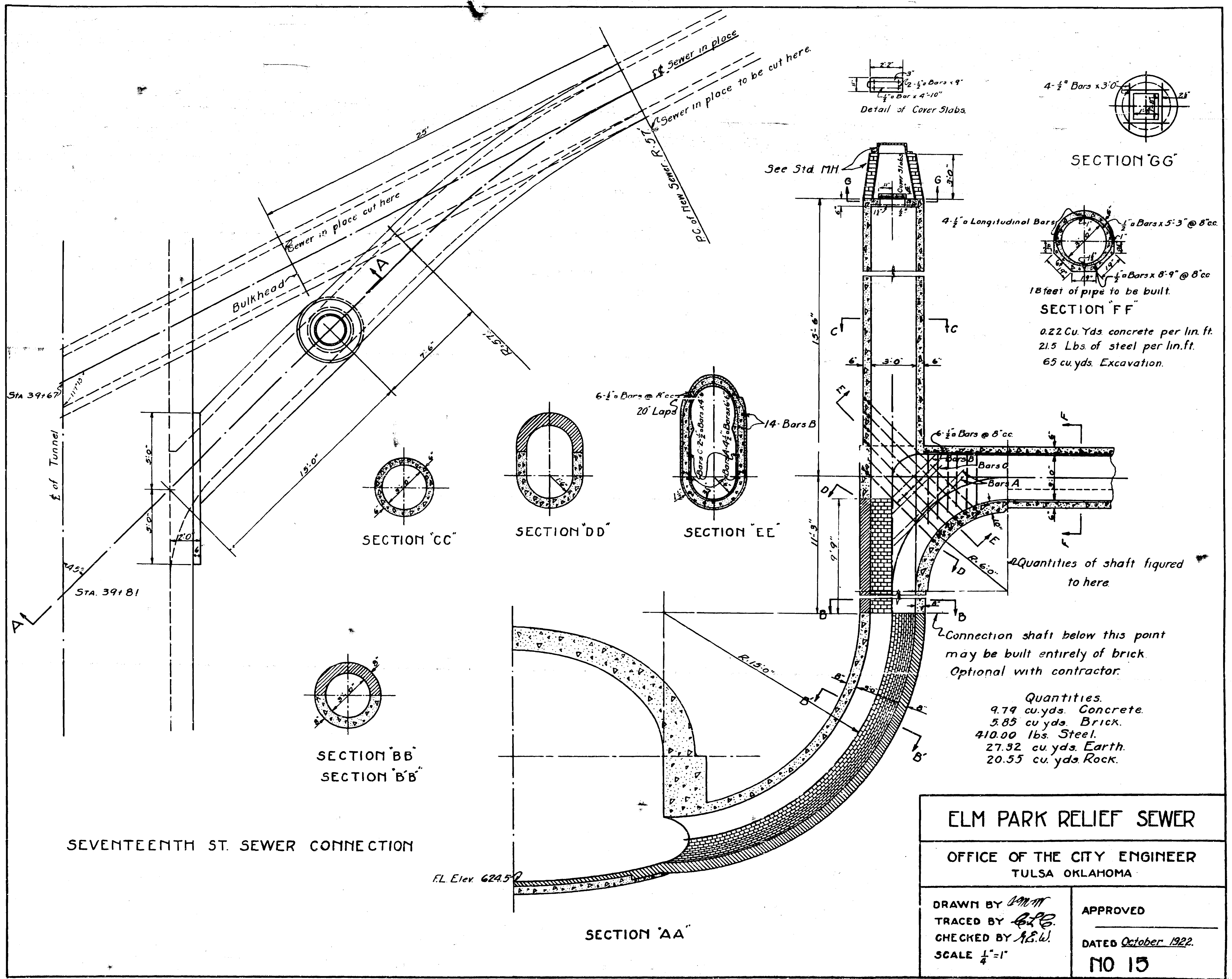
ELM PARK RELIEF SEWER

OFFICE OF THE CITY ENGINEER  
 TULSA, OKLAHOMA.

DRAWN BY *J. H. H. H.*  
 TRACED BY *J. M. M.*  
 CHECKED BY *J. E. W.*  
 SCALE 1/4"=1'

APPROVED  
 DATED *October 1922*  
 NO. 13





Quantities.  
9.74 cu. yds. Concrete.  
5.85 cu. yds. Brick.  
410.00 lbs. Steel.  
27.32 cu. yds. Earth.  
20.55 cu. yds. Rock.

# ELM PARK RELIEF SEWER

OFFICE OF THE CITY ENGINEER  
TULSA OKLAHOMA

DRAWN BY *W.M.H.*  
TRACED BY *G.E.*  
CHECKED BY *H.E.W.*  
SCALE  $\frac{1}{4}" = 1'$

APPROVED \_\_\_\_\_  
DATED *October 1922.*  
NO 13

SEVENTEENTH ST. SEWER CONNECTION

SECTION 'AA'

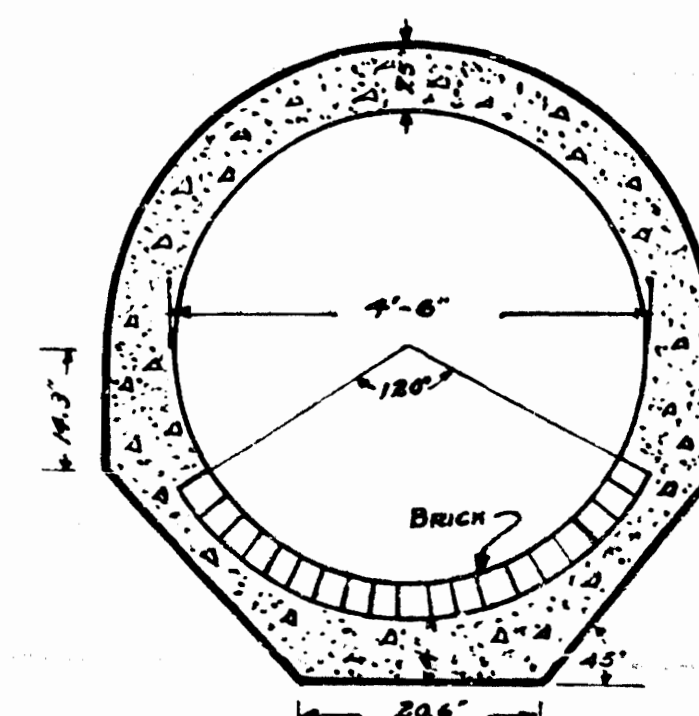
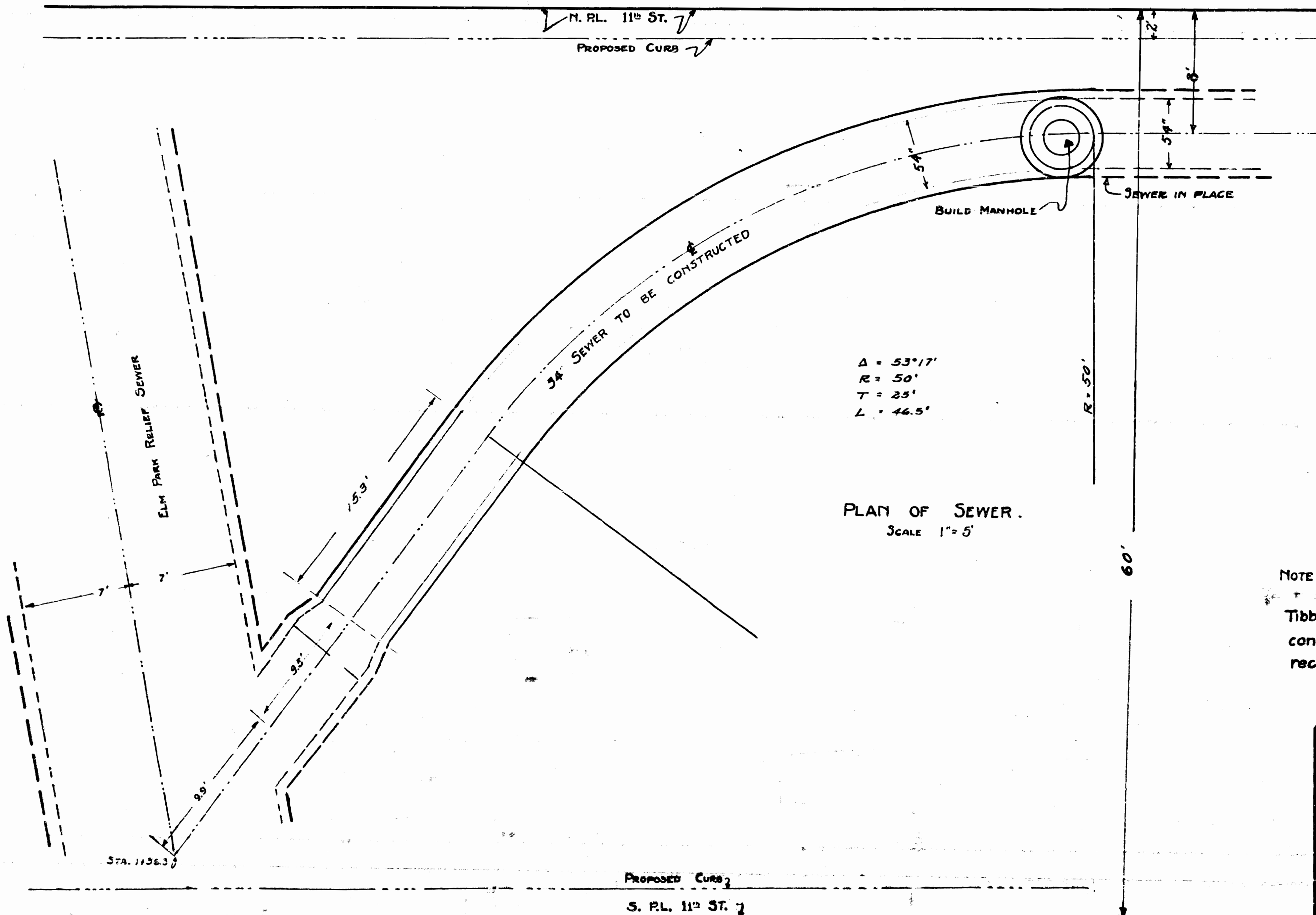
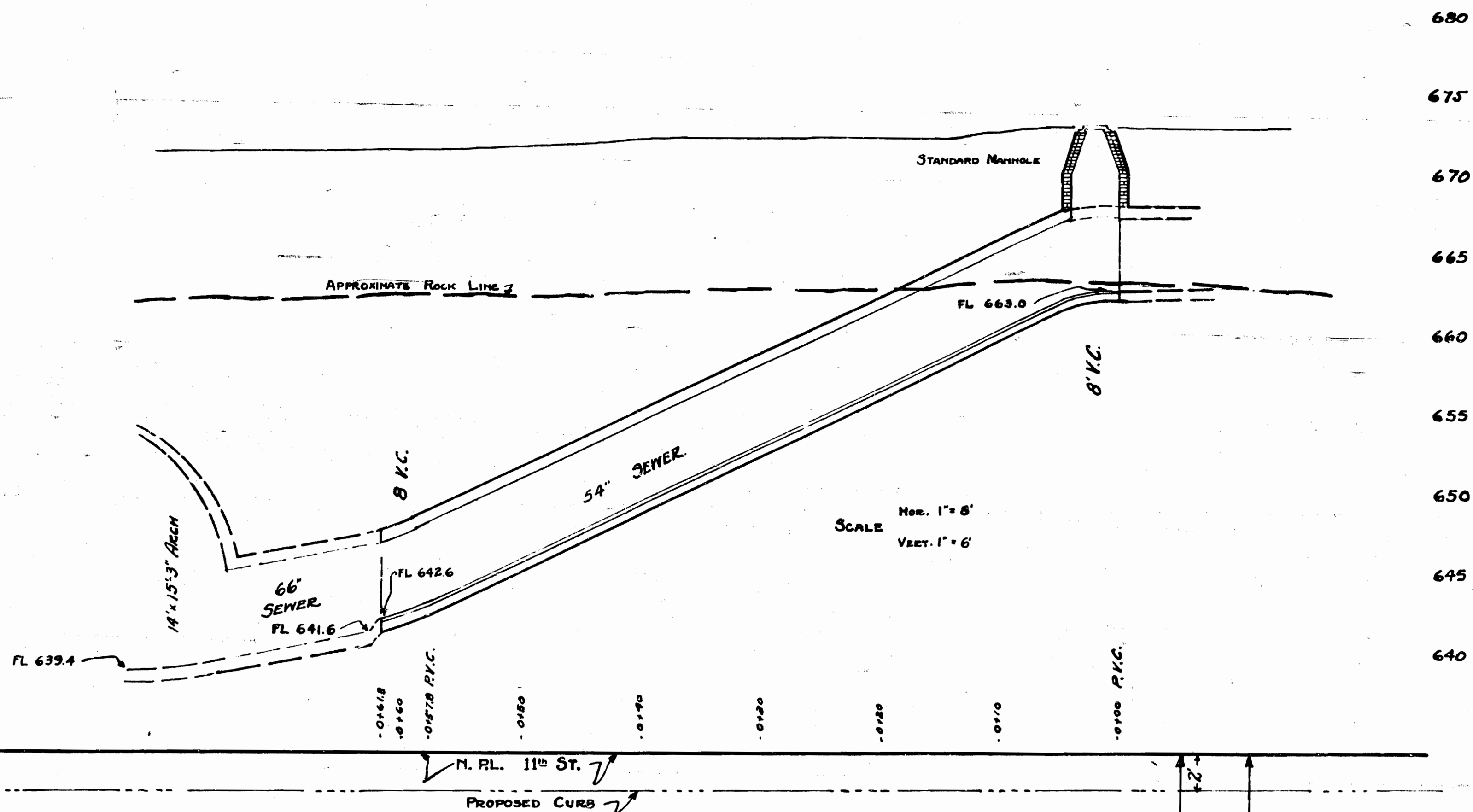
SECTION 'BB'

SECTION 'B'B'

SECTION 'CC'

SECTION 'DD'

SECTION 'EE'



CROSS SECTION OF SEWER.  
SCALE 1/2" = 1'

NOTE:-  
Arrangements made 2-27-24 with Tibbets & Pleasant Inc., to do this work in connection with Job 1-W. They are to receive \$2,250.00 compensation.

THE JUNCTION OF THE ELEVENTH ST., AND ELM PARK STORM SEWERS.	
OFFICE OF THE CITY ENGINEER TULSA, OKLAHOMA.	
DRAWN BY T. Tibbets.	APPROVED
TRACED BY T. Tibbets.	
CHECKED BY G.E.W.	DATED 2-27-25
SCALE VER.	