

CITY OF PORTLAND
WILLIAM A. BOWES, COMMISSIONER
DEPARTMENT OF PUBLIC WORKS
STANDARDS
OFFICE OF THE CITY ENGINEER

DEPARTMENT OF PUBLIC WORKS

INDEX

1. Street Warning Sign and Standard
4. Standard Alley Crosswalk
7. Offset in Curb Where Curblines have been Reestablished
- 11-A. Standard Driveways in Combination Sidewalks
- 12-B. Service Driveways
13. Concrete Guard Post
14. Guard Fence Concrete Posts
- 14-A. Laminated Guard Fence and Concrete Post
15. Wood Guard Fence
16. Wood Guard Fence
17. Reinforced Concrete Plank for Railroad Track
18. Special Inlet and Cover
20. Temporary Wooden Fence
22. Wooden Inlet and Grate
23. Pipe Guard Rail
24. House Branches to Deep Sewers
25. Pre-Cast Sump
26. Cast Steel Inlet Grating With Framing
- 26-A. Extra Heavy Inlet Frame
27. Concrete Inlet
- 27-A. Bottomless Catch Basin
28. Wrought Iron Inlet Grating
32. Manhole Frame and Cover
33. Concrete Manhole

(Continued)

DEPARTMENT OF PUBLIC WORKS

INDEX

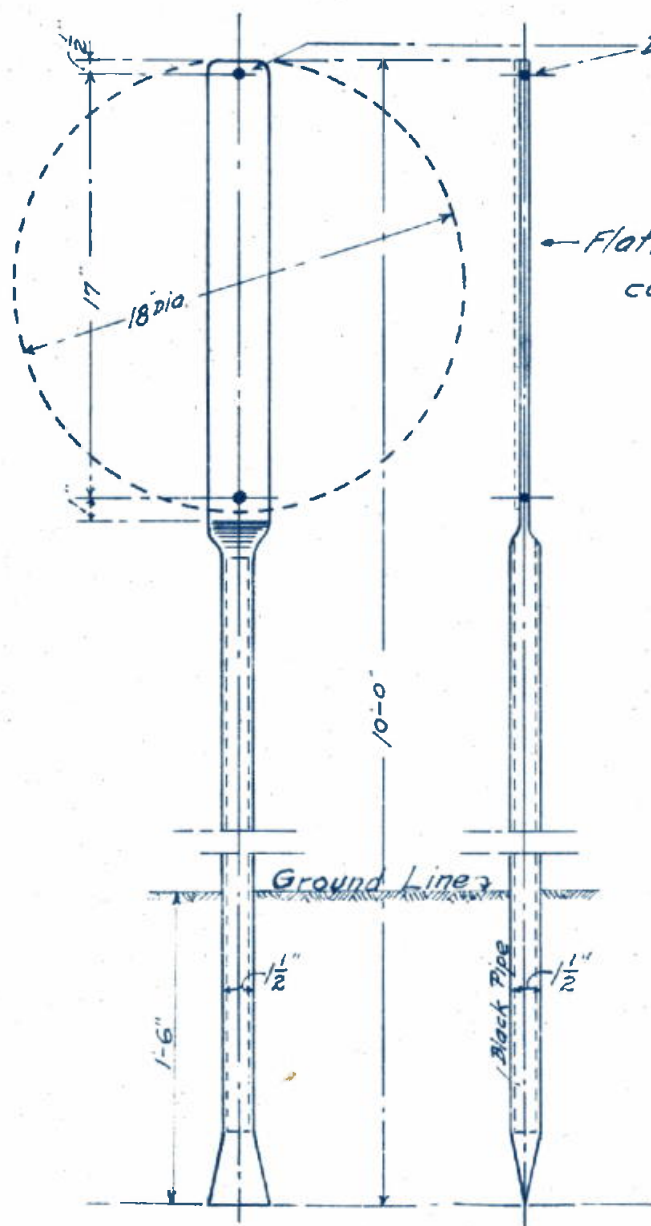
- 34. Concrete Drop Manhole
- 35. Drop Connection For Manhole
- 36. Manhole For Concrete Pipe Sewers
- 37. Class "D" Monument Frame and Cover
- 37-A. Monument Cover to Fit Old Style Frames
- 38. Outlet Showing Connection with Catch Basin
- 40. Special Manhole Reconstruction
- 42. Special Manhole Cover & Reconstruction for Top of Standard Manhole
- 54. Wooden Inlet Grating
- 58. Concrete Sidewalk & Sidewalk Corners
- 73. Standard Barricade
- 76. Method of Supporting Precast Portions of Concrete Posts while Base Portions are Being Poured
- 79. Guardrail
- 80. Safety Island For Service Station Driveways
- 81-A. 6-Inch Sewer Pipe Laid in Concrete on Slopes
- 81-B. Sewer Pipe Laid in Concrete on Slopes
- 81-C. 15-Inch Sewer Pipe Laid in Concrete on Slopes
- 81-D. 18-Inch Sewer Pipe Laid in Concrete on Slopes
- 81-E. 21-Inch Sewer Pipe Laid in Concrete on Slopes
- 81-F. Sewer Pipe Laid in Concrete on Slopes
- 81-G. Sewer Pipe Laid in Concrete on Slopes
- 83 . Method of Tying Curb to Pavement
- 84 . Cross Section of Combination Curb & Gutter
- 85 . Typical Construction for Changing Sidewalk Corners with 3' Radius to 12' Radius When Over Basement Area

(Continued)

DEPARTMENT OF PUBLIC WORKS

INDEX

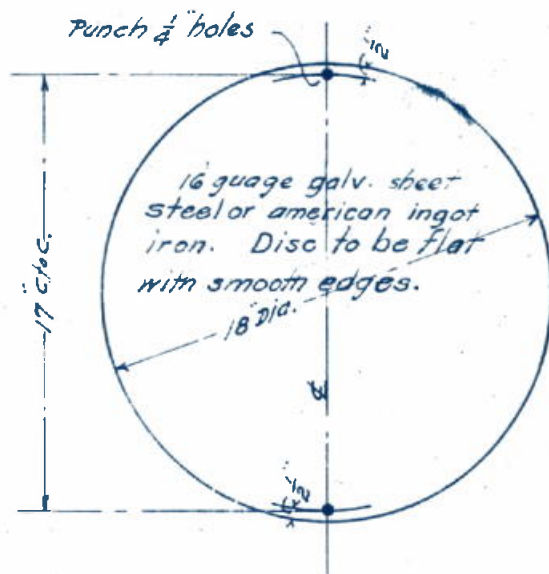
- 88. Anchor Walls
- 89. Sampling Manhole
- 91-A. Typical Sections for R.R. Track Construction (Alternate No. 1)
- 91-B. Typical Sections for R.R. Track Construction (Alternate No. 2)
- 96. Wrought Iron Step



STANDARD

Drill 2- $\frac{1}{4}$ " holes to template
Holes to line up with centerline
of pipe.

Flatten this portion
cold against itself.



WARNING SIGN

Sign bolted to standard with
 $\frac{3}{16}$ " ϕ x $\frac{3}{4}$ " Galv. stove bolts.

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

STREET WARNING SIGN
AND
STANDARD

APPROVED:

[Signature]

DATE 8-17-59

CITY ENGINEER
REG. PROF. ENGR. NO. 1397 Mar. 1929

DRAWN BY E.L.W.

DATE Nov. 23, 19.

TRACED BY

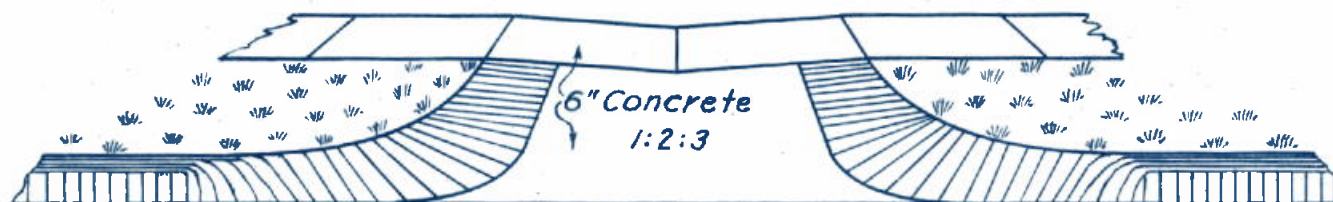
CHECKED BY B.S.H.

SCALE $\frac{1}{2}$ " = 1 Ft.

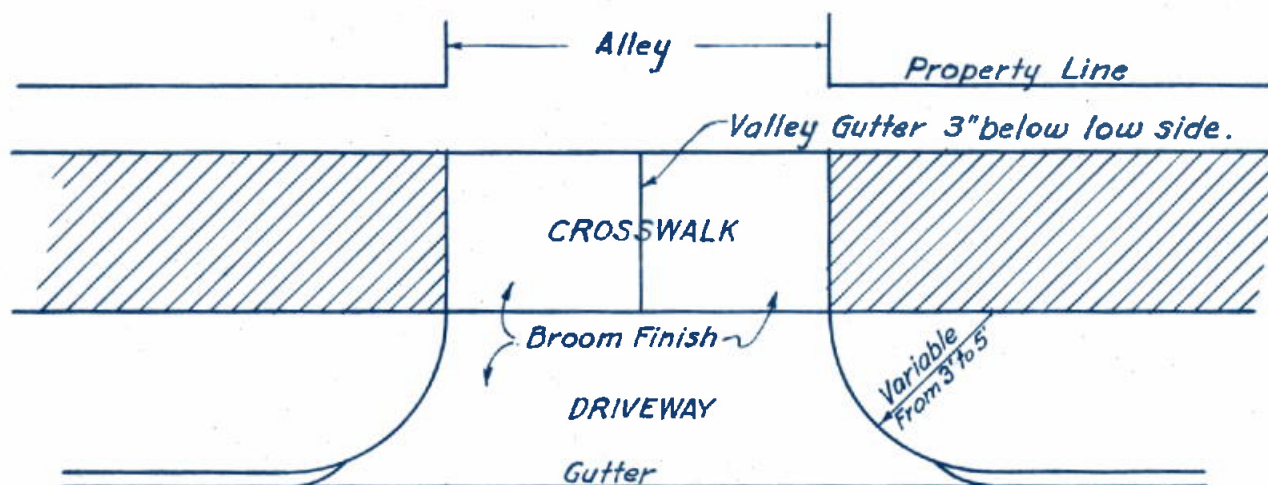
Revised 10-19-16.

4

CITY OF PORTLAND, OREGON
DEPT. OF PUBLIC WORKS
STANDARD ALLEY CROSSWALK



NOTE: Omit valley gutter if alley slopes away from sidewalk



APPROVED

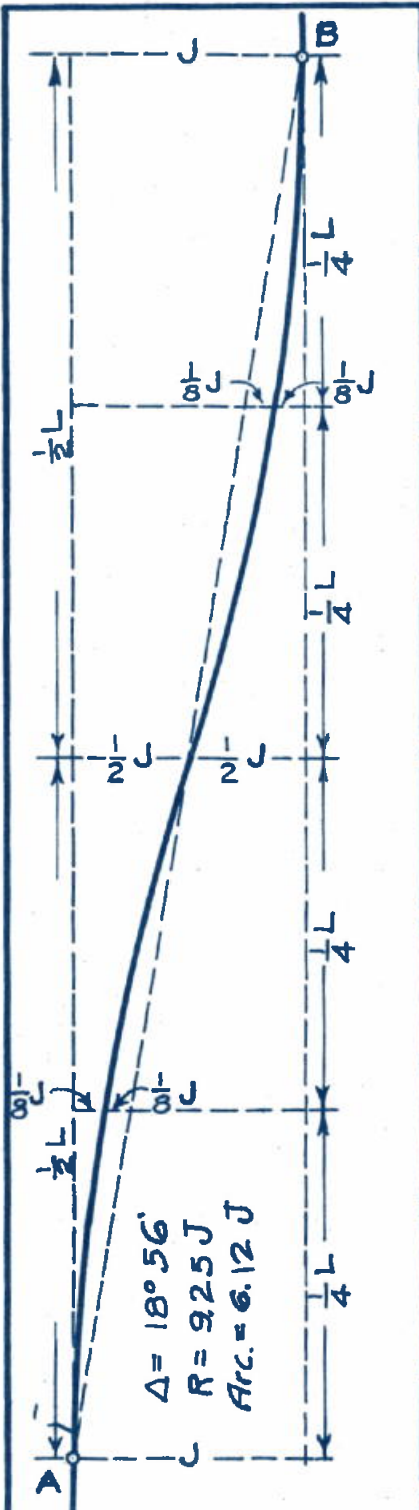
[Signature]

DATE 8-26-59

CITY ENGINEER

REG. PROF. ENG. NO. 1397, Mar. 1929

Feb. 1945 F.D.T.



J = Jog or offset in curb.
L = 6 times J = Length in which to offset.

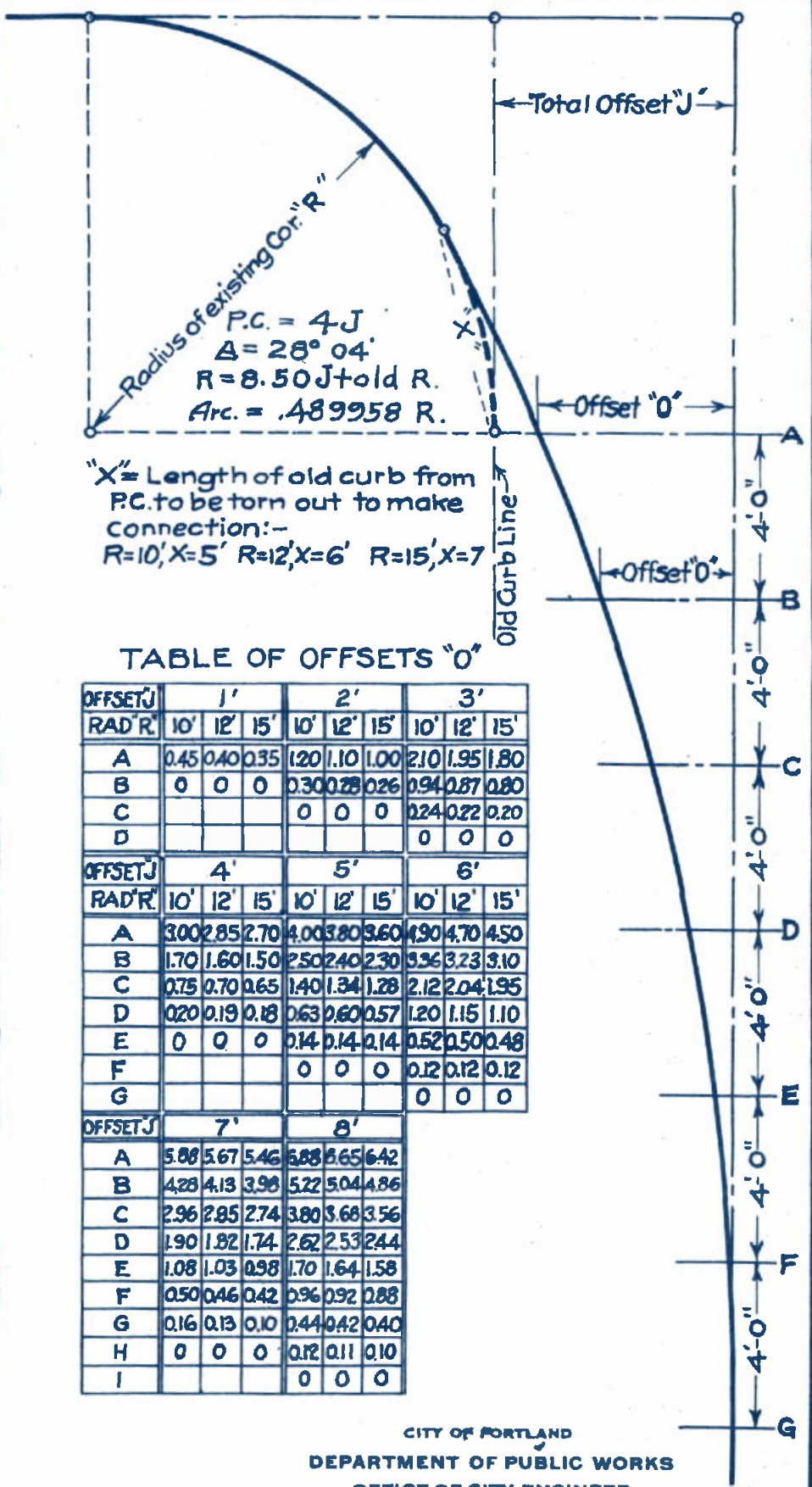
Stretch cord from A to B and fix the intermediate points on the curb by the offsets given.

APPROVED
[Signature]
City Engineer

8-26-59
(Date)

Reg. Prof. Engr. No. 1397, Mar. 1929

REVISED..... May 1, 1923



P.C. = 4J
Δ = 28° 04'
R = 8.50J + old R.
Arc = .489958 R.

"X" = Length of old curb from P.C. to be torn out to make connection:-
R=10', X=5' R=12', X=6' R=15', X=7'

TABLE OF OFFSETS "O"

OFFSET J	1'			2'			3'		
RAD R'	10'	12'	15'	10'	12'	15'	10'	12'	15'
A	0.45	0.40	0.35	1.20	1.10	1.00	2.10	1.95	1.80
B	0	0	0	0.30	0.28	0.26	0.94	0.87	0.80
C				0	0	0	0.24	0.22	0.20
D							0	0	0
OFFSET J	4'			5'			6'		
RAD R'	10'	12'	15'	10'	12'	15'	10'	12'	15'
A	3.00	2.85	2.70	4.00	3.80	3.60	4.90	4.70	4.50
B	1.70	1.60	1.50	2.50	2.40	2.30	3.36	3.23	3.10
C	0.75	0.70	0.65	1.40	1.34	1.28	2.12	2.04	1.95
D	0.20	0.19	0.18	0.63	0.60	0.57	1.20	1.15	1.10
E	0	0	0	0.14	0.14	0.14	0.52	0.50	0.48
F				0	0	0	0.12	0.12	0.12
G							0	0	0
OFFSET J	7'			8'					
RAD R'	10'	12'	15'	10'	12'	15'			
A	5.88	5.67	5.46	6.88	6.65	6.42			
B	4.28	4.13	3.98	5.22	5.04	4.86			
C	2.96	2.85	2.74	3.80	3.68	3.56			
D	1.90	1.82	1.74	2.62	2.53	2.44			
E	1.08	1.03	0.98	1.70	1.64	1.58			
F	0.50	0.46	0.42	0.96	0.92	0.88			
G	0.16	0.13	0.10	0.44	0.42	0.40			
H	0	0	0	0.12	0.11	0.10			
I				0	0	0			

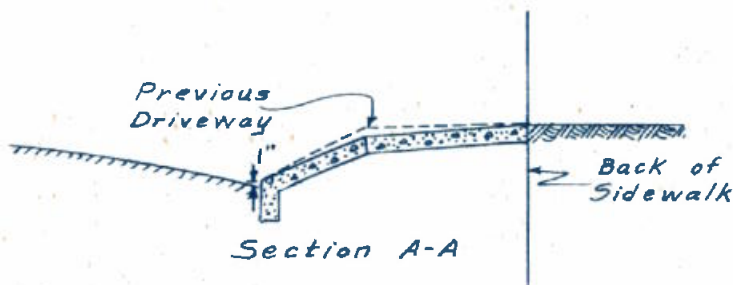
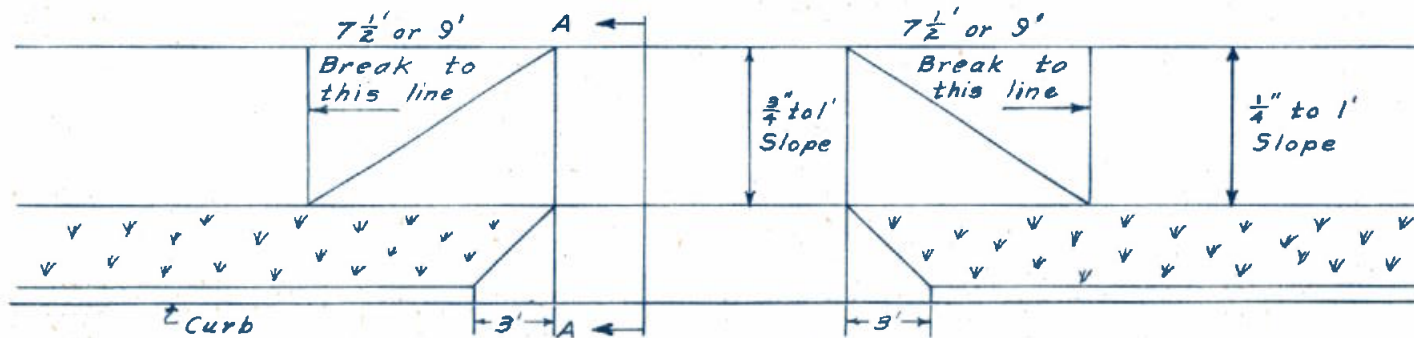
CITY OF PORTLAND
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

OFFSET IN CURB
WHERE CURBLINES HAVE BEEN
REESTABLISHED

DRAWN BY F.T.F.
TRACED BY F.T.F.

MAR-1-1919
RETRACED SEPT. 1939, L.F.S.

(II B-SPECIAL)



NOTE:

Driveway to be constructed of 3000# concrete 6" thick.

This driveway for reconstruction of existing driveway where cars are hanging up. (usually where curb to sidewalk is less than 3 feet)

CITY OF PORTLAND, OREGON
SPECIAL DRIVEWAY DETAIL TO BE USED
ONLY WITH CONSENT OF CITY ENGINEER

[Signature]

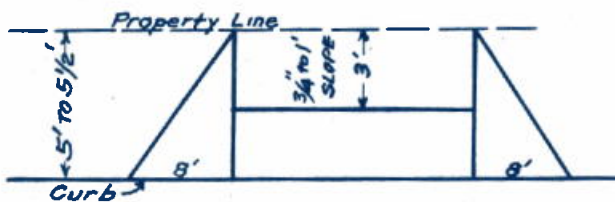
CITY ENGINEER

5-24-60

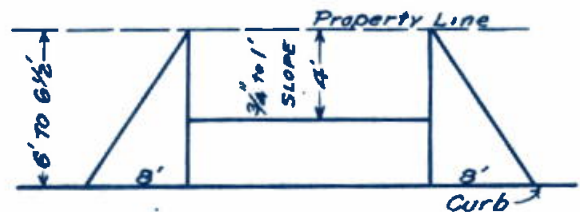
DATE

REG. PROF. ENGR. NO. 1397

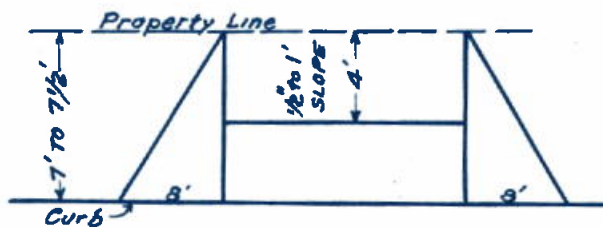
11-A



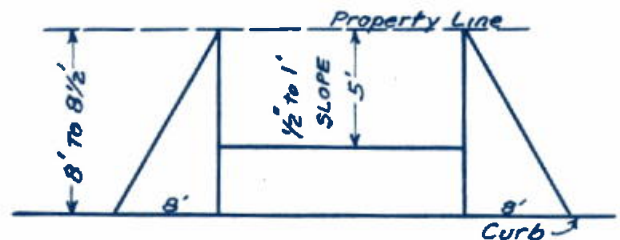
5' TO 5 1/2' COMB.



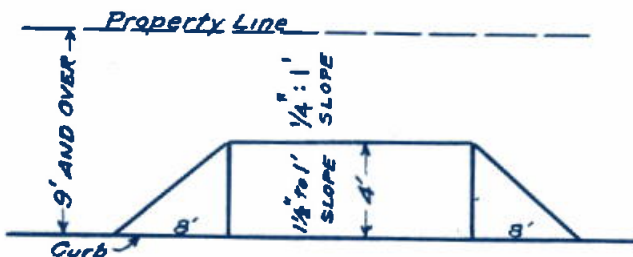
6' TO 6 1/2' COMB.



7' TO 7 1/2' COMB.



8' TO 8 1/2' COMB.



9' AND OVER COMB.



TYPICAL FRONT VIEW
OF ABOVE DRIVEWAYS

APPROVED :

Gordon L. Burt

DATE 7-23-57

CITY ENGINEER

REG. PROF. ENGR. NO. 3077, May, 1950

CITY OF PORTLAND, OREGON
DEPT. OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

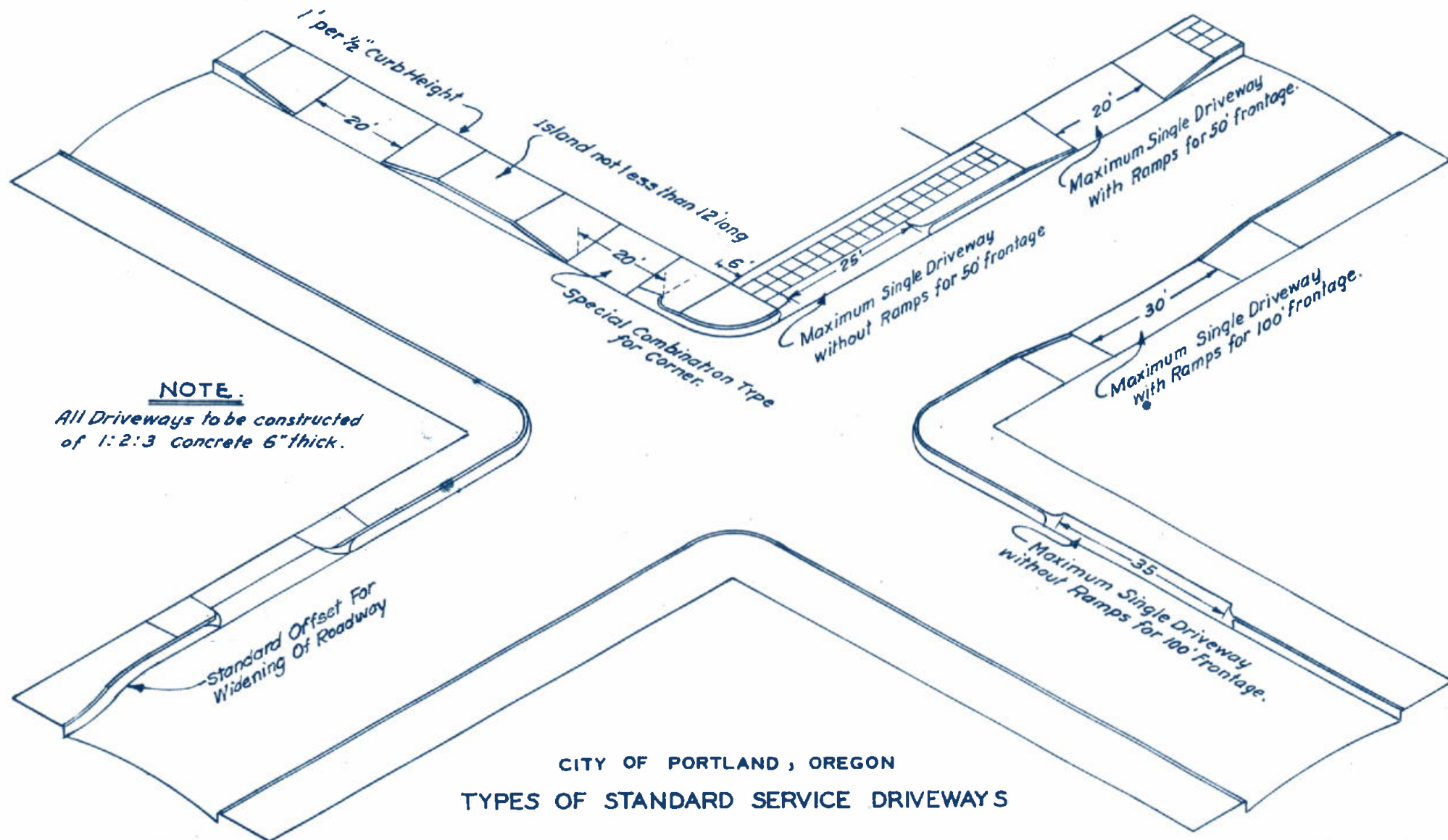
STANDARD DRIVEWAYS IN
COMBINATION SIDEWALKS

DRAWN BY CHW

NO SCALE

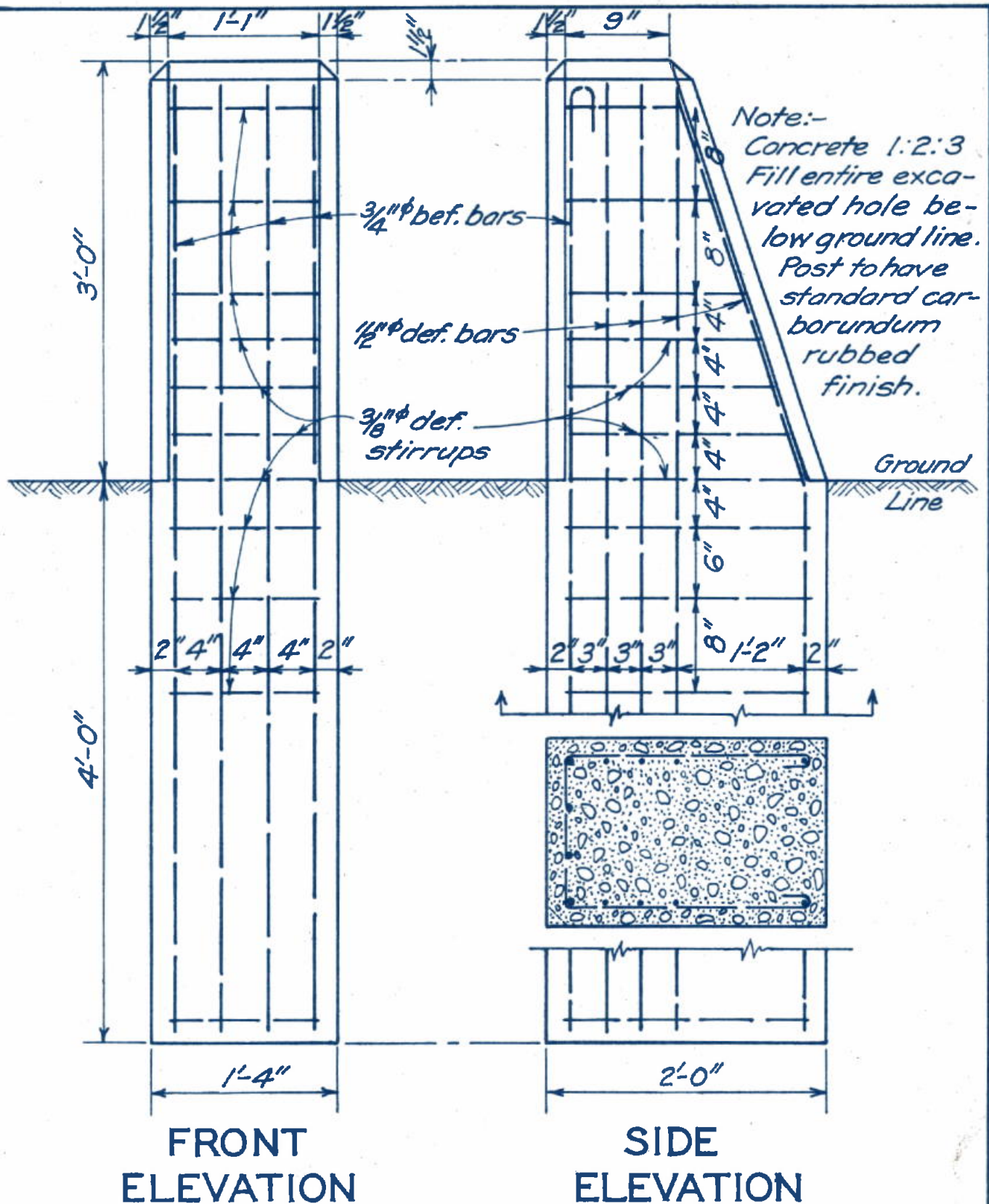
JUNE 1951

12-B



CITY OF PORTLAND, OREGON
TYPES OF STANDARD SERVICE DRIVEWAYS

H. Rankel 8-26-59
City Engineer (Date)
Reg. Prof. Eng. No. 1397 Mar. 1929



APPROVED: *[Signature]* DATE: 8-26-59
 CITY ENGINEER
 REG. PROF. ENGR. No. 5397, Mar. 1929

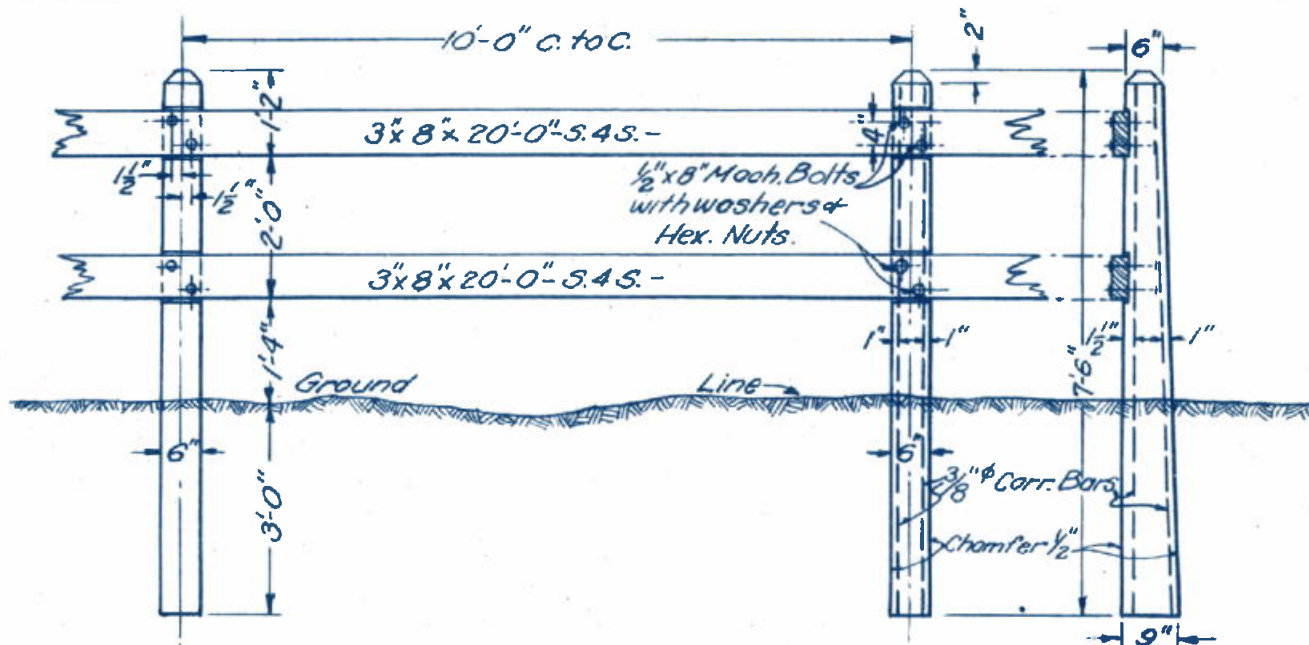
REVISED: _____

CITY OF PORTLAND
 DEPARTMENT OF PUBLIC WORKS
 OFFICE OF CITY ENGINEER

**STANDARD PLAN
 CONCRETE GUARD POST**

DRAWN BY F.T.F.
 TRACED BY F.T.F.

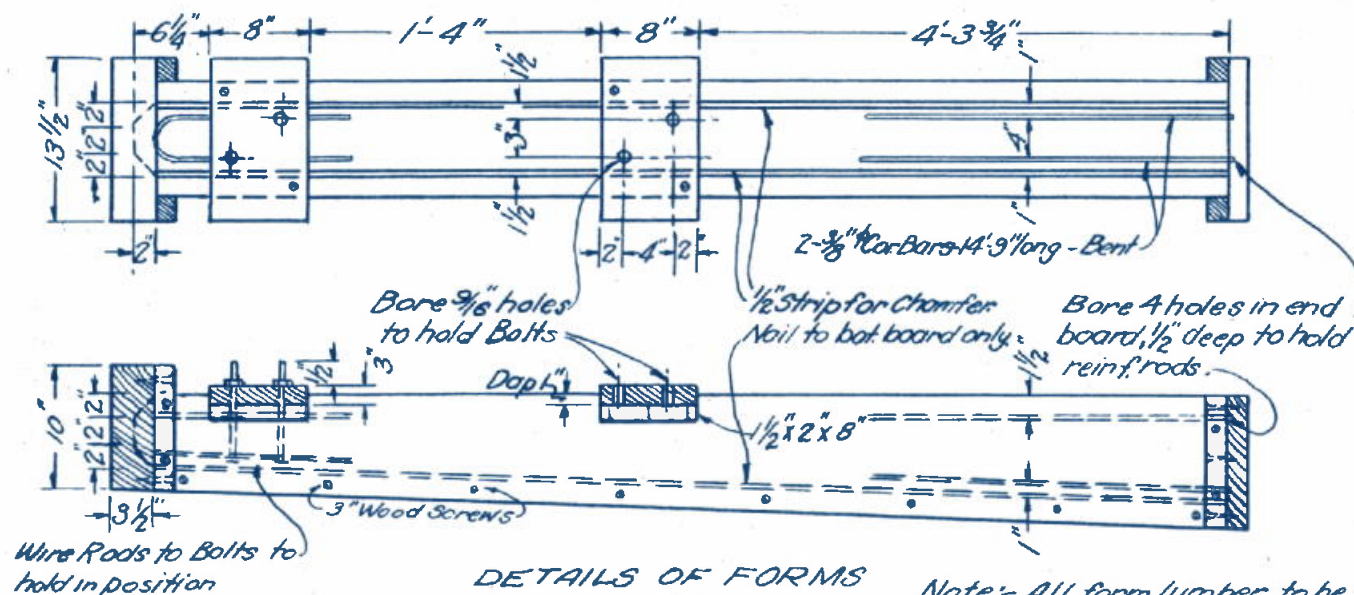
JAN. 8, 1935
 SCALE 1 IN. = 1 FT.



Note:- After setting posts,
fill hole with concrete to the
surface of ground.
Rails to be Select Common Fir.
Rails to be painted 3 Coats
white lead in oil and sanded.

DETAILS OF FENCE

SCALE: $\frac{3}{8}'' = 1'$



DETAILS OF FORMS

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

Note:- All form lumber to be
2" S.A.S. & well oiled
Concrete:- 1:2:4

APPROVED:

S. R. Bantel 8-26-59
City Engineer

Rec. Proj. No. 1397, Mar. 1929

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS

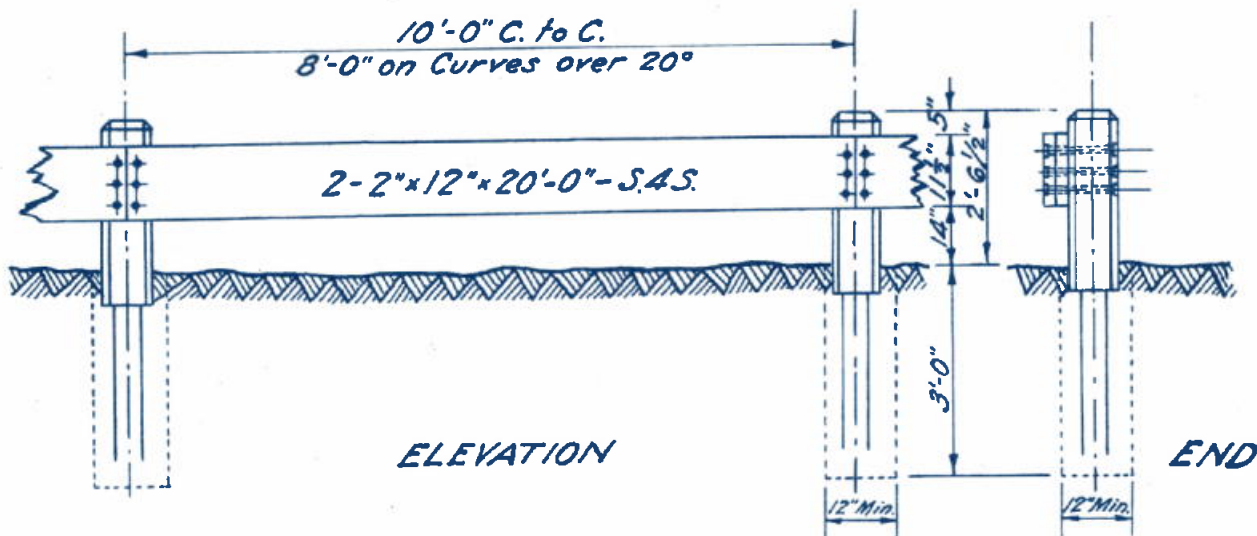
STANDARD GUARD FENCE CONCRETE POSTS

SCALES AS NOTED

DEC. 10, 1918

DRAWN BY F. T. F.
REVISED OCT. 1, 1922

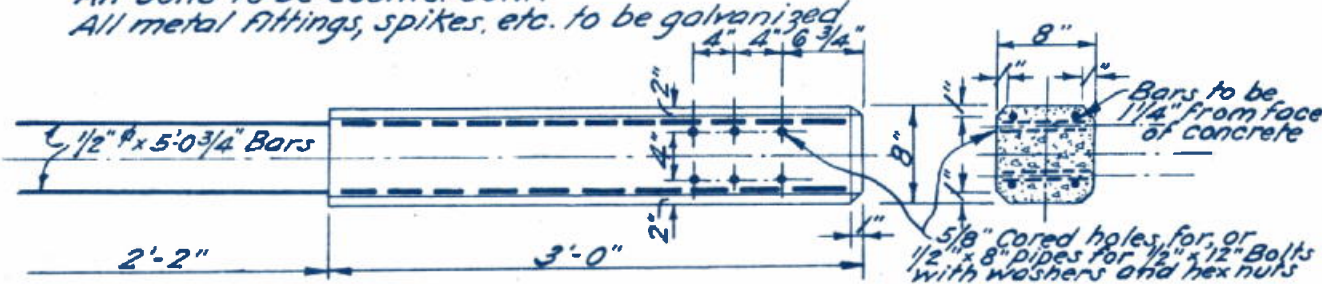
REDRAWN: JAN. 19, 1950 R.E.A.



DETAILS OF FENCE

Not to scale

- Note:-**
- Rails to be spiked together with 30 penny spikes staggered 1' centers
 - Set posts in concrete to surface of ground
 - Railing to be Select Common Fir
 - Railing to butt squarely at joints
 - Railing to be painted 3 coats white lead in oil
 - Surfaces in contact to be painted with one coat white lead in oil
 - All bolts to be countersunk
 - All metal fittings, spikes, etc. to be galvanized



DETAIL OF PRECAST CONCRETE POST

Not to scale

- Note:-**
- Concrete to be 1-2-4 mix
 - 3/4" Maximum aggregate

Posts shall have a finish equal to, or the equivalent of the following:-
All exposed surfaces shall be thoroughly washed with water and then treated with a neat cement wash or grout, composed of neat cement and water mixed to a creamy consistency. After the neat cement wash has set for twenty-four (24) hours, it shall be rubbed off with a coarse carborundum stone, applying water ahead of the stone, care being taken not to rub off more than the wash. No more surface shall be treated with the cement wash than can be rubbed off the following day. The surface shall then be thoroughly washed with water and rubbed with a fine carborundum stone until a smooth uniform surface is obtained. The entire surface shall then be washed and kept damp for several days.

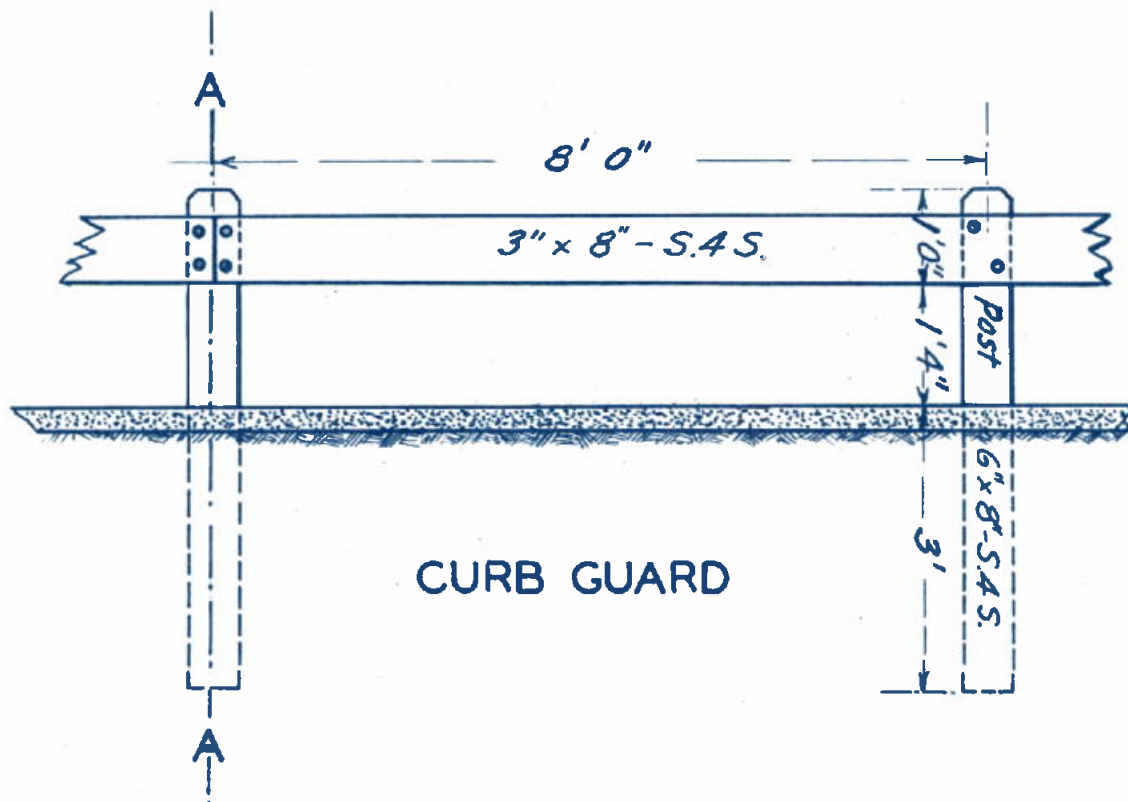
Approved: *H. P. Pankal* Date: 8-26-59

City Engineer

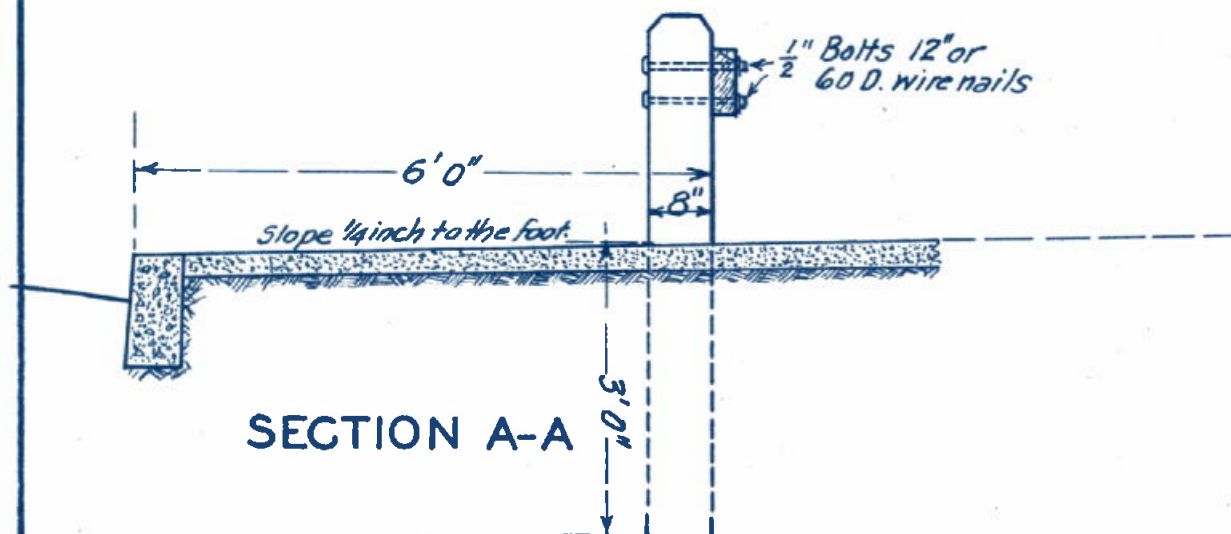
Reg. Prof. Eng'r. No. 1397-Mar. 1929

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS

**LAMINATED GUARD
FENCE AND CONCRETE
POST**



CURB GUARD



SECTION A-A

NOTE: All Lumber Select Common Fir dressed 4 sides. After erection fence to be painted 3 coats of white lead in oil and sanded.

CITY OF PORTLAND, OREGON
DEPT. OF PUBLIC WORKS
OFFICE OF CITY ENGINEER
**STANDARD
WOOD GUARD FENCE**

APPROVED:

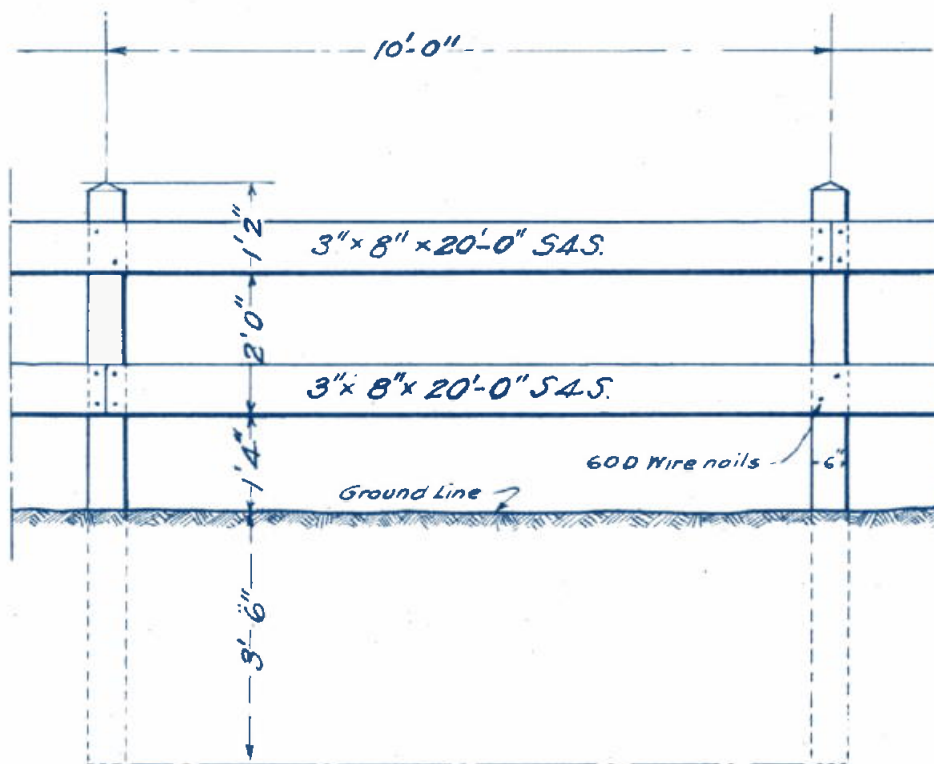
[Signature] DATE 8-26-29

CITY ENGINEER
Reg. Prof. Engr. No. 1397, Mar. 1929

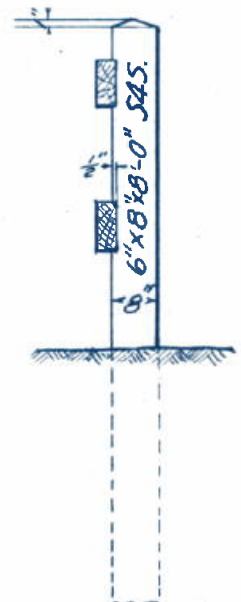
DRAWN BY L.F.S.
TRACED BY L.F.S.
CHECKED BY W.A.K.

DATE JUNE-16-1942

SCALE: 1/2" = 1 FT.



FRONT VIEW



END VIEW

Note - All Lumber Select Common Fir
dressed 4 sides. After erection
fence to be painted 3 coats white lead
in oil and sanded

APPROVED:  DATE 8-26-59
CITY ENGINEER
Reg. Prof. Engr. No. 1397, Mar. 1929

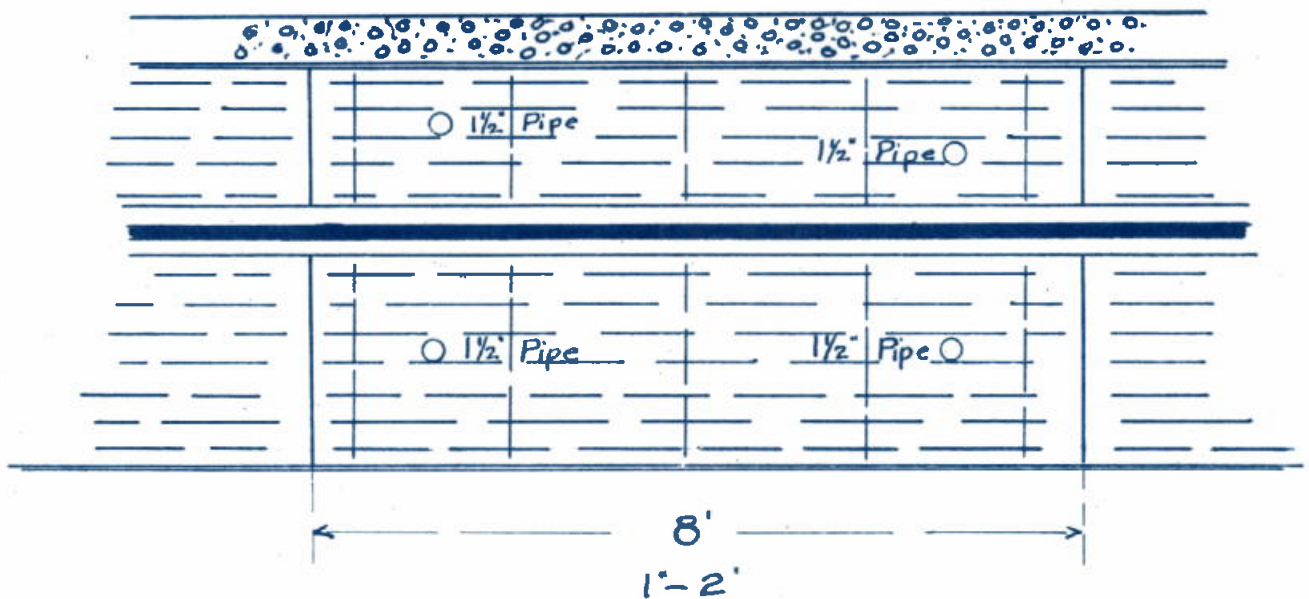
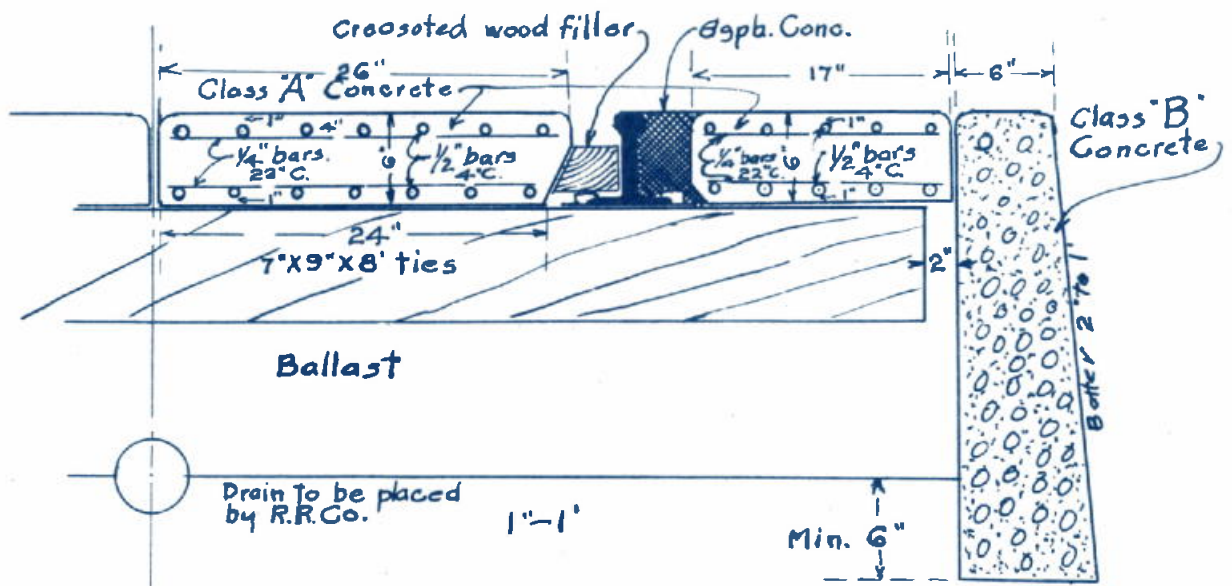
CITY OF PORTLAND, OREGON
DEPT. OF PUBLIC WORKS
OFFICE OF CITY ENGINEER
**STANDARD
WOOD GUARD FENCE**

DRAWN BY E.L.W.
TRACED BY -
CHECKED BY

DATE FEB 8 1915
SCALE $\frac{3}{8}$ " = 1 FT.

REVISED MAY 1 1923

Retraced 1-25-'34



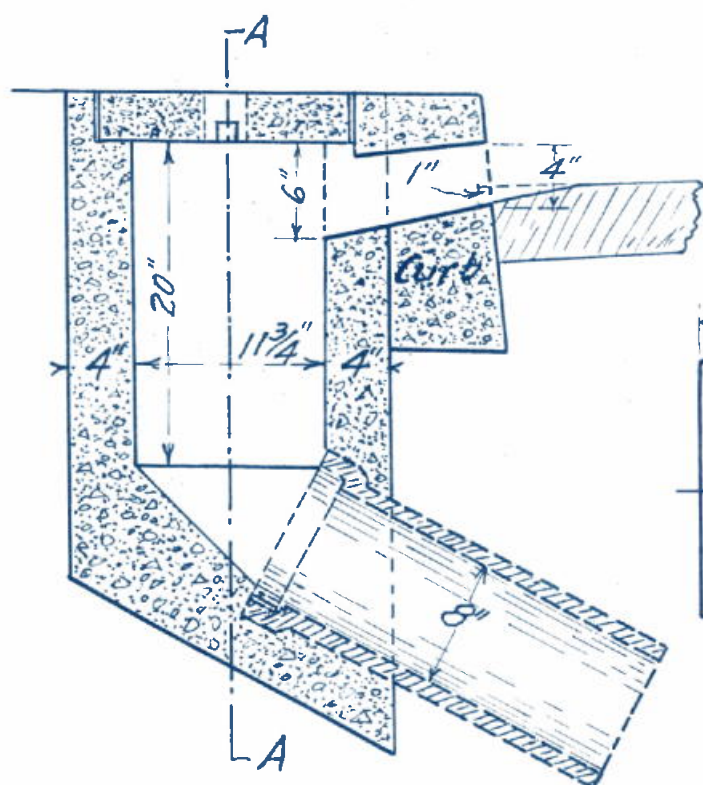
A. J. Rasmussen 8-26-59
 City Engineer (Date)
 Reg. Prof. Engr. No. 1397, Mar. 1929

CITY OF PORTLAND
 DEPARTMENT OF PUBLIC WORKS
 OFFICE OF CITY ENGINEER

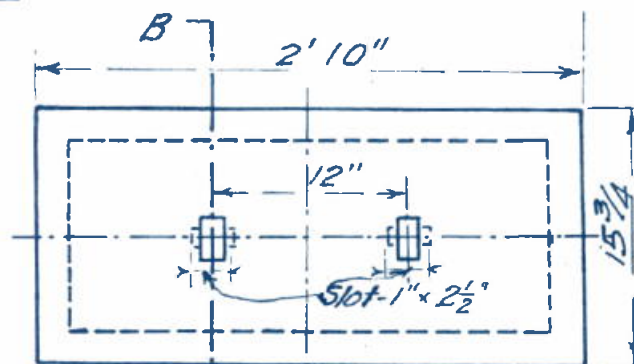
REINFORCED CONCRETE PLANK FOR RAILROAD TRACK

REVISED.....

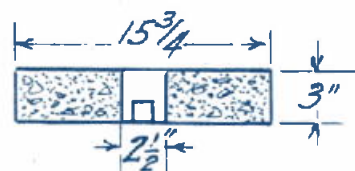
DRAWN BY O.W.
 TRACED BY O.W.



Concrete 1-2-3 Mix

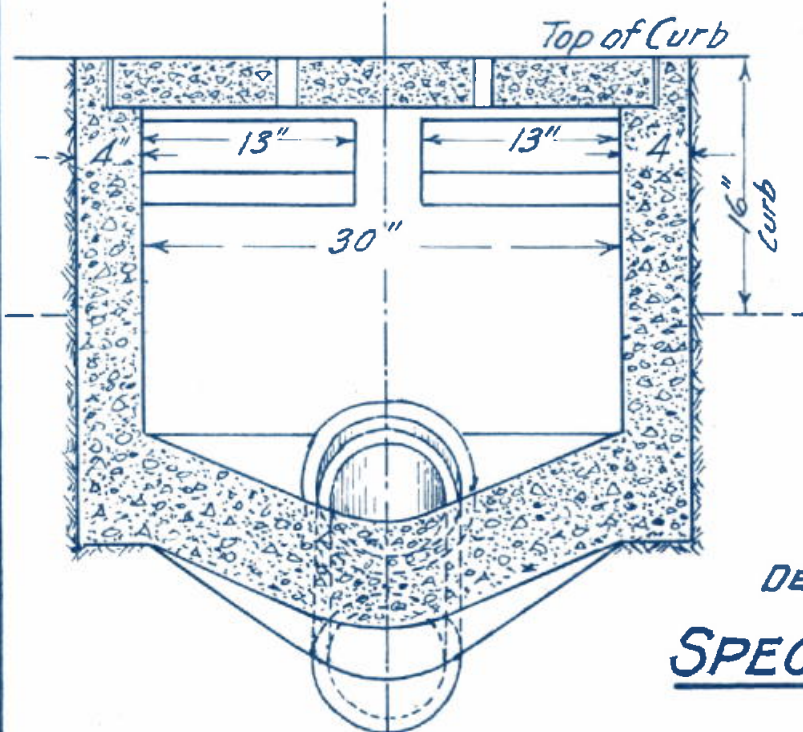


B-
Cover for Inlet
1- 1 1/2 - 2-Mix.



SECTION-B-B-

Weight of Cover 120 lbs.



SECTION A-A-

CITY OF PORTLAND, ORE.
DEPARTMENT OF PUBLIC WORKS

SPECIAL INLET & COVER

Scale: 1" = 1'

JULY, 1942

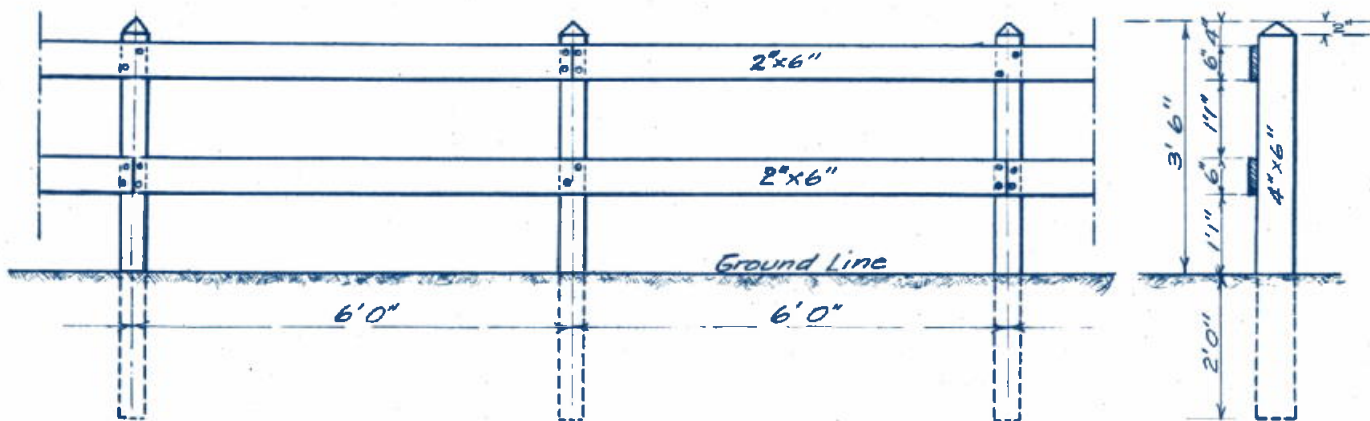
APPROVED DATE 8-26-59

S. K. Samal

CITY ENGINEER

Reg. Prof. Engr. No. 1397, Mar. 1929

Drawn by L.F.S.
Traced by L.F.S.



ELEVATION.

SECTION.

NOTES

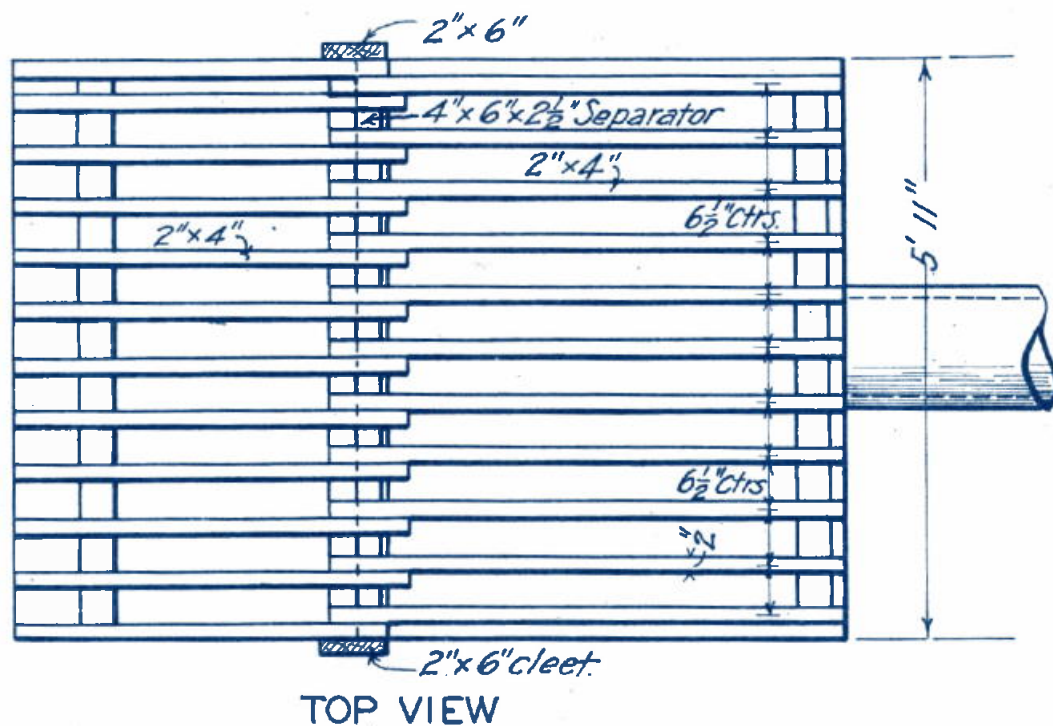
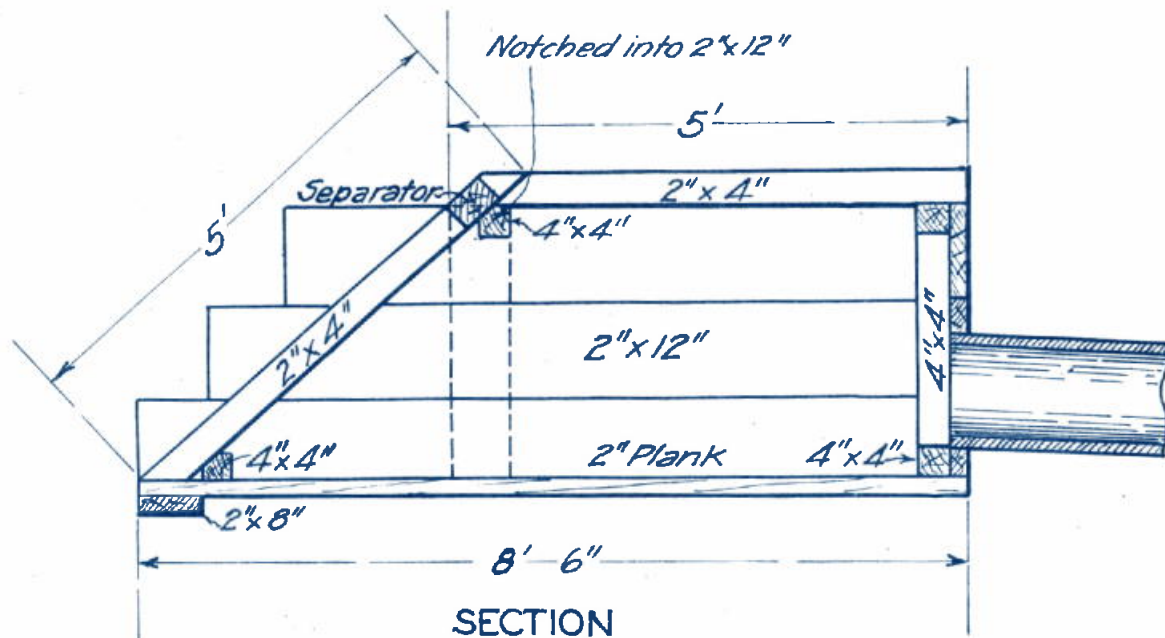
All lumber to be S. & S.
 Posts to be No. 1 Common Fir.
 Rails to be select Common Fir.
 Use 8 d. nails.
 Scale: $\frac{3}{8}" = 1 \text{ foot.}$

CITY OF PORTLAND, OREGON
 DEPARTMENT OF PUBLIC WORKS
 OFFICE OF CITY ENGINEER

STANDARD
 TEMPORARY WOODEN FENCE

Approved: *[Signature]* Date 8-26-59
 City Engineer
 Reg. Prof. Engr., No. 1397, Mar. 1929

DRAWN BY L.F.S. DATE SEPT. 28, 1917.
 TRACED BY L.F.S.
 CHECKED BY _____ SCALE AS NOTED



NOTE: Toe nail gratings with 20d spikes.
All lumber to be Fir #1 common
free from sap.

APPROVED:

DATE 8-26-59

[Signature]

CITY ENGINEER
REG. PROF. ENGR. NO. 1397 Mar. 1929

Retraced 3-7-34

CITY OF PORTLAND
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

STANDARD PLAN

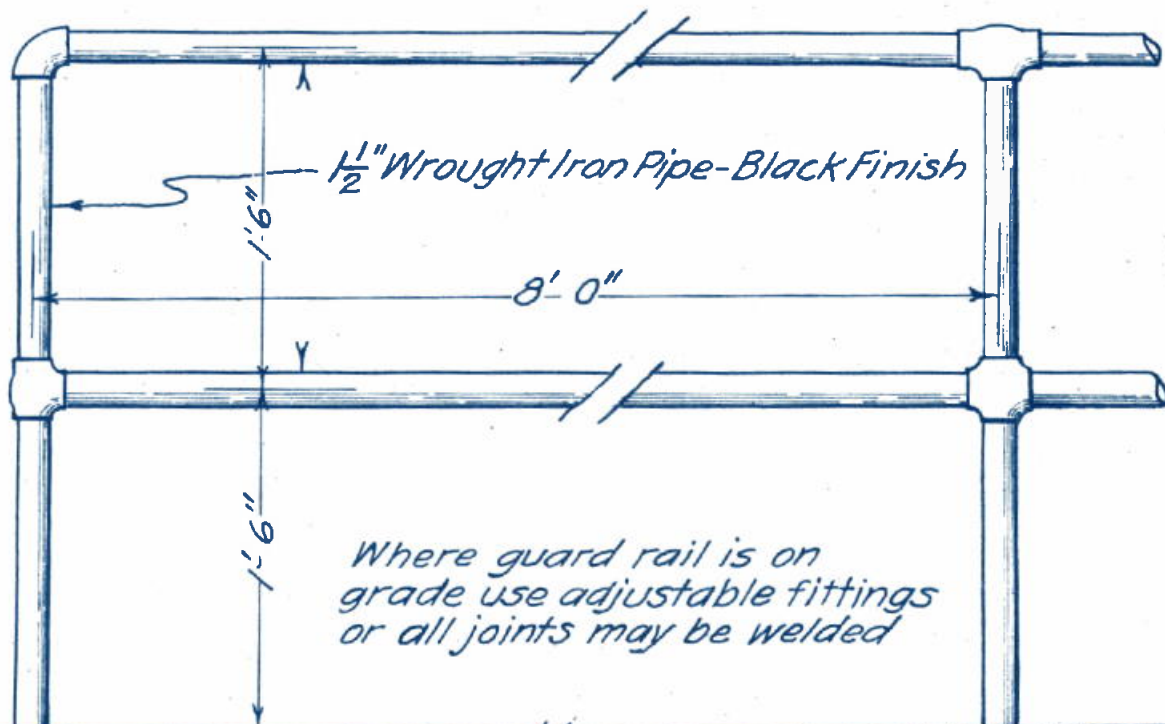
WOODEN INLET AND GRATE

DRAWN BY W.H.A.

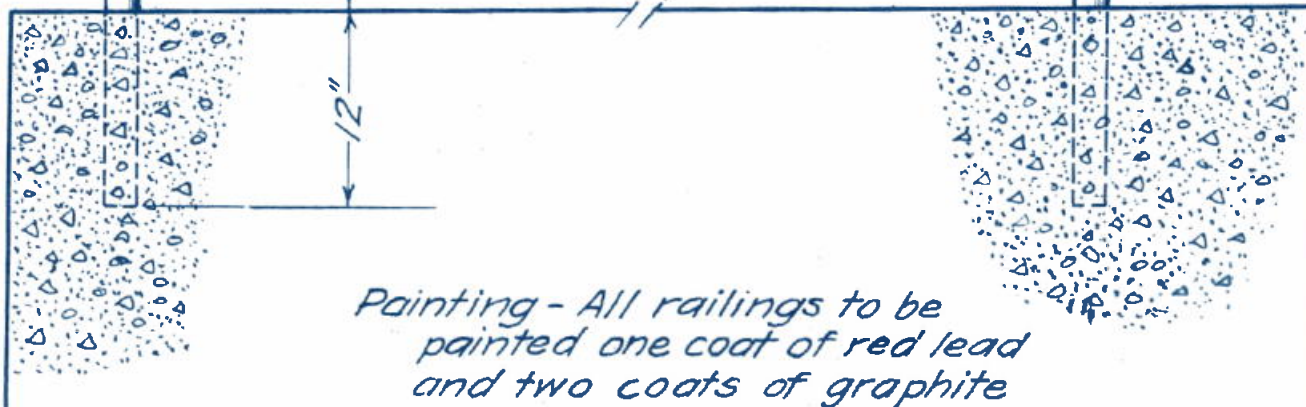
TRACED BY W.H.A.

SEPT. 1927

SCALE 1/2" = 1 FT.



Where guard rail is on grade use adjustable fittings or all joints may be welded



Painting - All railings to be painted one coat of red lead and two coats of graphite

CITY OF PORTLAND
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

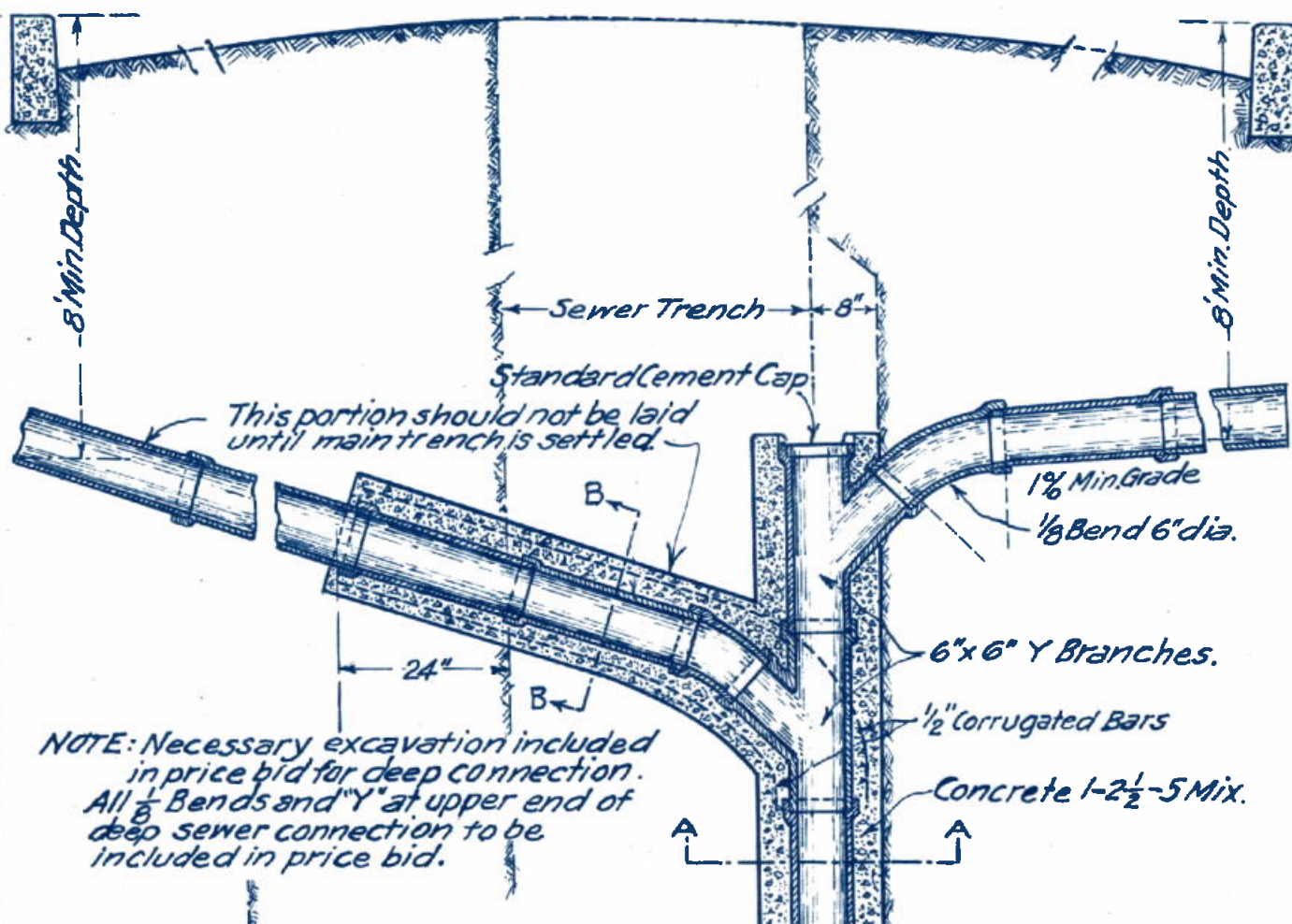
APPROVED: 8-26-59
[Signature]
CITY ENGINEER
REG. PROF. ENGR. No. 1397, Mar. 1929

PIPE GUARD RAIL

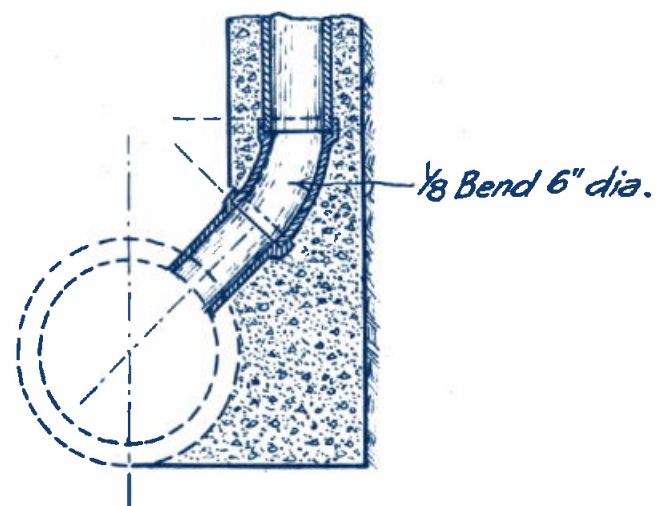
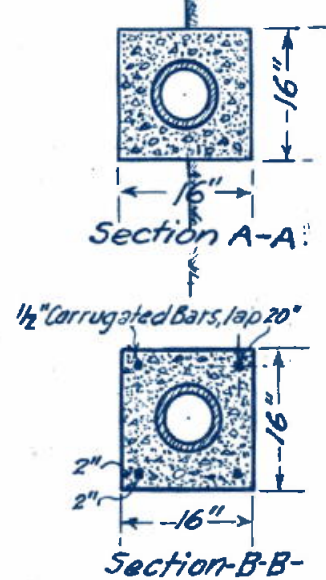
REVISED: 8-21-'30
Retraced - 2-27-34

DRAWN BY
TRACED BY L.F.S.

Aug. 1926.



NOTE: Necessary excavation included in price bid for deep connection. All $\frac{1}{8}$ Bends and "Y" at upper end of deep sewer connection to be included in price bid.



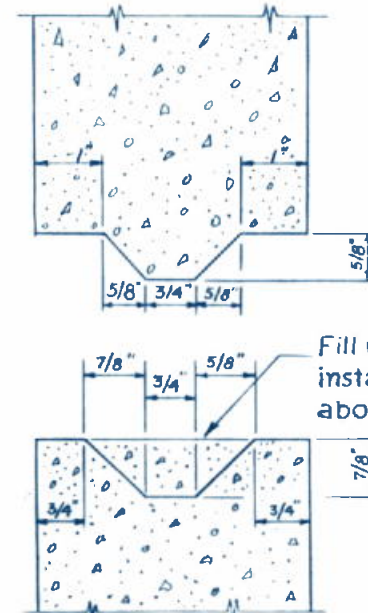
CITY OF PORTLAND
 DEPARTMENT OF PUBLIC WORKS
 OFFICE OF CITY ENGINEER

HOUSE BRANCHES TO DEEP SEWERS

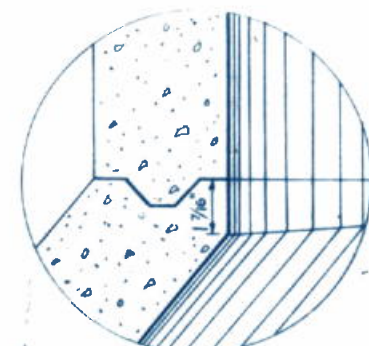
APPROVED: *[Signature]* DATE 8-26-39
 CITY ENGINEER
 REG. PROF. ENGR. NO. 1397, Mar. 1929
 RETRACED &
 REVISED. APRIL 20, 1946

DRAWN BY L.F.S.
 TRACED BY L.F.S.
 APRIL - 1946
 SCALE $\frac{1}{2}$ IN = 1 FT.

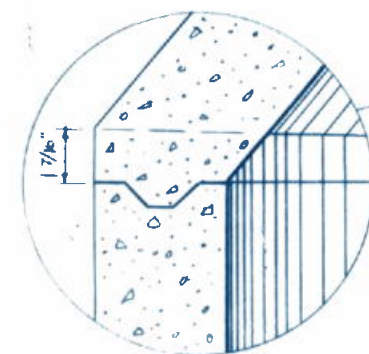
24



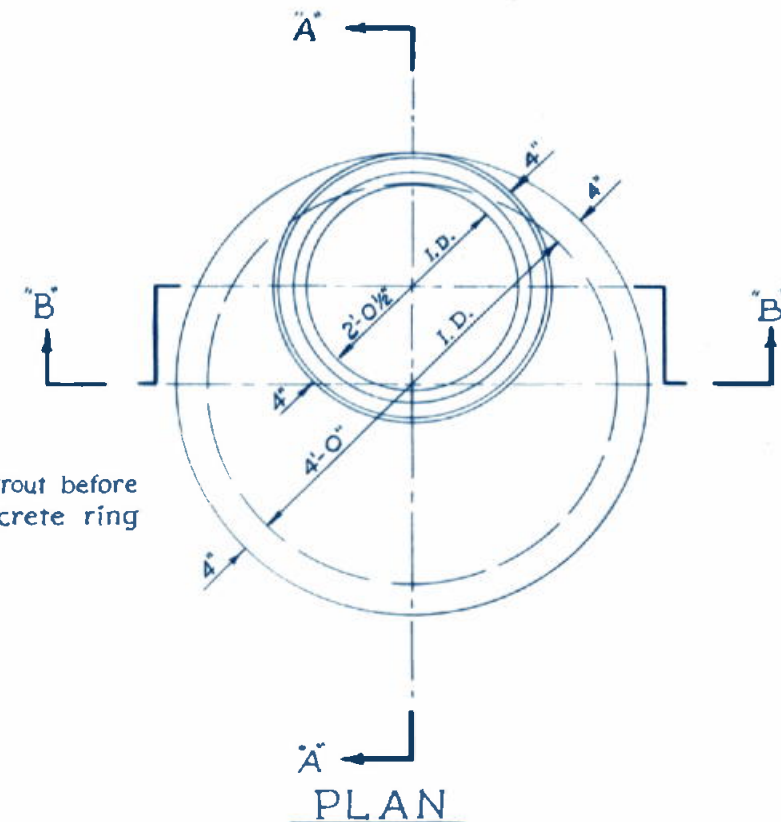
DETAIL 4-A
Scale 6" = 1'-0"



Scale 3" = 1'-0"

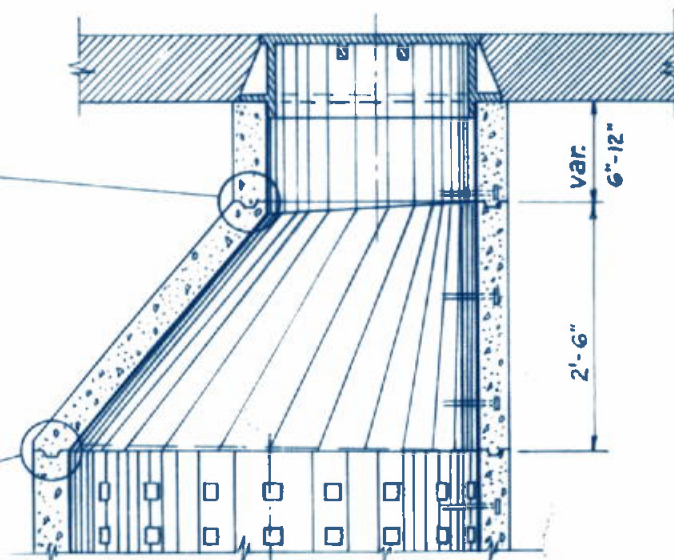


Scale 3" = 1'-0"



PLAN
Scale 3/4" = 1'-0"

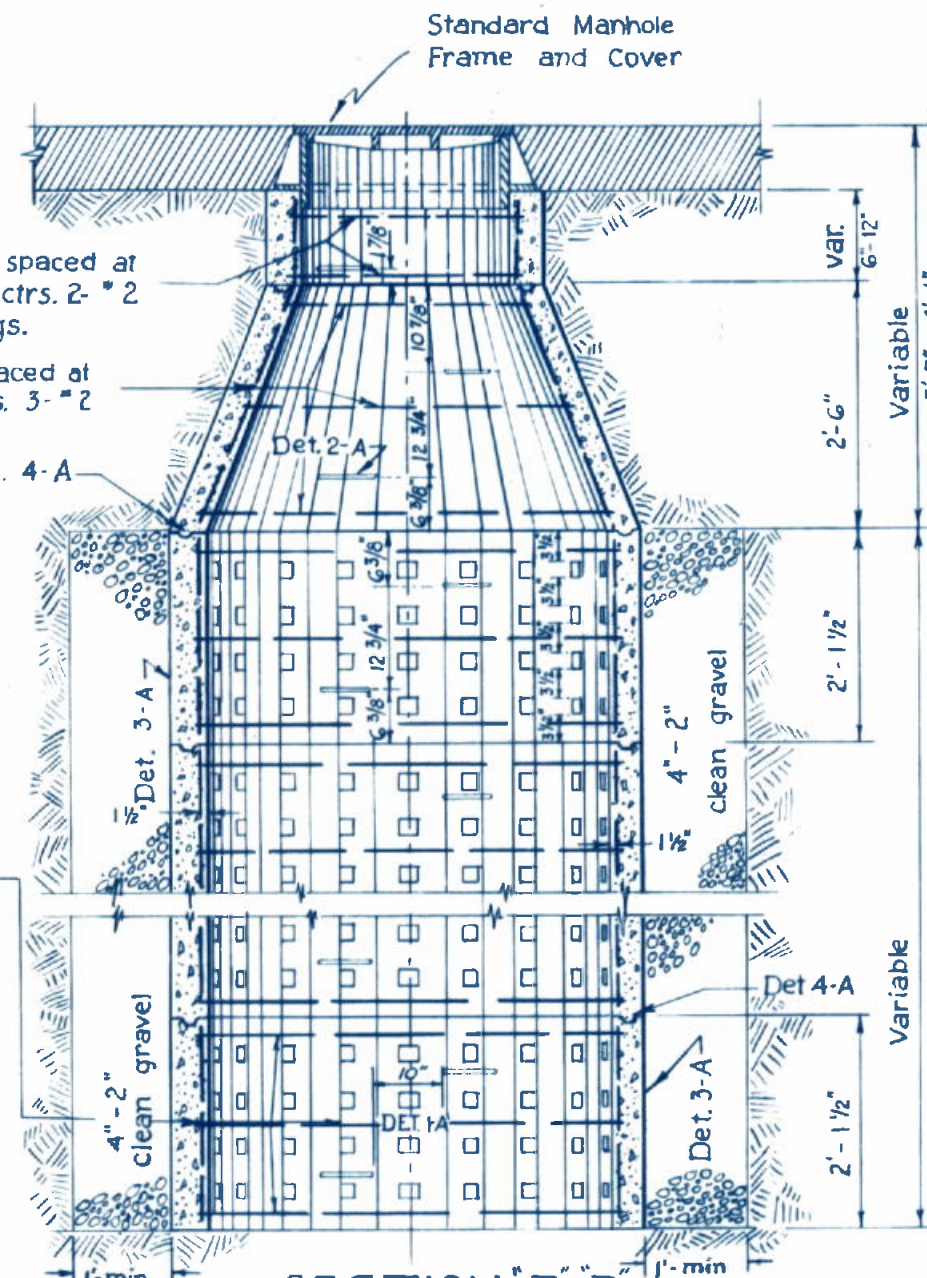
Center #3 bars between every other opening - maximum spacing 3-#2 spacer rings.



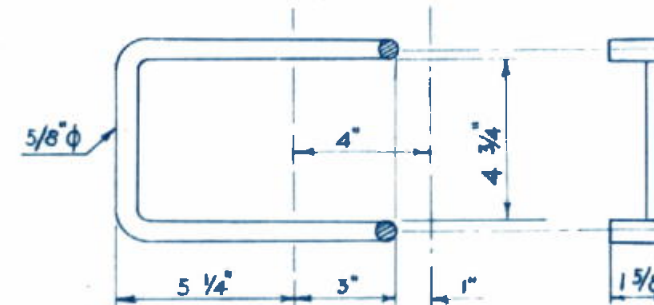
SECTION A-A
Scale 3/4" = 1'-0"

4-#3 bars spaced at approx. 1'-9" ctrs. 2-#2 spacer rings.
#3 bars spaced at approx. 6" ctrs. 3-#2 spacer rings.

Det. 4-A

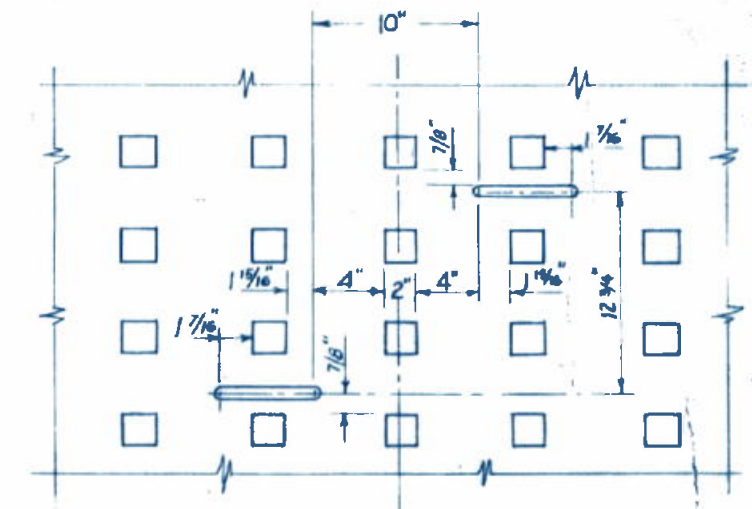


SECTION B-B
Scale 3/4" = 1'-0"

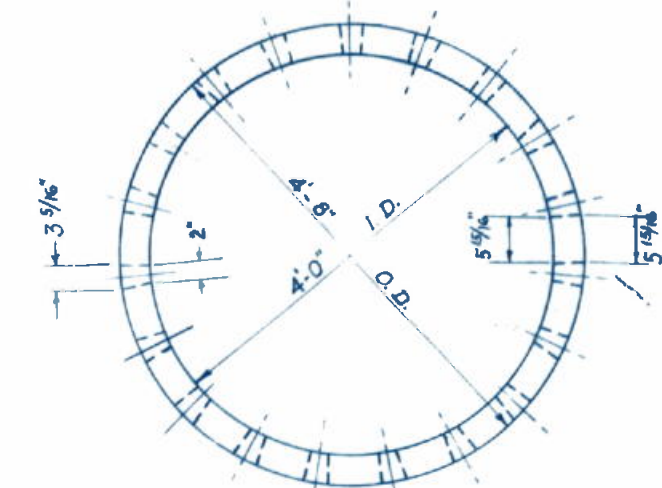


DETAIL 2-A
Galv. Wrought Iron Steps
Scale 3" = 1'-0"

Note:
Use 2000 lb. Compressive strength concrete.



DETAIL 1-A
Location of Galv. Wrought Iron Steps in Precast Conc. Rings
Scale 1 1/2" = 1'-0"



PLAN
Horizontal Location of Weep Holes (for vertical Location See Sec. B-B)
76 Weep Holes Per Ring; 304 Sq. in. Weep inside, 506 Sq. in. Weep Outside.

DETAIL 3-A
Scale 3/4" = 1'-0"

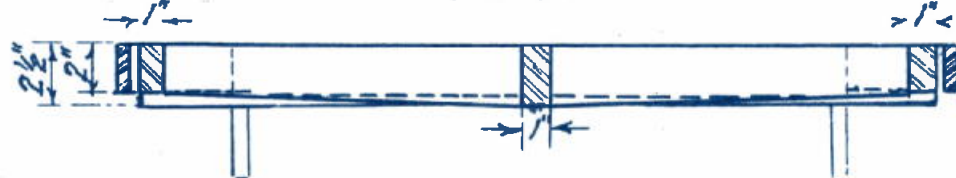
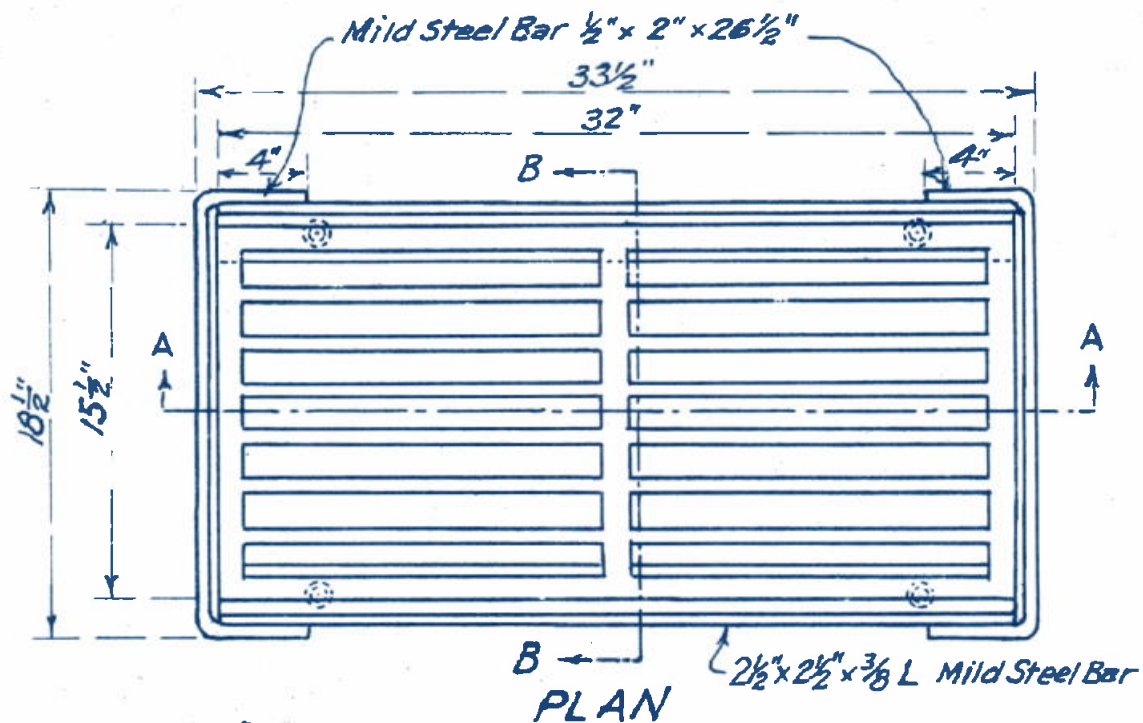
CITY OF PORTLAND

STANDARD PRE-CAST SUMP

APPROVED: *Gordon L. Hart* DATE: 7-16-58
CITY ENGINEER
REG. PROF. ENG. NO. 3077

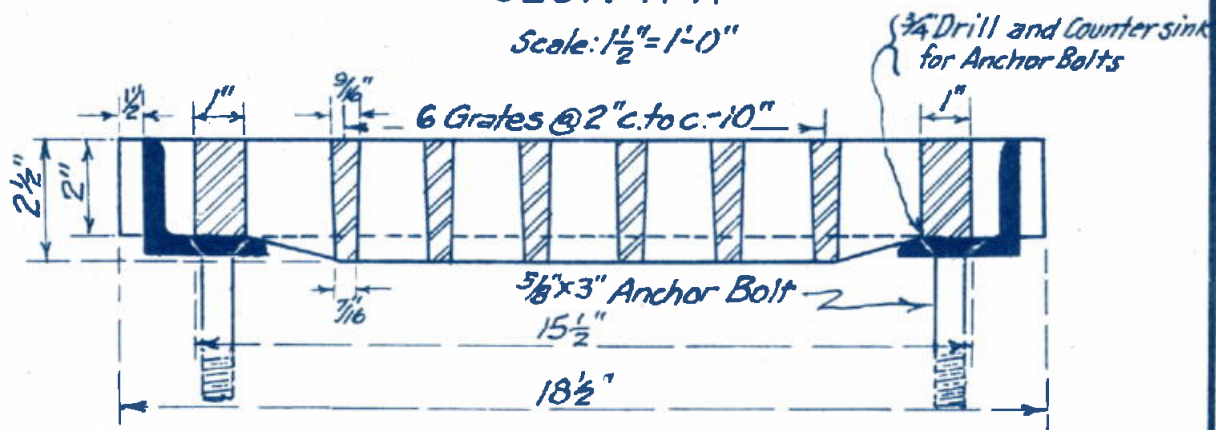
APPROVED: *[Signature]* APPROVED: *[Signature]*
CHIEF ENGINEER CHIEF BUREAU DESIGN, SURVEYING &
REG. PROF. ENG. NO. 1397 DRAFTING: REG. PROF. ENG. NO. 3271

DESIGNED BY: J.J.B. TRACED BY: E.M.T. CHECKED BY: R.F.V. 10-54



SECTION A-A

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



SECTION B-B

Scale: $3'' = 1'-0''$

APPROVED: *H. R. Runkel* DATE 8-26-59
CITY ENGINEER
REG. PROF. ENGR. No. 1397, Mar. 1929

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

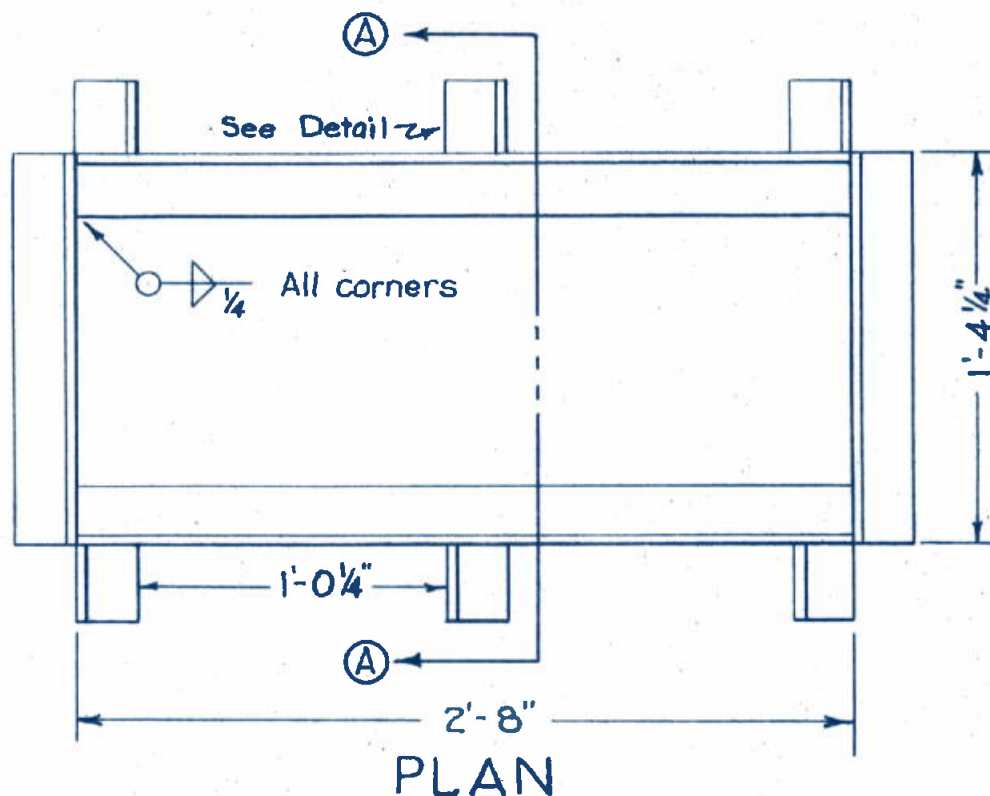
STANDARD PLAN
OF

CAST STEEL INLET GRATING
WITH FRAMING

DRAWN BY J.J.D. RETRACED BY L.F.S.
MAY 1961

SCALE AS NOTED

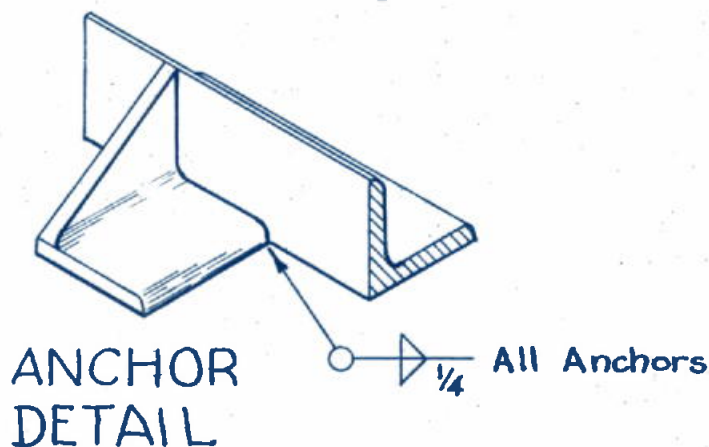
For Use With Cast Steel Inlet Grating.



Note:
Entire frame const.
from 2 1/2" x 2 1/2" x 3/8" x
5.9# steel angle.



NOTE:
This frame must be used
whenever the inlet is ex-
posed to direct commer-
cial traffic.



Approved:

[Signature]

City Engineer

Reg. Prof. Engr. No. 1397, Mar. 1929

8-26-59
(Date)

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

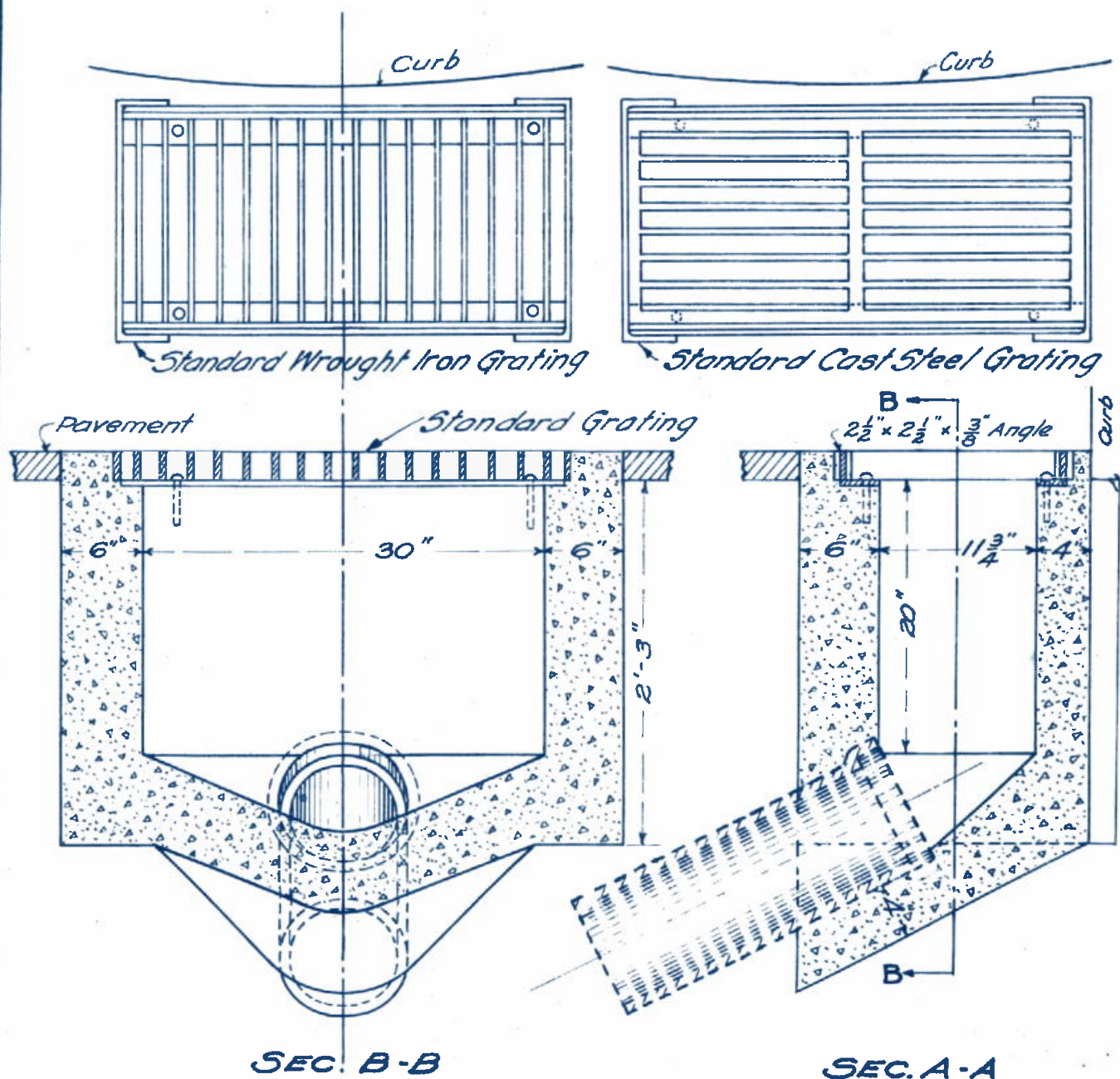
STANDARD PLAN OF

EXTRA HEAVY INLET FRAME

SCALES - 1 1/2" & 3" = 1 FT.
DWN-MP TRCD-MP

JULY 1955

26-A



APPROXIMATE QUANTITIES
1:2 1/2:5 Concrete - 0.4 Cu. Yds.

APPROVED *[Signature]* DATE 9-25-57
CITY ENGINEER

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
BUREAU OF SEWERS

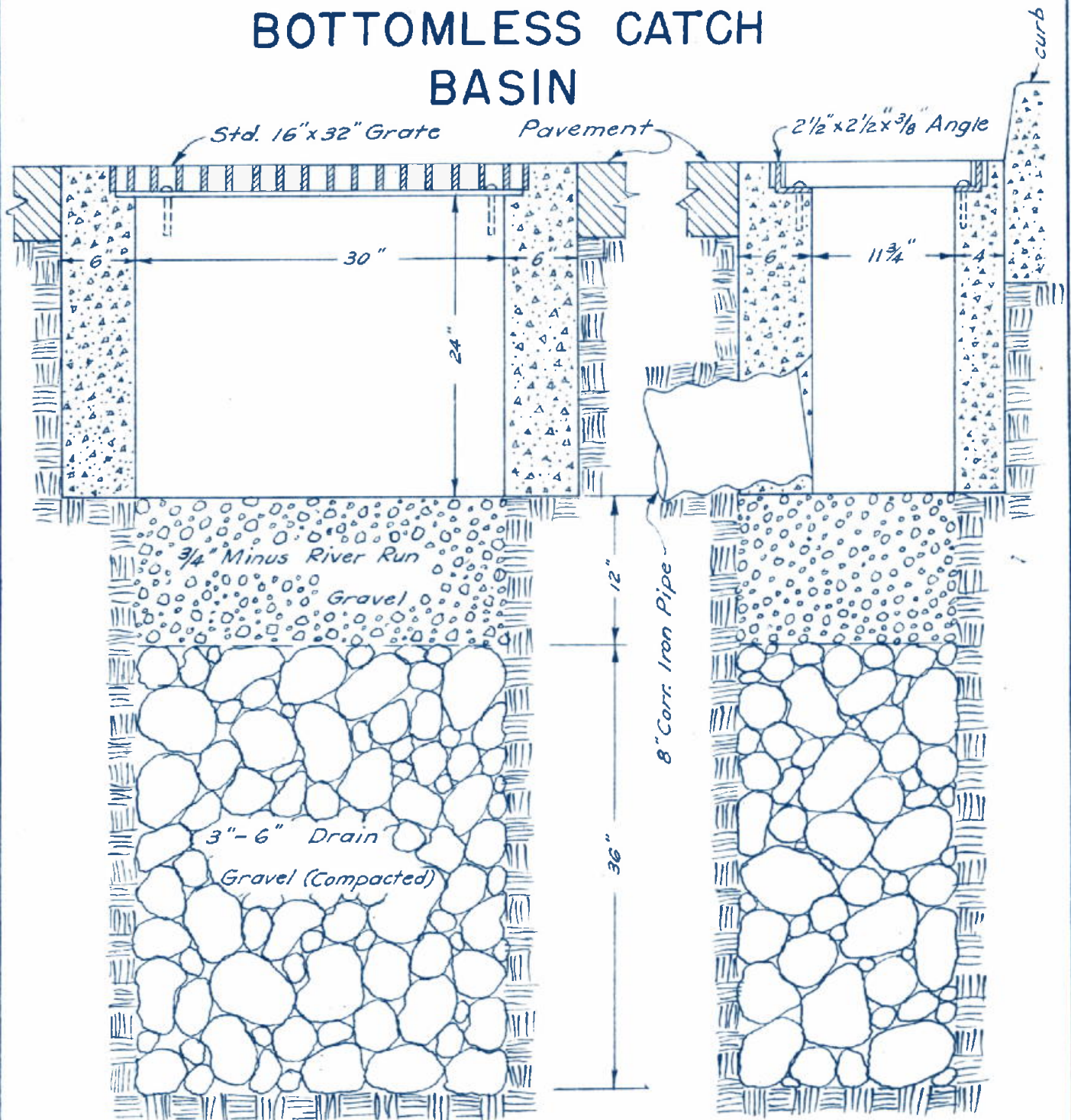
REG. PROF. ENGR. No. 1397, Mar. 1929 **STANDARD CONCRETE INLET**

REVISED MAY, 1, 1925
Dec, 28, 1925
Nov, 20, 1928

TRACED BY- *[Signature]*
CHECKED BY- W.H.A.

DATE - 3-1-1921
SCALE - 1" = 1'

CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS BOTTOMLESS CATCH BASIN



PORTLAND, OREGON
Scale: 1" = 1'
L.H. ROSENTHAL
City Engineer

APPROVED:

L.H. Rosenthal
City Engineer

8-26-59
Date

Reg. Prof. Engr. No. 1337, Mar. 1929

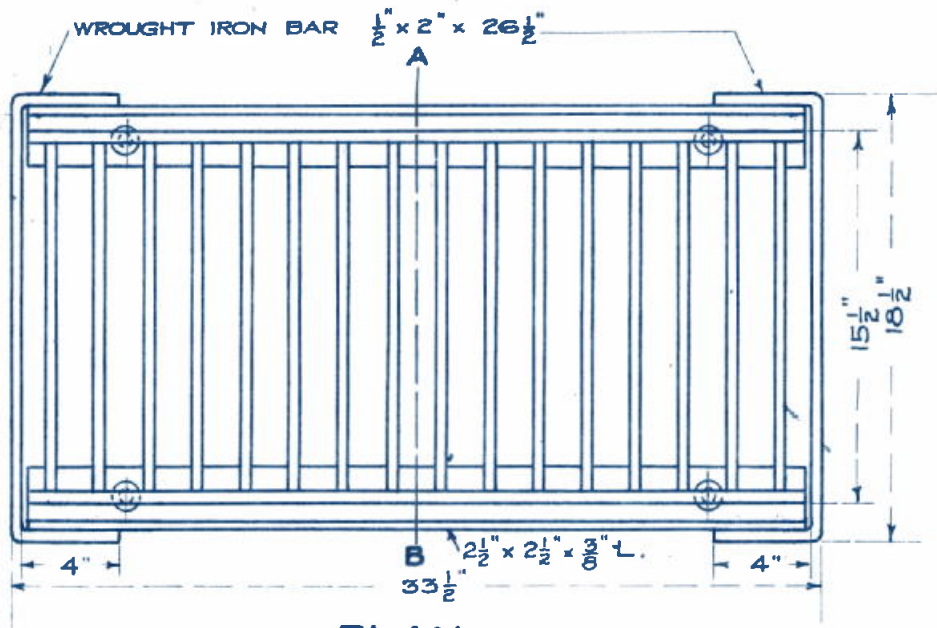
APPROXIMATE QUANTITIES

1:2 1/2:5 Concrete — 0.3 c.y.

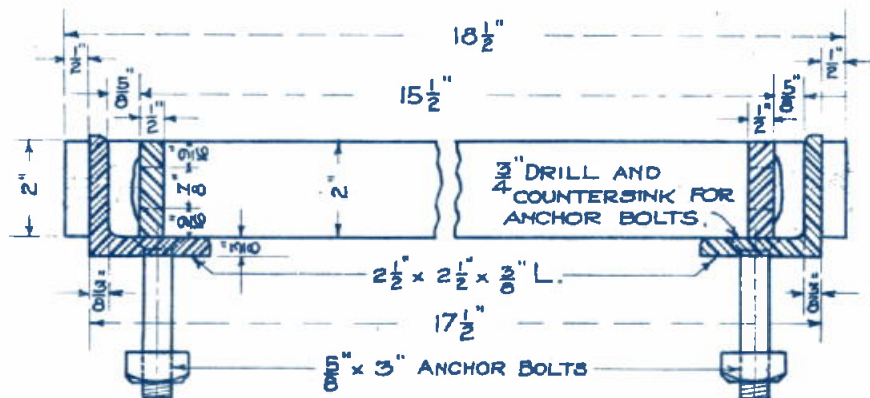
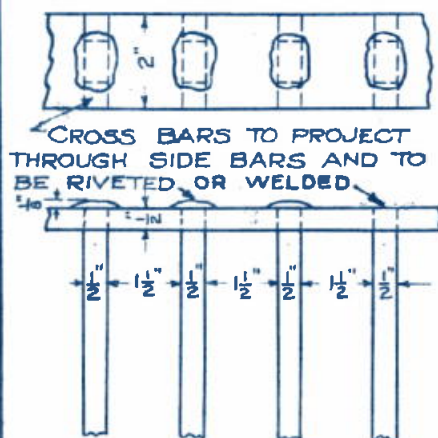
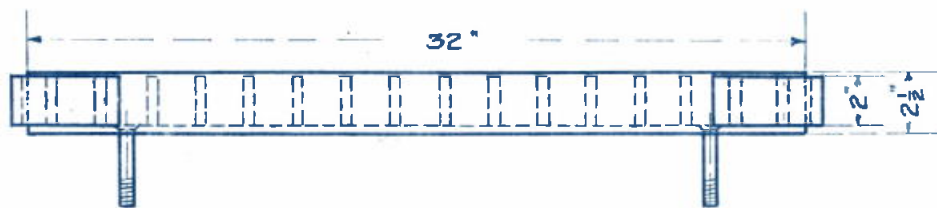
Gravel — — — 0.6 c.y.

27-A

28



PLAN
FRAME WITH GRATE IN PLACE



SECTION A-B

APPROXIMATE QUANTITIES	
WEIGHT OF FRAME	47 LBS.
" " GRATE	86 "

APPROVED *[Signature]* DATE 8-26-59
CITY ENGINEER
REG. PROF. ENG. No. 1397, Mar. 1929

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

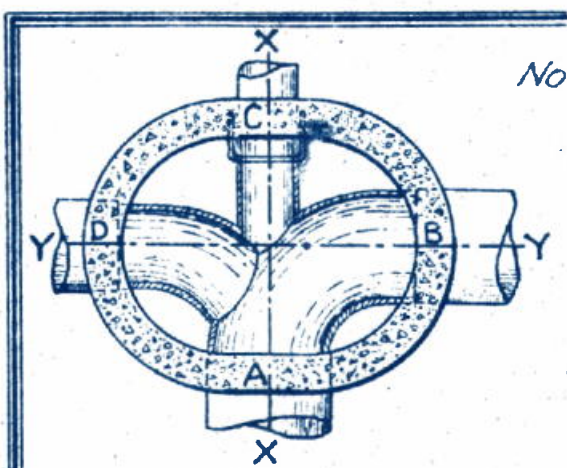
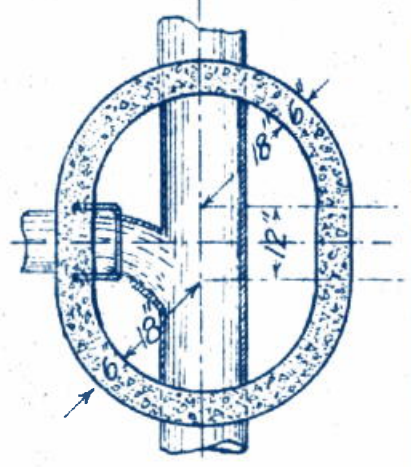
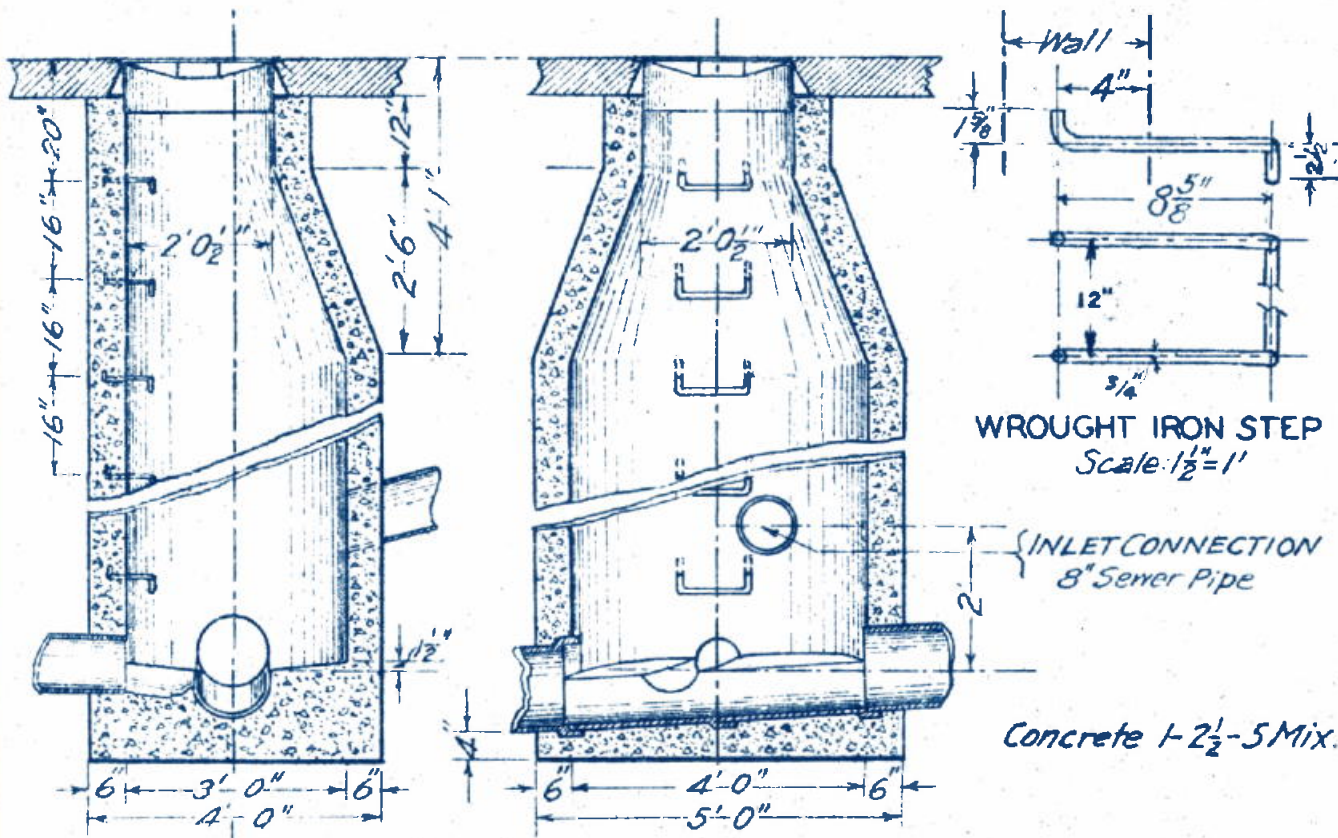
STANDARD PLAN
OF
WROUGHT IRON INLET GRATING

SCALES - 1 1/2" AND 3" = 1 FT.

DRAWN BY C.O.T. TRACED BY C.O.T.

DECEMBER, 1921.

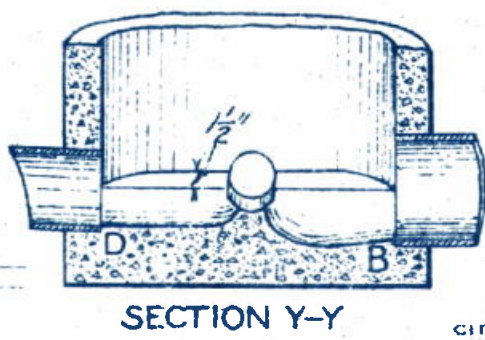
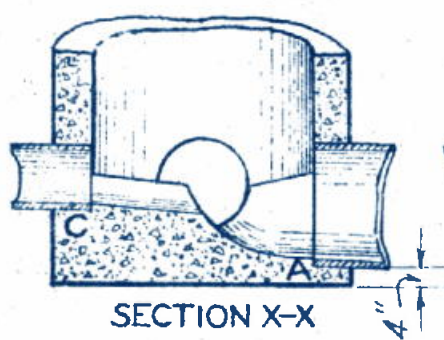
SCALE 2 IN. = 1 FT.



NOTE: Flow line at B, C, and D shall not be less than 4 inches higher than flow line at A.

Top of pipe at B, C and D shall not be lower than top of pipe at A.

See City standard drawing #96 for manhole Step details.



CITY OF PORTLAND
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

APPROVED *H. R. Rentsch*

DATE 11-2-59

STANDARD

CONCRETE MANHOLE

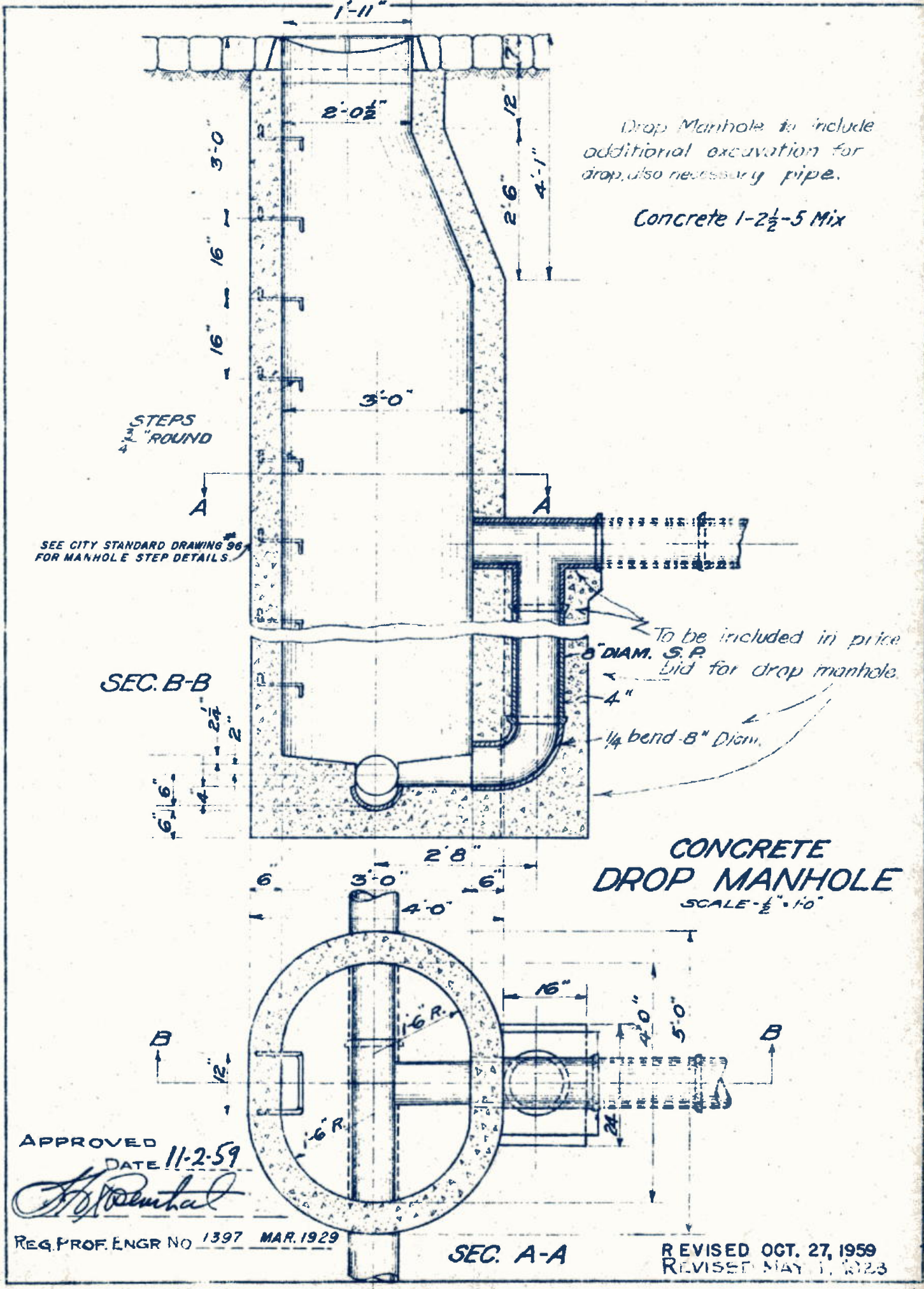
REG. PROF. ENGR. No. 1397, MAR. 1929

REVISED 10-27-59
Retraced 3-5-34 L.F.S.

DRAWN BY O.E.S.
TRACED BY O.E.S.

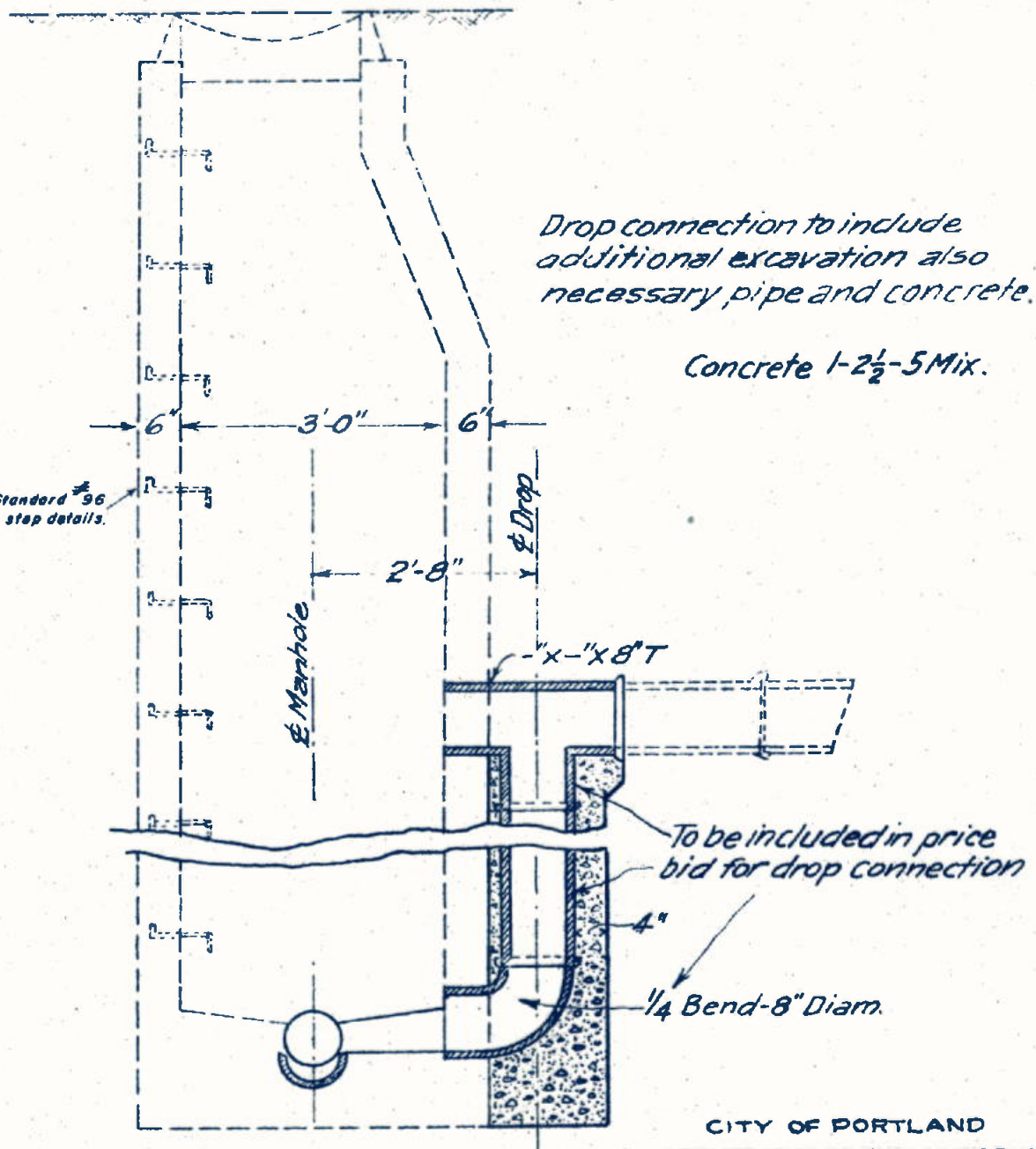
May 24, 1917
SCALE 3/4" = 1'

34



35

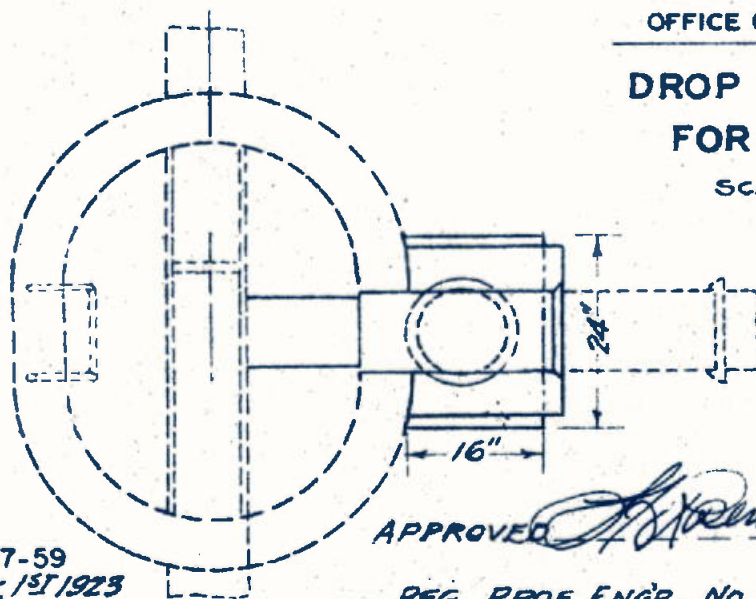
See City Standard #96
for manhole step details.



CITY OF PORTLAND
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

DROP CONNECTION FOR MANHOLE

SCALE 1/2"=1'



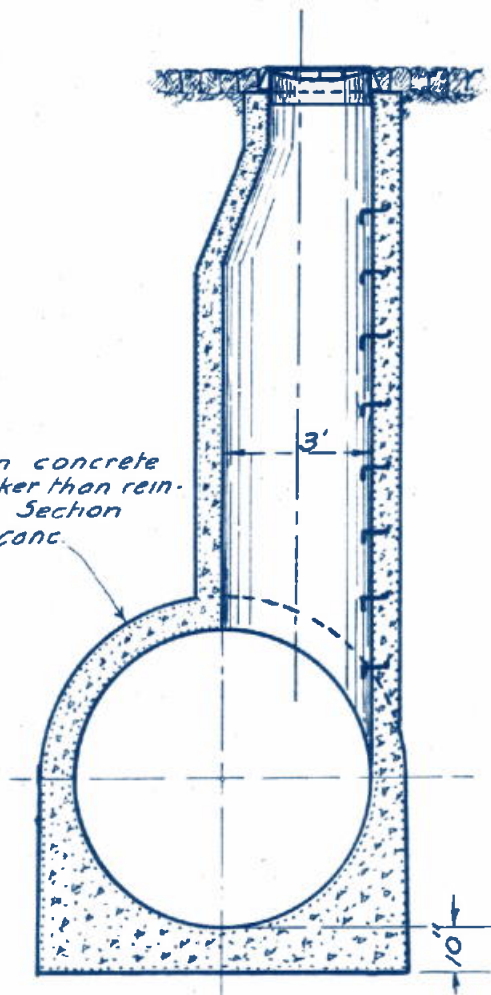
REVISED 10-27-59
REVISED, MAY, 15, 1923

Retraced Sept 1939 L.F.S.

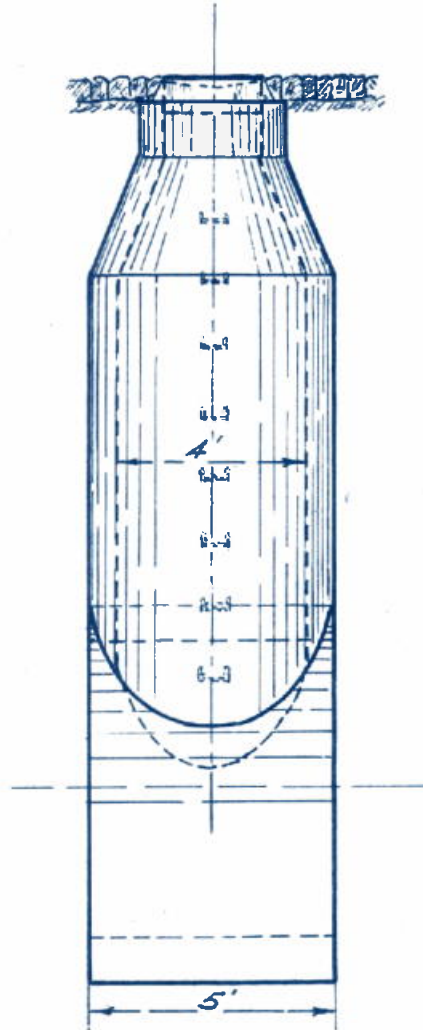
APPROVED

H. J. Smith 11-2-59
CITY ENGINEER
REG. PROF. ENGR. NO. 1397 MAR 1929

Plain concrete
3" thicker than rein-
forced Section
1:2:4 conc.



Section



Side View

Note:

- 1- For details of manhole see standard plan and specifications.
- 2- See City standard drawing #96 for manhole step details.

APPROVED

[Signature] DATE 8-26-59
CITY ENGINEER
Reg. Prof. Engr No. 1397, Mar. 1929

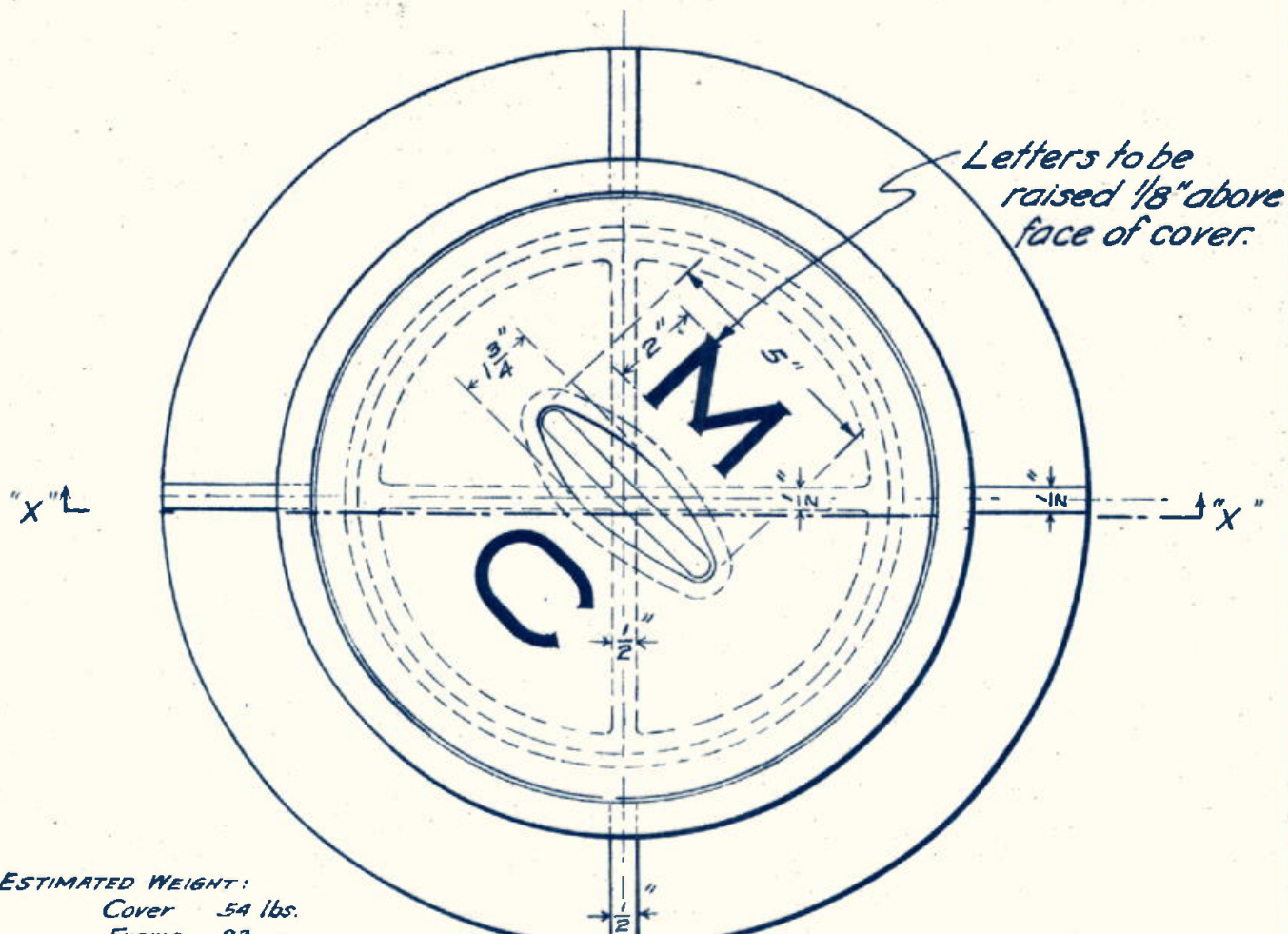
CITY OF PORTLAND, OREGON
DEPT. OF PUBLIC WORKS
OFFICE OF CITY ENGINEER
**MANHOLE
FOR CONC. PIPE SEWERS
(INCLUDING 5 FT OF SEWER)**

REVISED MAY 1, 1923.

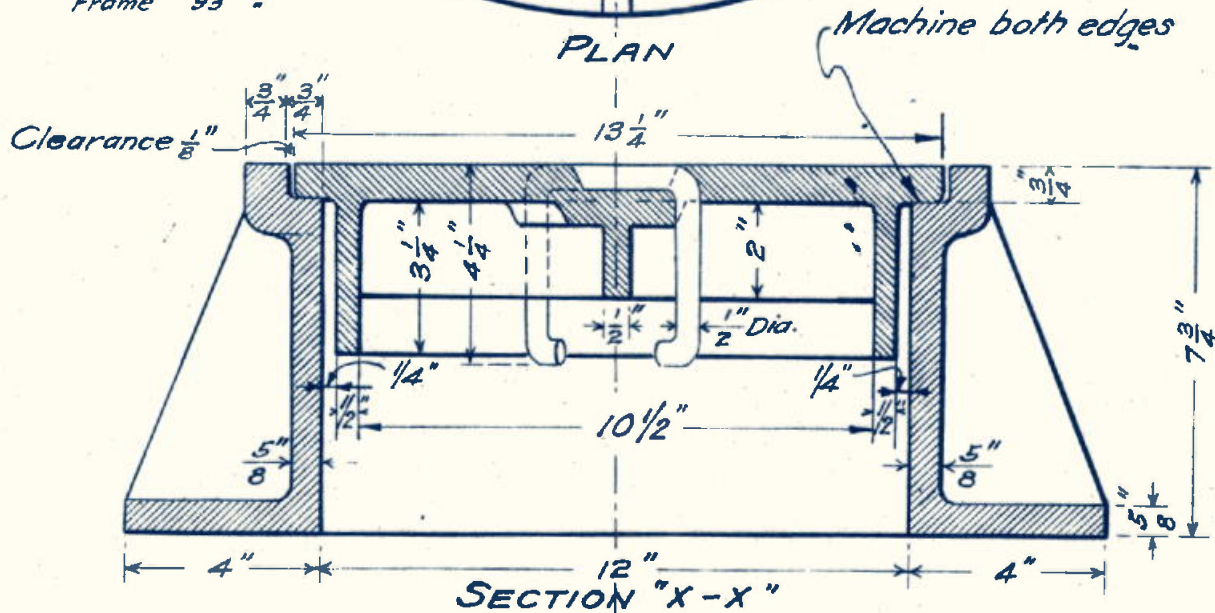
SCALE: 1/4" = 1 FT.

Revised 1-26-34

37



ESTIMATED WEIGHT:
Cover 54 lbs.
Frame 93 "



Approved: *[Signature]* date 8-26-59
City Engineer
Reg. Prof. Engr. No 1327 Mar. 1922

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

CLASS "B" MONUMENT
FRAME AND COVER

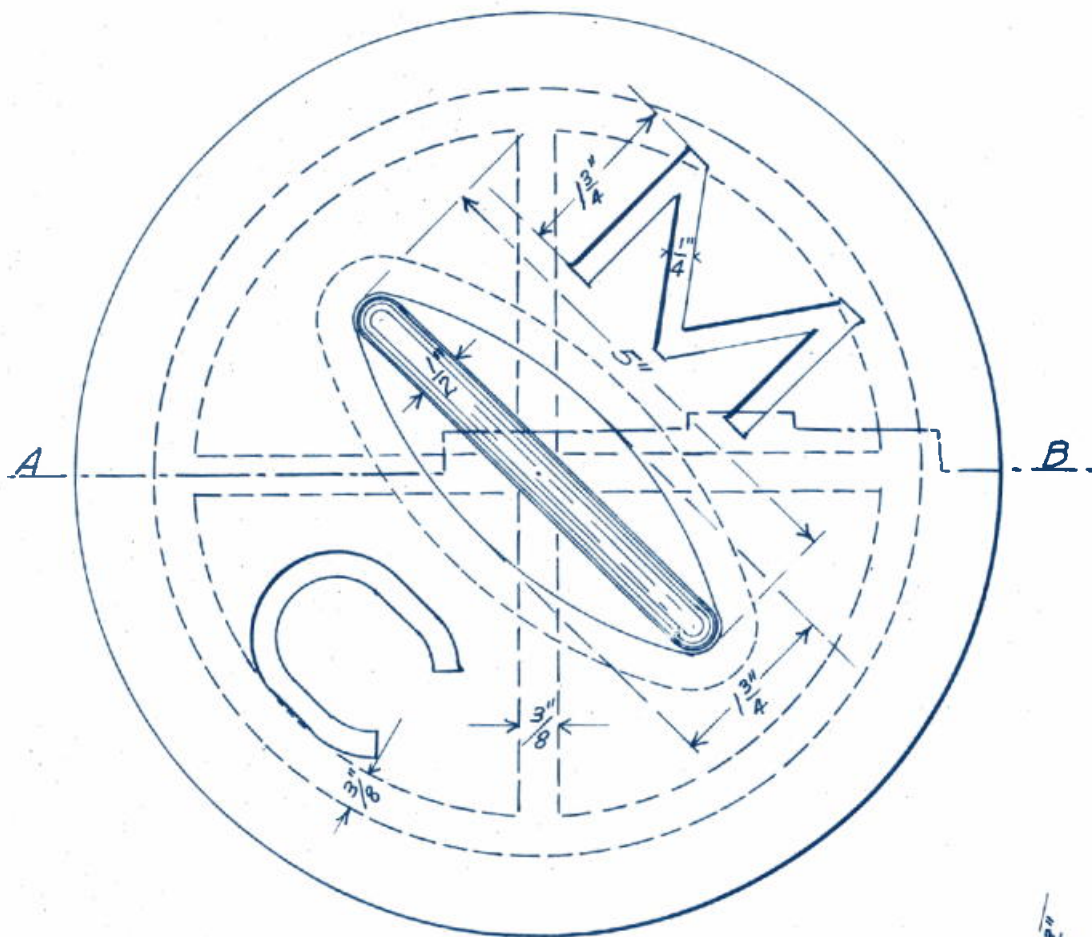
DRAWN BY J. V. G.

DATE Nov. 5, 1914

CHECKED BY

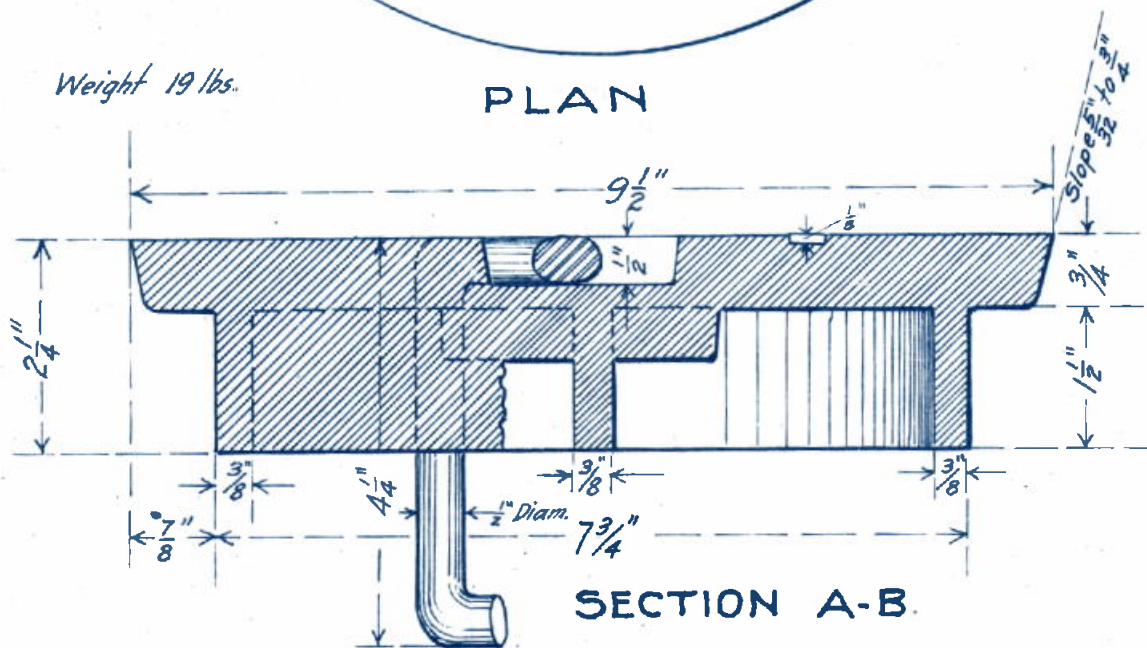
SCALE 1 INCH = 4 FEET

Revised 9-9-25



Weight 19 lbs.

PLAN



SECTION A-B.

APPROVED:

[Signature]

City Engineer.

Reg. Prof. Engr No 1397, Mar. 1922

Date 8-27-59

CITY OF PORTLAND, OREGON

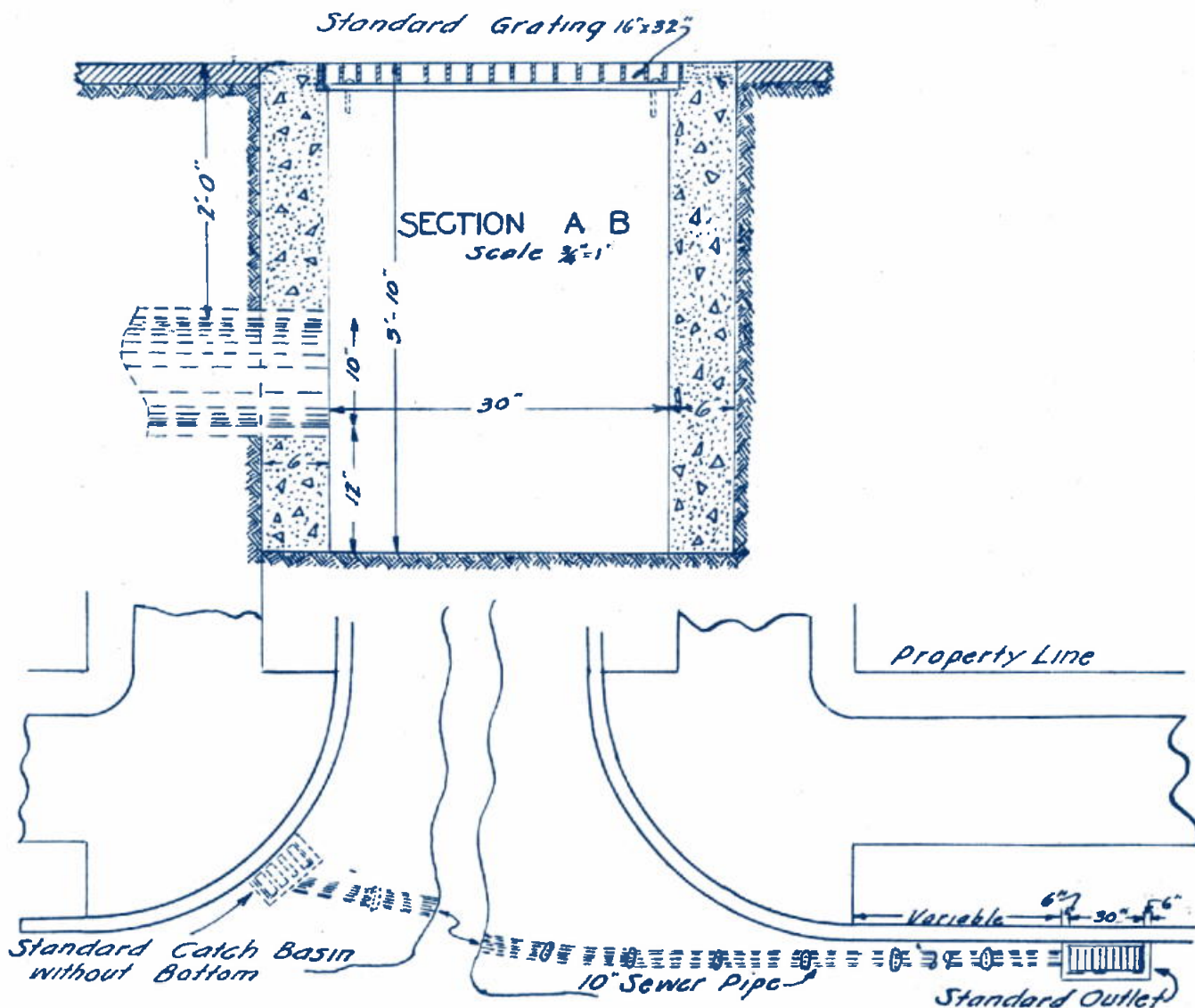
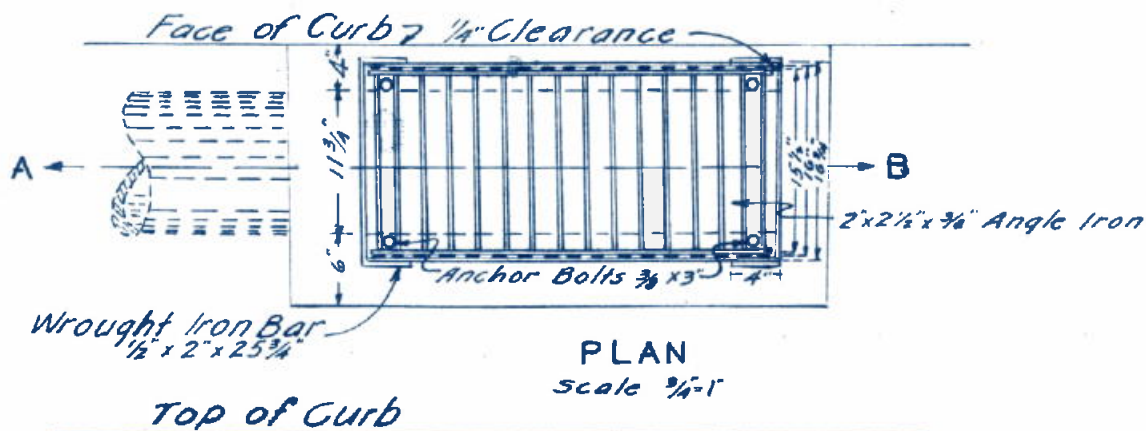
DEPARTMENT OF PUBLIC WORKS

OFFICE OF CITY ENGINEER

**MONUMENT COVER
TO FIT OLD STYLE FRAMES**

DRAWN BY O.E.S.
TRACED BY O.E.S.

DATE 12-29-14
SCALE - HALF SIZE

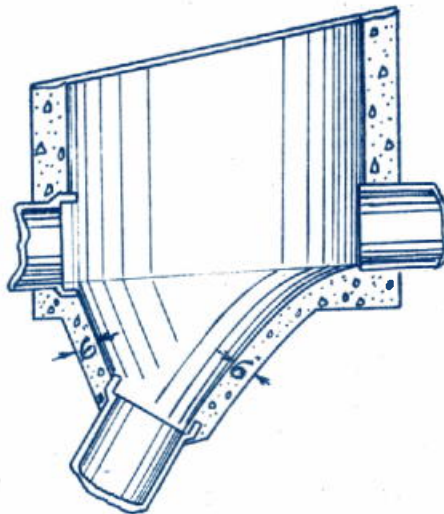


GENERAL PLAN
Scale 1/8"=1'

APPROVED: *[Signature]* DATE 8-27-29
CITY ENGINEER
REG. PROF. ENGR. NO. 1397, MAR. 1929

CITY OF PORTLAND OREGON
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

STANDARD OUTLET
SHOWING CONNECTION
WITH CATCH BASIN
DRAWN BY C.E.D. NOVEMBER 1927
TRACED BY C.B.O. SCALES AS NOTED
CHKD. BY O.W.



*Section of Manhole
Showing method of reconstructing
bottom of old manhole to provide
connection with new sewer. Cost to
be included in price bid for
connections to new sewer.*

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS.
OFFICE OF CITY ENGINEER

SPECIAL MANHOLE RECONSTRUCTION.

Approved

City Engineer.

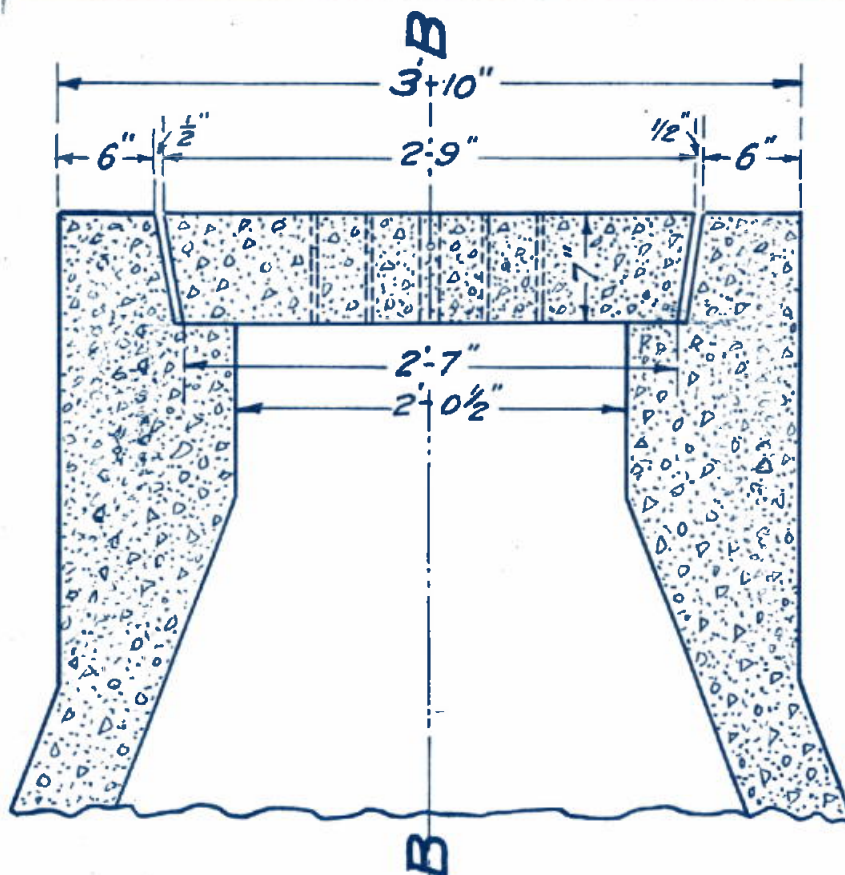
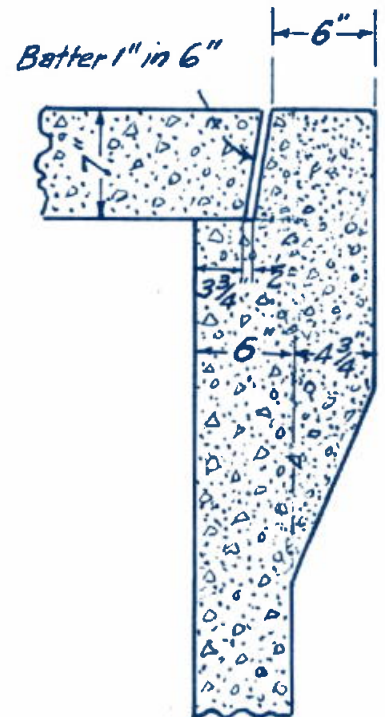
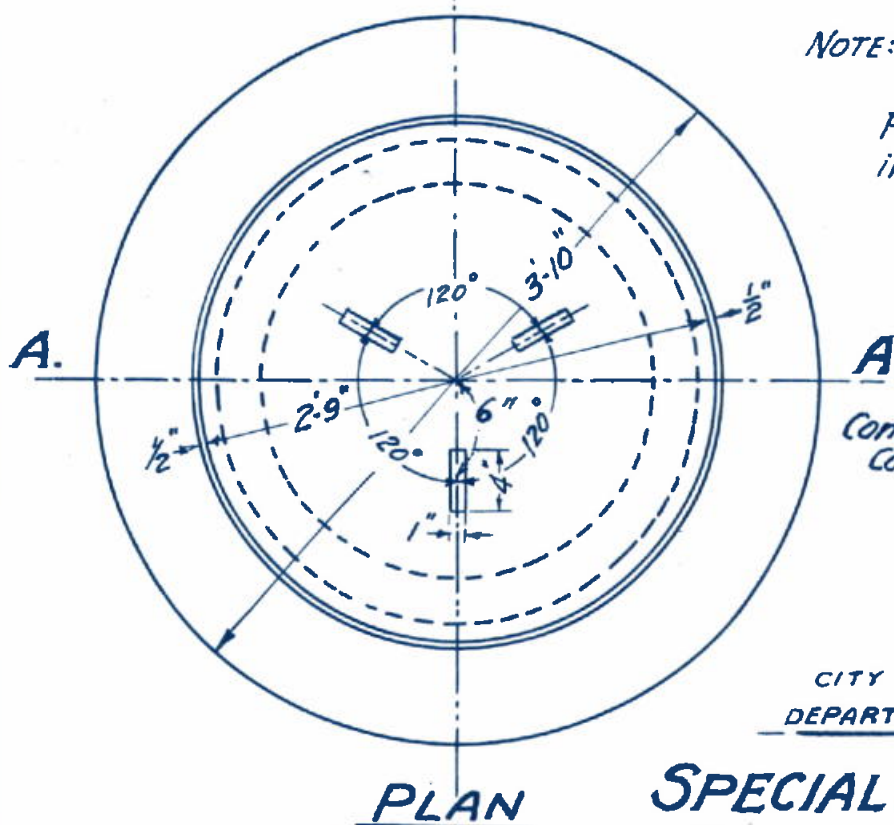
Reg. Prof. Eng'r. No. 1397, Mar, 1929

Date 8-27-39

SCALE 3/8" = 1'

Nov. 21, 1932

DRAWN BY: W.L.M.

SECTION A-ASECTION B-BPLAN

NOTE: Omit Iron steps in this type
of Manhole.
Place wood dowels for future
installation of iron steps.

Concrete in Manhole = 1-2-3 Mix
Concrete in Cover = 1-1 1/2-2 Mix
Weight of Cover 490 lbs.

CITY OF PORTLAND, ORE.
DEPARTMENT OF PUBLIC WORKS

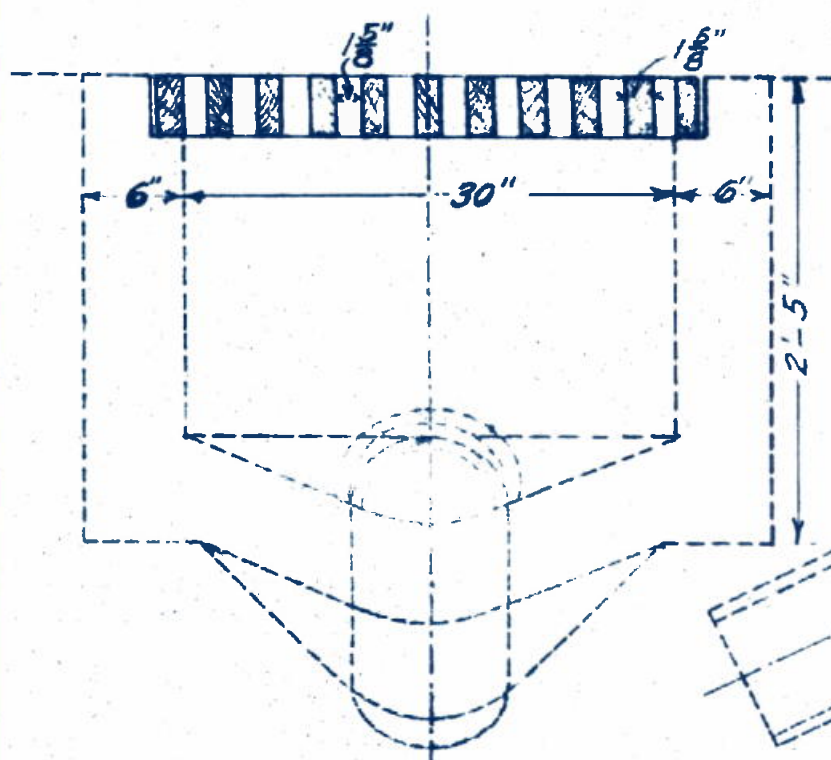
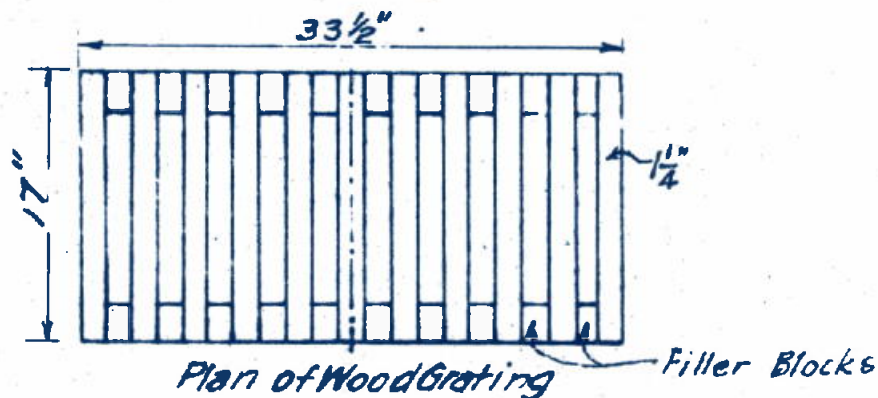
SPECIAL MANHOLE COVER & RECONSTRUCTION FOR TOP OF STANDARD MANHOLE

Scale 1" = 1'

July, 1942 Traced by... W.A.K.
Drawn by... L.F.S.

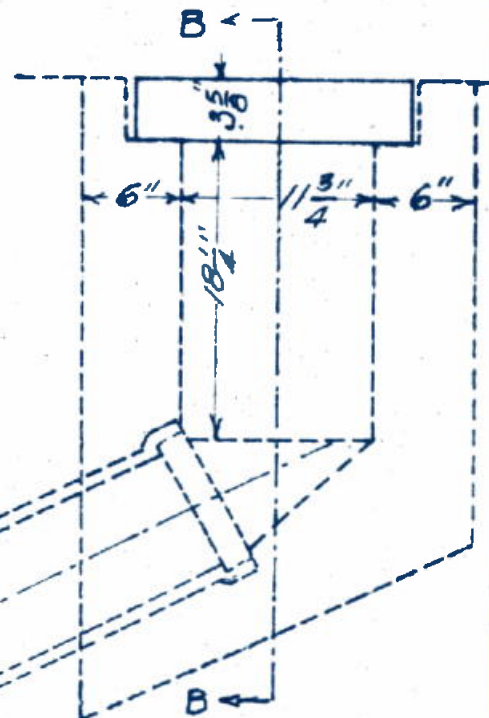
APPROVED DATE 8-27-59

[Signature]
CITY ENGINEER
Reg. Prof. Engr. No. 1227, MQC 1222



Material all 2"x4"-S4.S.
Use 16^d Nails for fastening parts.
Paint grating with Creosote

SCALE: 1" = 1 foot.



WOODEN INLET GRATING

APPROVED

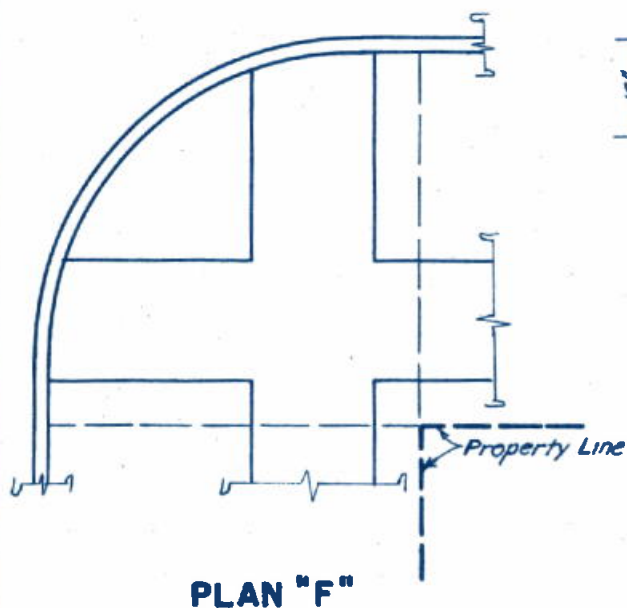
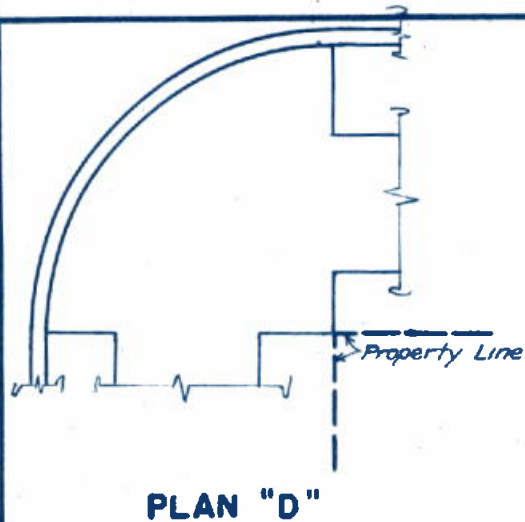
CITY ENGINEER

DATE

9-8-59

REG. PROF. ENGR. NO. 1397, Mar. 1929

DRAWN BY L.F.S.
CHECKED BY W.A.K.



The top edges of curb to be rounded off with a 1" radius on the outside and a 1/2" radius on the inside.
All corners with a distance of 15' or over between property line and curb line to be Plan "F"—otherwise use Plan "D".
Concrete walk and curb shall conform to Spec. No. 106.

APPROVED: _____

CITY ENGINEER

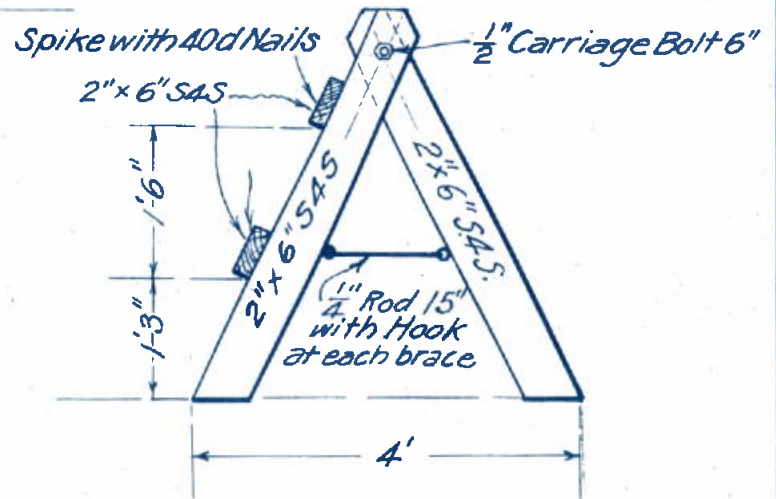
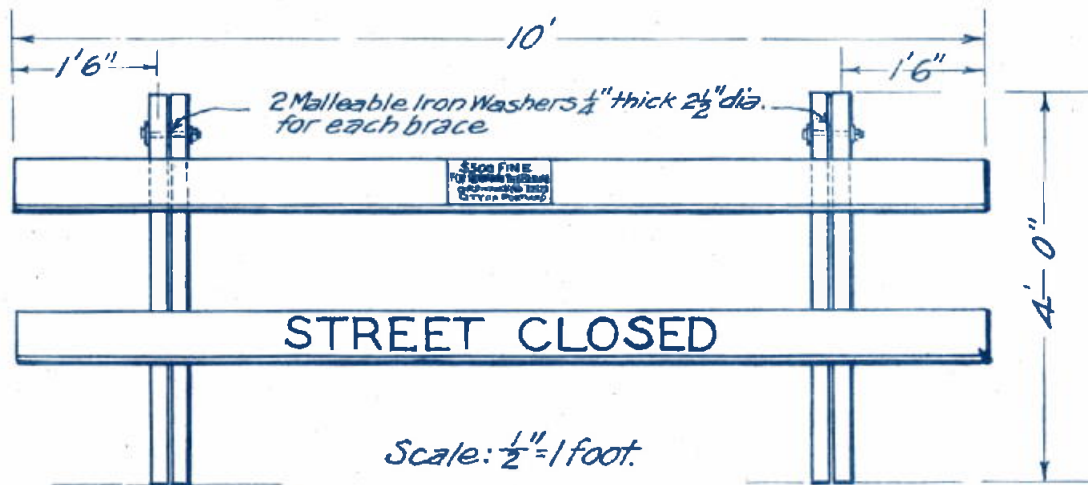
REG. PROF. ENGR. NO. 1397, Mar. 1929

DATE 7-8-57

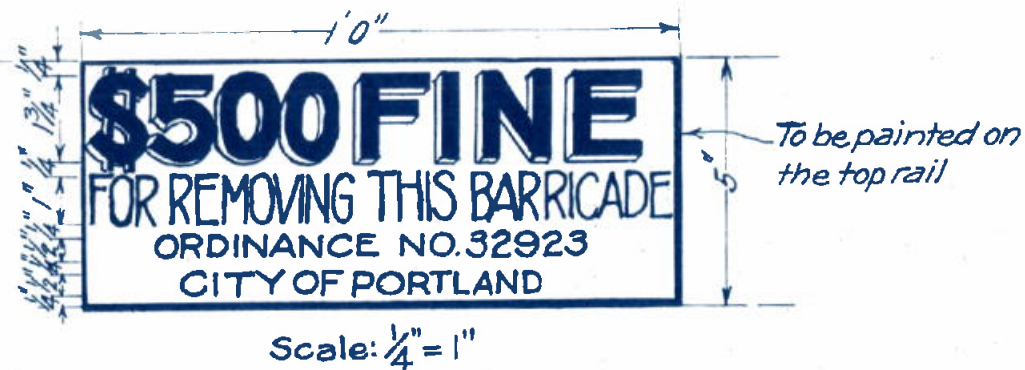
CITY OF PORTLAND OREGON
DEPT. OF PUBLIC WORKS
OFFICE OF CITY ENGINEER
STANDARD PLANS

**CONCRETE SIDEWALK &
SIDEWALK CORNERS**

73



NOTE
ALL LUMBER NO2 CLEAR S4S.
THREE COATS WHITE LEAD
LETTERS BLACK

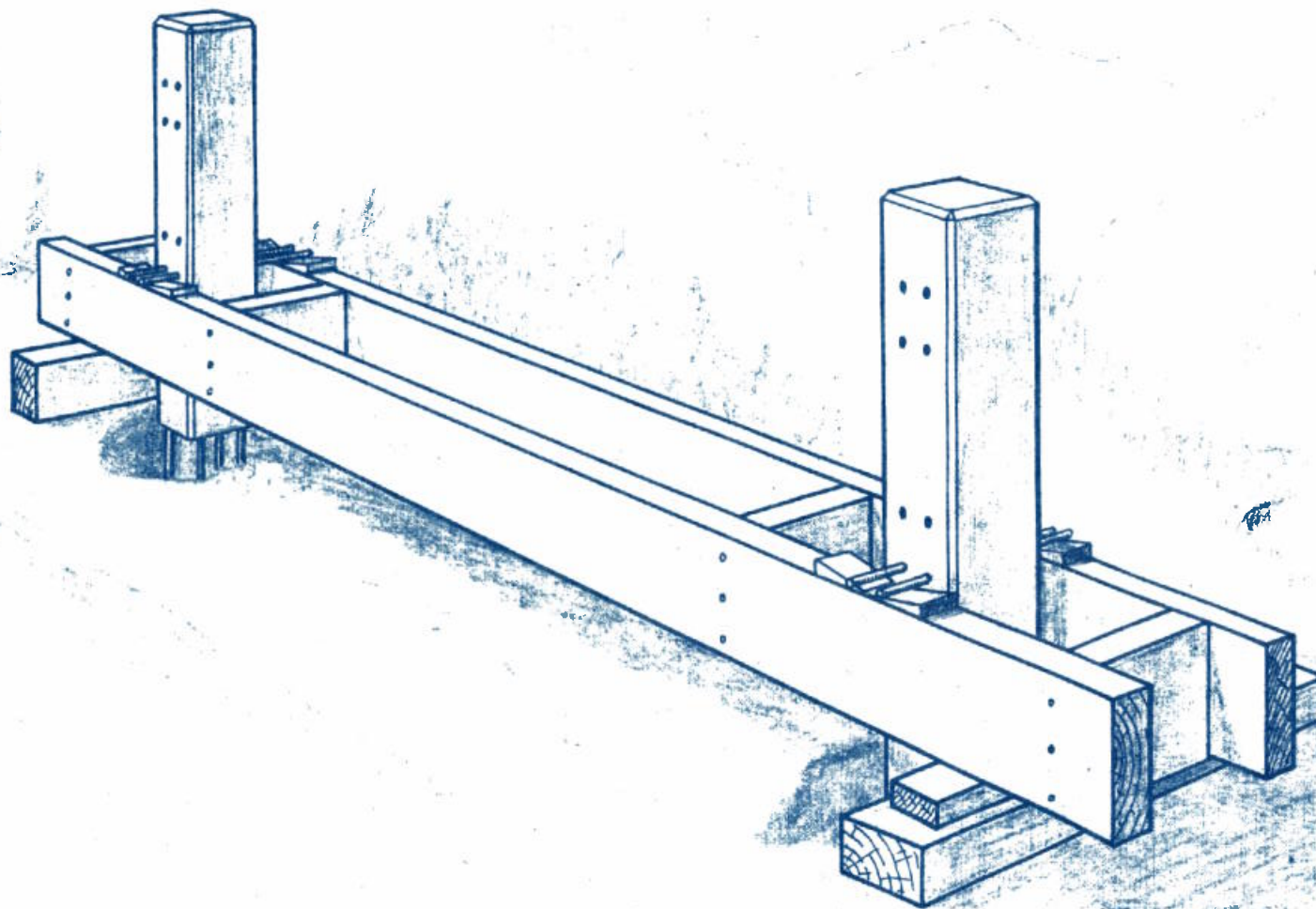


APPROVED *[Signature]* DATE 9-8-59
CITY ENGINEER
REG. PROF. ENG. NO. 1397, Mar. 1929

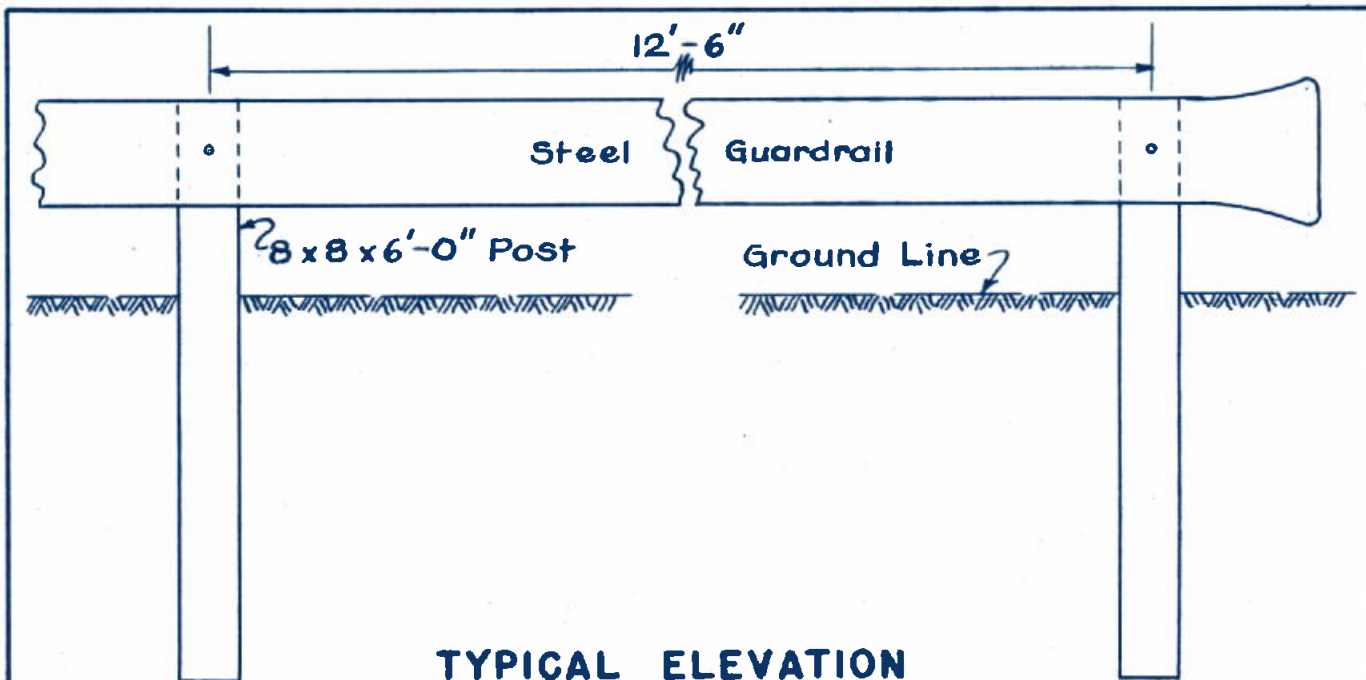
CITY OF PORTLAND
DEPARTMENT OF PUBLIC WORKS
STANDARD BARRICADE

SCALE AS SHOWN.
DEC. 1922

REVISED: MAY, 1, 1923
REVISED: MAR. 27, 1934

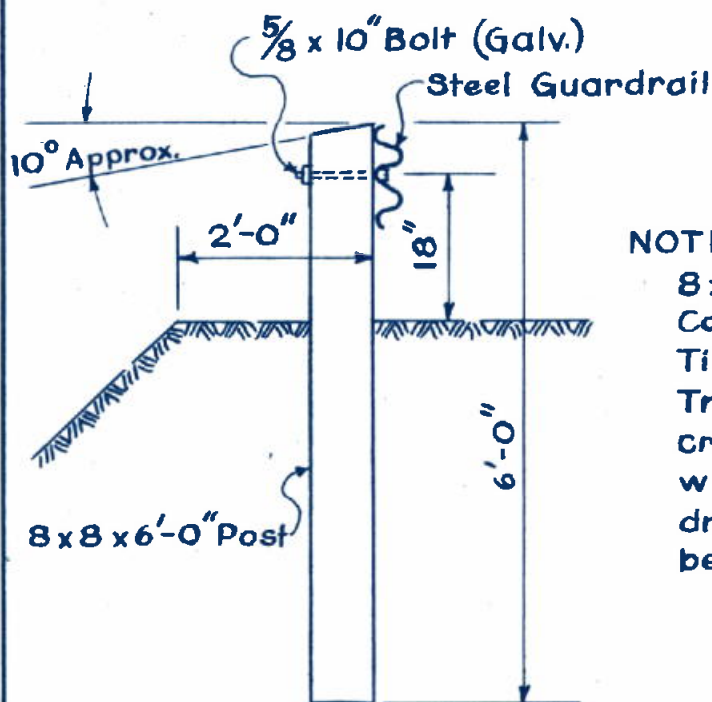


Sketch showing method of supporting precast portions of Concrete Posts while base portions are being poured.



TYPICAL ELEVATION

SCALE: 1/2" = 1'-0"



TYPICAL SECTION

SCALE: 1/2" = 1'-0"

NOTE:

8x8x6'-0" Douglas Fir Posts. S4S Construction Grade Posts & Timbers, incised $\frac{9}{16}$ " deep & Treated. - 8 pound empty cell creosote treatment, in accordance with A.W.P.A. specifications. All drilling & boring to be completed before treatment.

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
BUREAU OF DESIGN, SURVEYING & DRAFTING

APPROVED

J. G. Apperson 8-7-56

CITY ENGINEER

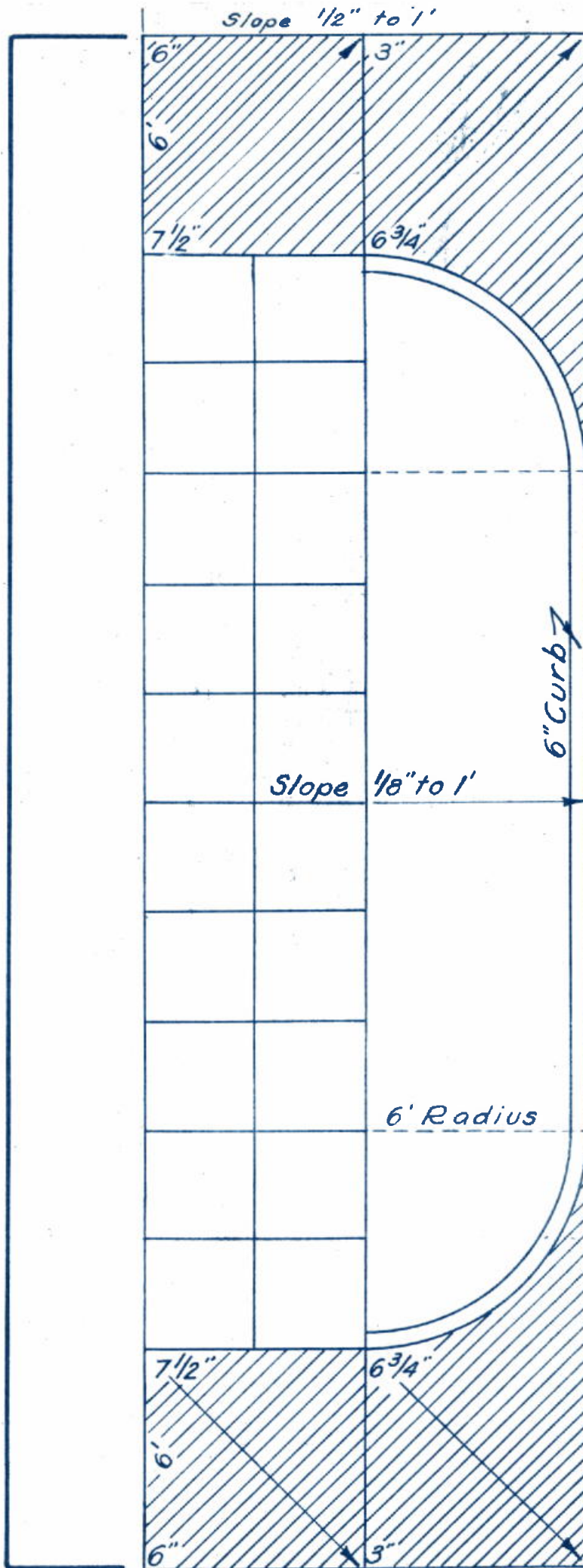
DATE

REG. PROF. ENGR. NO. 219, NOV. 8, 1919

STANDARD GUARDRAIL

MAY 1, 1956

J.H.K.



APPROVED:

DATE 7-23-57

[Signature] 9-8-59

CITY ENGINEER

REG. PROF. ENGR. No. 1397, Mar. 1929

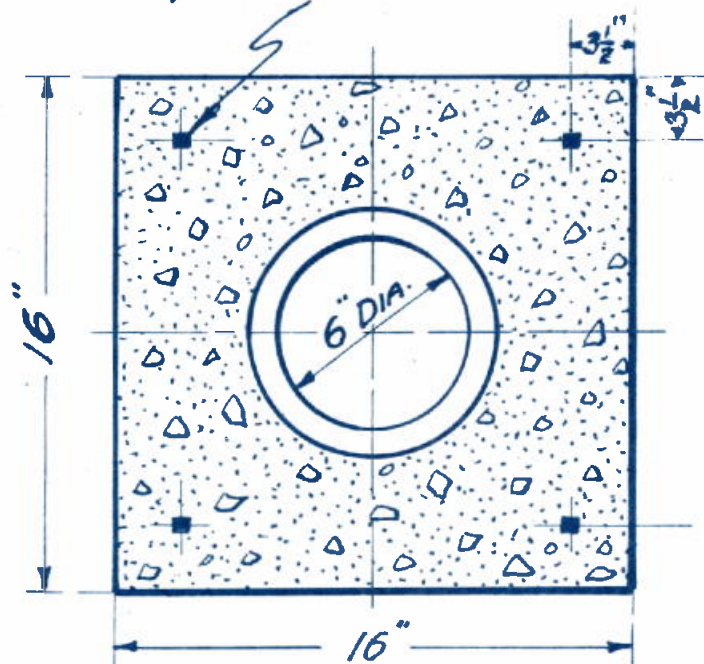
CITY OF PORTLAND OREGON.
DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE CITY ENGINEER.

SAFETY ISLAND
FOR
SERVICE STATION
DRIVEWAYS

Elevations given for 12' Sidewalk
Scale 1"=4'

Drawn by B.A.E.
Traced by A.J.H.

NOTE: All Reinforcing Steel
No. 5 Deformed Bars
Lap 18" & Wire.



.055 C.Y. Conc. per Lin. Ft.
4.50 lbs. Steel per Lin. Ft.

Concrete 1-2-4 Mix.

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN OF 6" SEWER PIPE LAID IN CONCRETE ON SLOPES

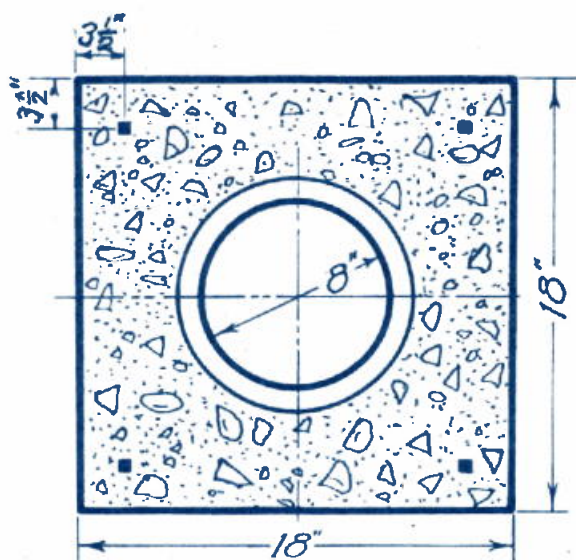
APPROVED *J. H. Penhal* DATE 7-8-59
CITY ENGINEER
REG. PROF. ENG. NO. 1397, Mar. 1929

SCALE 2" = 1'
DATE: 11-26-28

Revised, Oct. 7, 1953 LFS.

REVISED DEC. 27, 1944 LFS.

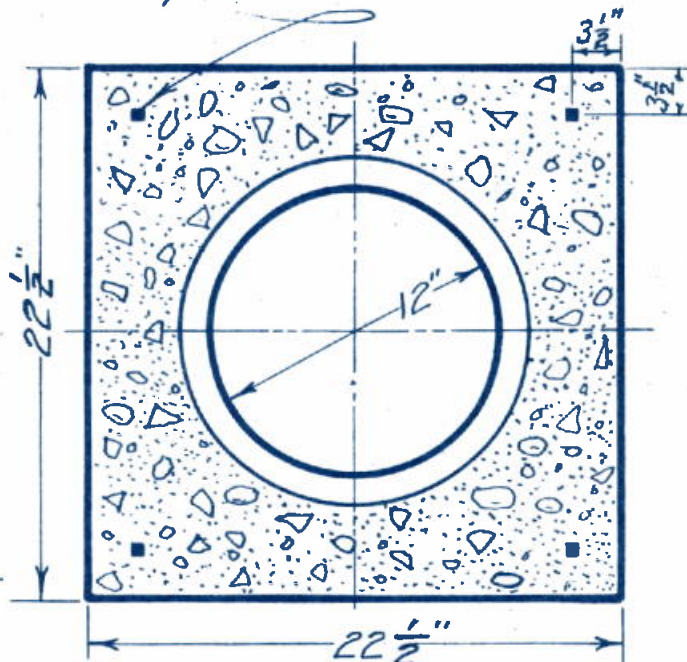
WAK.



8" S.P.

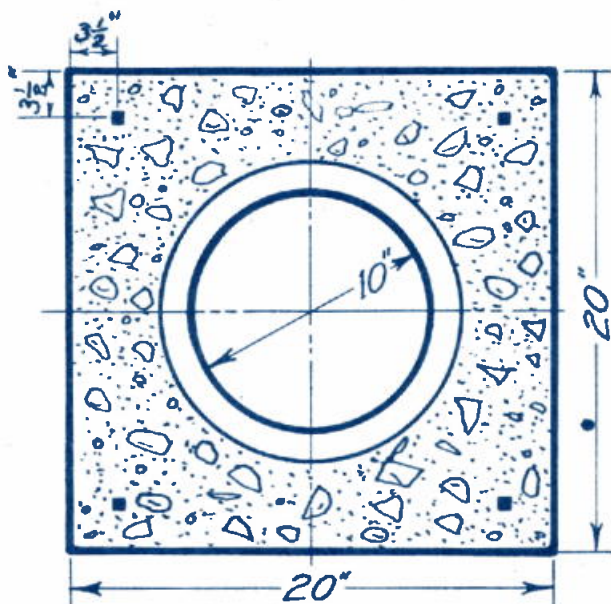
.065 C.Y. Conc. per Lin. Ft.
4.50 lbs. Steel per Lin. Ft.

NOTE: All Reinforcing Steel
No. 5 Deformed Bars
Lap 18" & Wire.



12" S.P.

.091 C.Y. Conc. per Lin. Ft.
4.50 lbs. Steel per Lin. Ft.



10" S.P.

.075 C.Y. Conc. per Lin. Ft.
4.50 lbs. Steel per Lin. Ft.

All concrete 1-2-4 MIX.

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN OF

SEWER PIPE

LAI D IN CONCRETE ON SLOPES

APPROVED

CITY ENGINEER

DATE 9-8-59

REG. PROF. ENGR No. 1397, Mar. 1929

SCALE: 1 1/2" = 1'

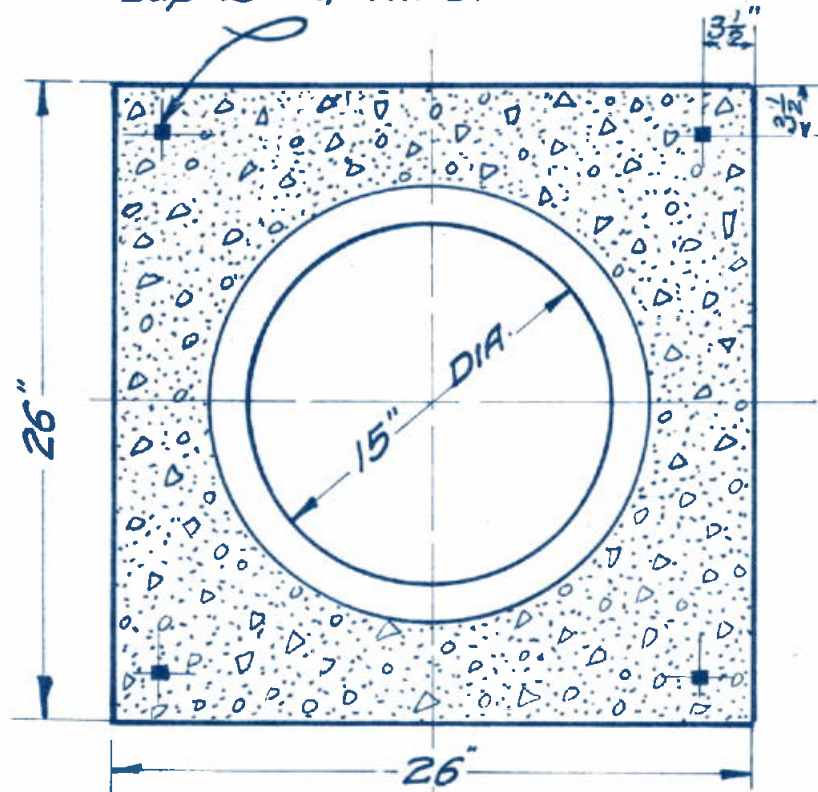
DATE: 7-5-28

Revised Oct. 7th 1953 L.F.S.

REVISED-DEC. 27, 1944. L.F.S.

R.F.N.
WHA

NOTE: All Reinforcing Steel
No. 5 Deformed Bars
Lap 18" & Wire.



15" S.P.

.112 C.Y. Conc. per Lin. Ft.
4.5 lbs. Steel per Lin. Ft.

Concrete 1-2-4 MIX.

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN OF 15" SEWER PIPE LAID IN CONCRETE ON SLOPES

APPROVED *[Signature]* DATE 9-8-59
CITY ENGINEER.

REG. PROF. ENGR. No. 1397, Mar. 1929

SCALE 1 1/2" = 1'

DATE 12-28-28.

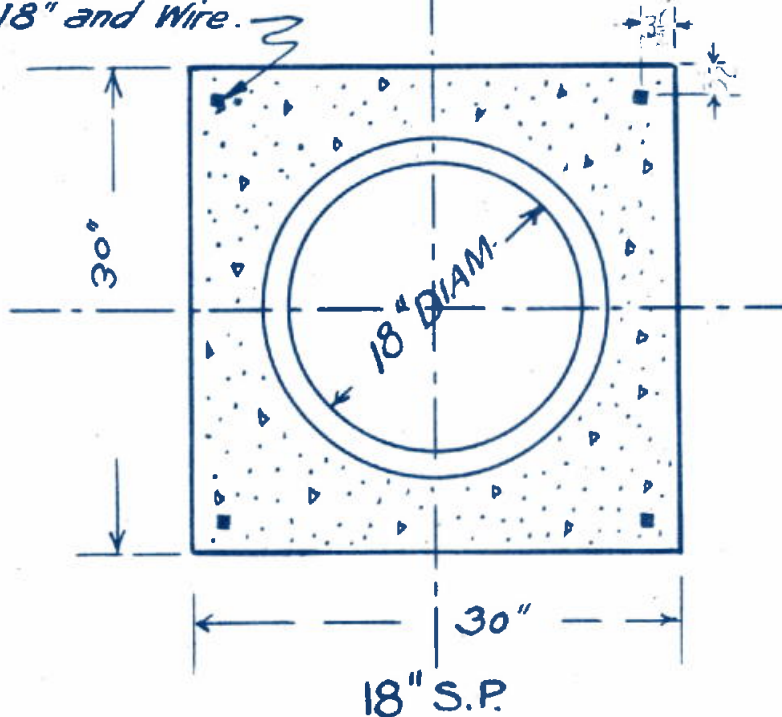
Revised Oct. 6, 1953

REVISED, DEC. 27-1944 L.F.S.

BY-WAK.
CHK-W.H.A.

CONCRETE 1-2-4 MIX

NOTE: All Reinforcing Steel
No.5 Deformed Bars
Lap 18" and Wire.



.142 C.Y. Conc. per lin. ft.
4.5 lbs. Steel " " "

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
OF
18" SEWER PIPE
LAID IN CONCRETE
ON SLOPES

SCALE 1" = 1'

8-30-29

APPROVED

H. B. Benthall

DATE 9-8-59

CITY ENGINEER

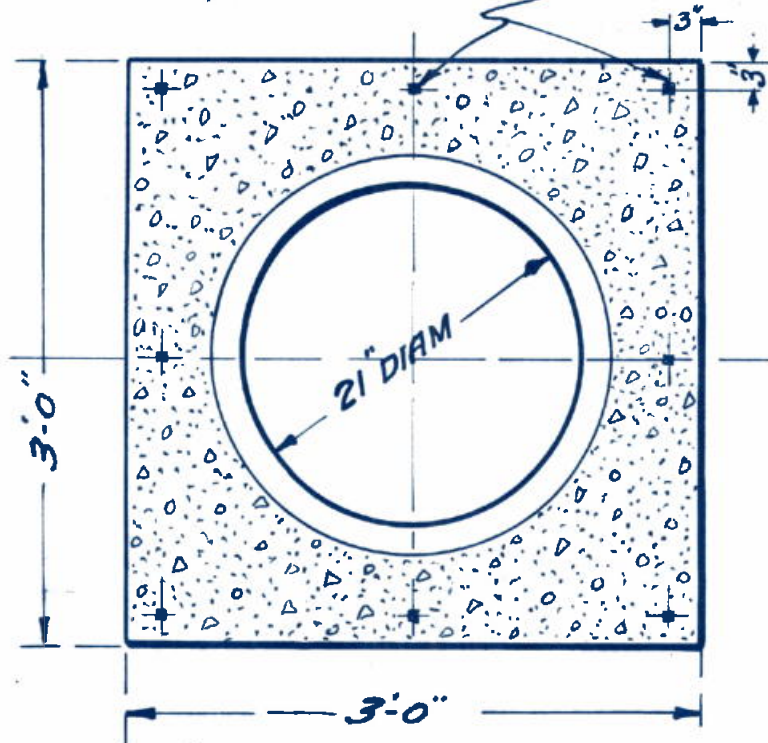
REG. PROF. ENGR No. 1397, MAR. 1929

Revised Oct. 6, 1953 L.F.S. REVISED, DEC. 27, 1944 L.F.S.

By W.H.A.
chk. WAK.

8/-D

NOTE: All Reinforcing Steel
No. 5 deformed Bars.
Lap 18" and Wire.



.212 C.Y. Conc. per Lin Ft.
9.00 lbs. Steel per Lin. Ft. Inc. Laps.
All Concrete 1-2-4 MIX.

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN OF 21" SEWER PIPE LAID IN CONCRETE ON SLOPES

APPROVED *[Signature]* DATE 9-8-59
CITY ENGINEER

REG. PROF. ENGR. NO. 1397, Mar. 1929.

REVISOR, 10-8-53 - L.F.S.

SCALE: 1" = 1'

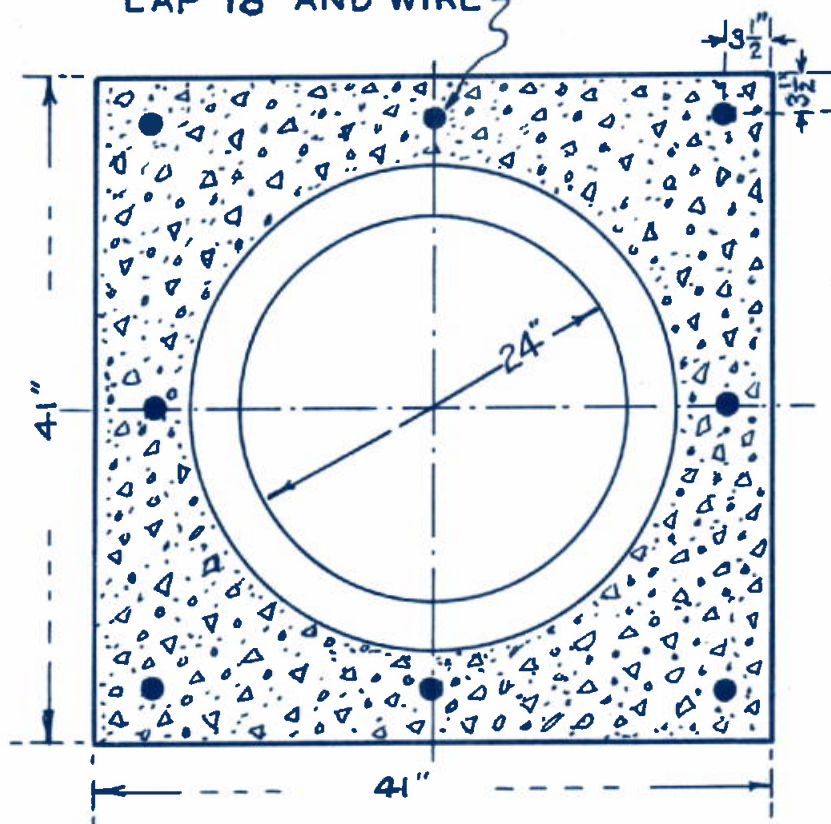
DATE: 7-30-29

REVISED DEC. 27, 1944 L.F.S.

BY: WAK.
CHK: WNA.

87-E

NOTE: ALL REINFORCING STEEL
NO. 5 DEFORMED BARS
LAP 18" AND WIRE



24" S.P.

0.25 CU. YDS. CONC. PER. LIN. FT.

9.0 LBS. STEEL PER. LIN. FT. INCLUDING LAPS

CONCRETE 1-2-4-MIX.

CITY OF PORTLAND, OREGON.
DEPARTMENT OF PUBLIC WORKS.

STANDARD PLAN OF SEWER PIPE LAID IN CONCRETE ON SLOPES

APPROVED

[Signature]
CITY ENGINEER.

DATE

Sept 8-59

REG. PROF. ENGR. NO. 1397, Mar. 1929

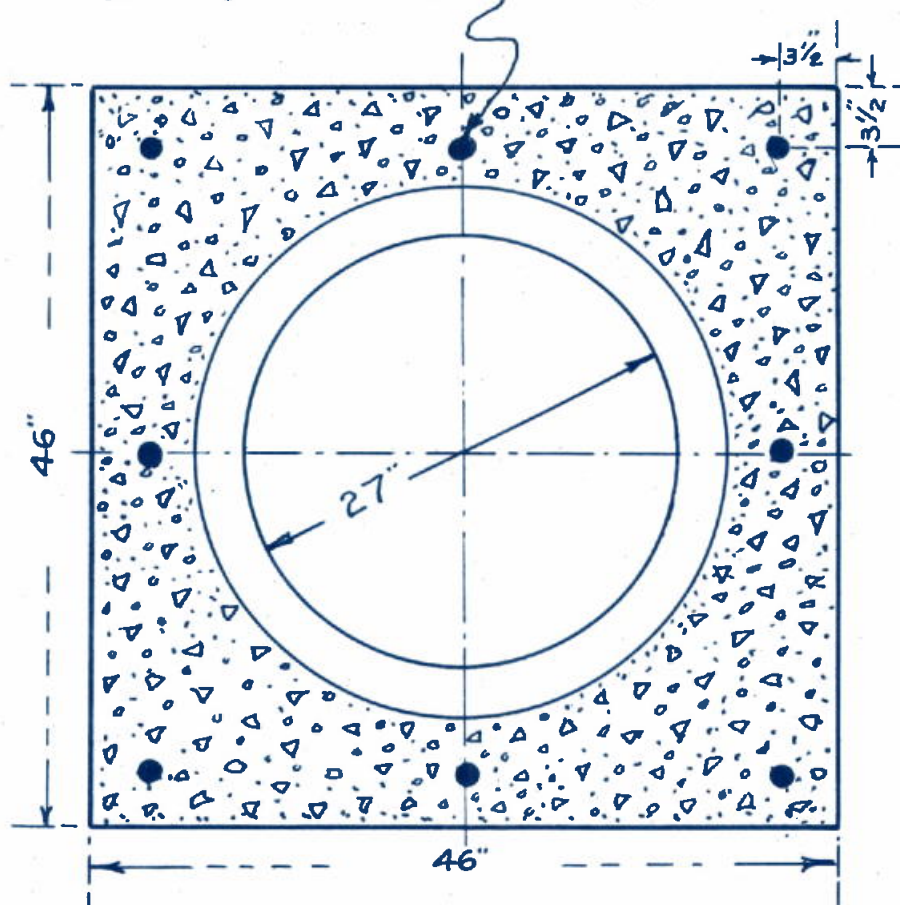
REVISED 10-5-53, L.F.S.

CHECKED BY L.T.B.

SCALE: 1" = 1'

DATE: 2-20-1947 G.A.R.

NOTE: ALL REINFORCING STEEL
NO. 5 DEFORMED BARS
LAP 18" AND WIRE



27" S.P.

0.32 CU. YDS. CONC. PER. LIN. FT.

9.00 LBS. STEEL. PER. LIN. FT.

CONCRETE - 1-2-4 MIX

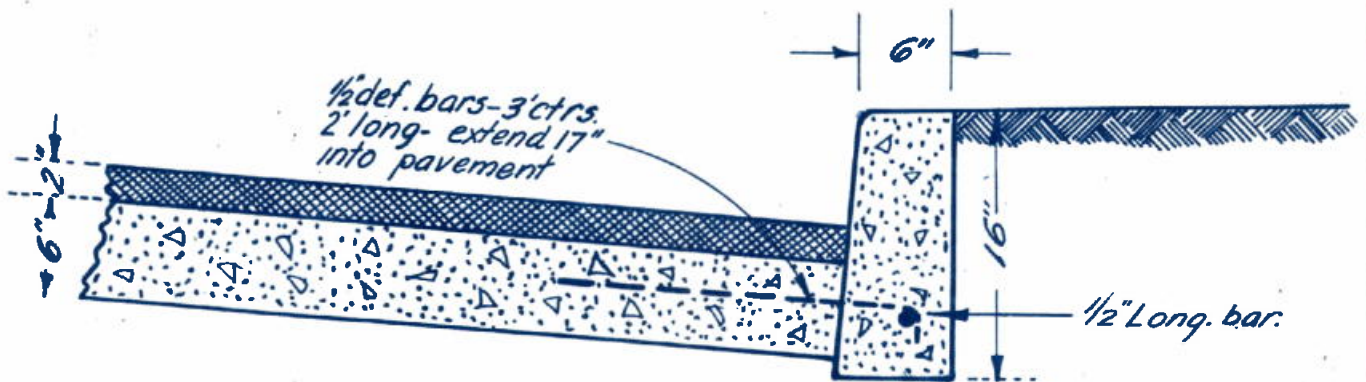
CITY OF PORTLAND OREGON.
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN OF SEWER PIPE LAID IN CONCRETE ON SLOPES

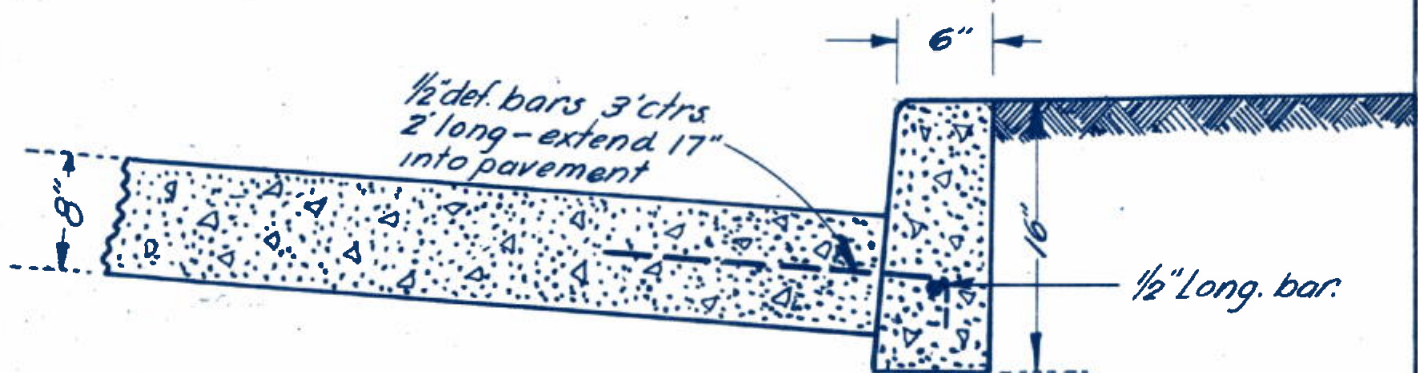
APPROVED *H. Rantala* DATE *9-8-59*
CITY ENGINEER
REG. PROF. ENGR. NO. 1397, Mar. 1929

Revised Oct. 6, 1953 L.F.S.

SCALE: 1" = 1" DATE: 2-20-47. GAR.



6" CONCRETE BASE
AND 2" TOP.



8 CONCRETE.

A. J. H. 9-8-59
City Engineer (Date)
Reg. Prof. Engr. No. 1397, Mar. 1929

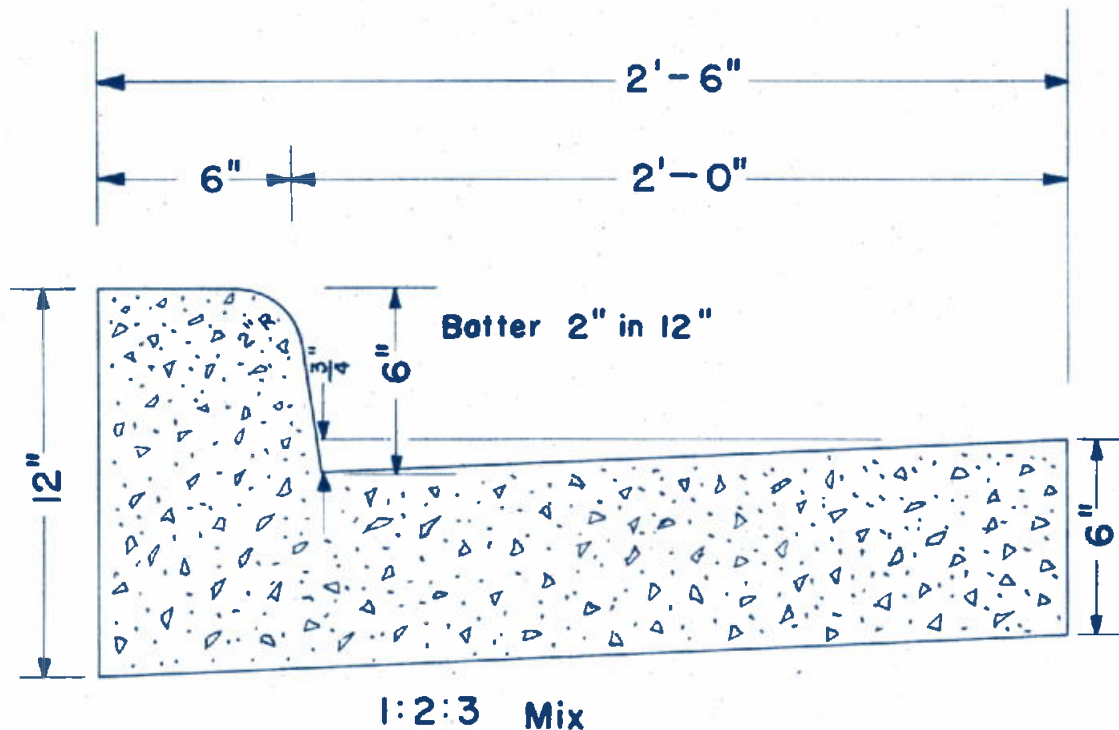
CITY OF PORTLAND, OREGON.
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

STANDARD PLAN
OF
METHOD OF TYING CURB
TO PAVEMENT

DRAWN BY A.J.H.

TRACED BY A.J.H.

MAY 1929



NOTE:

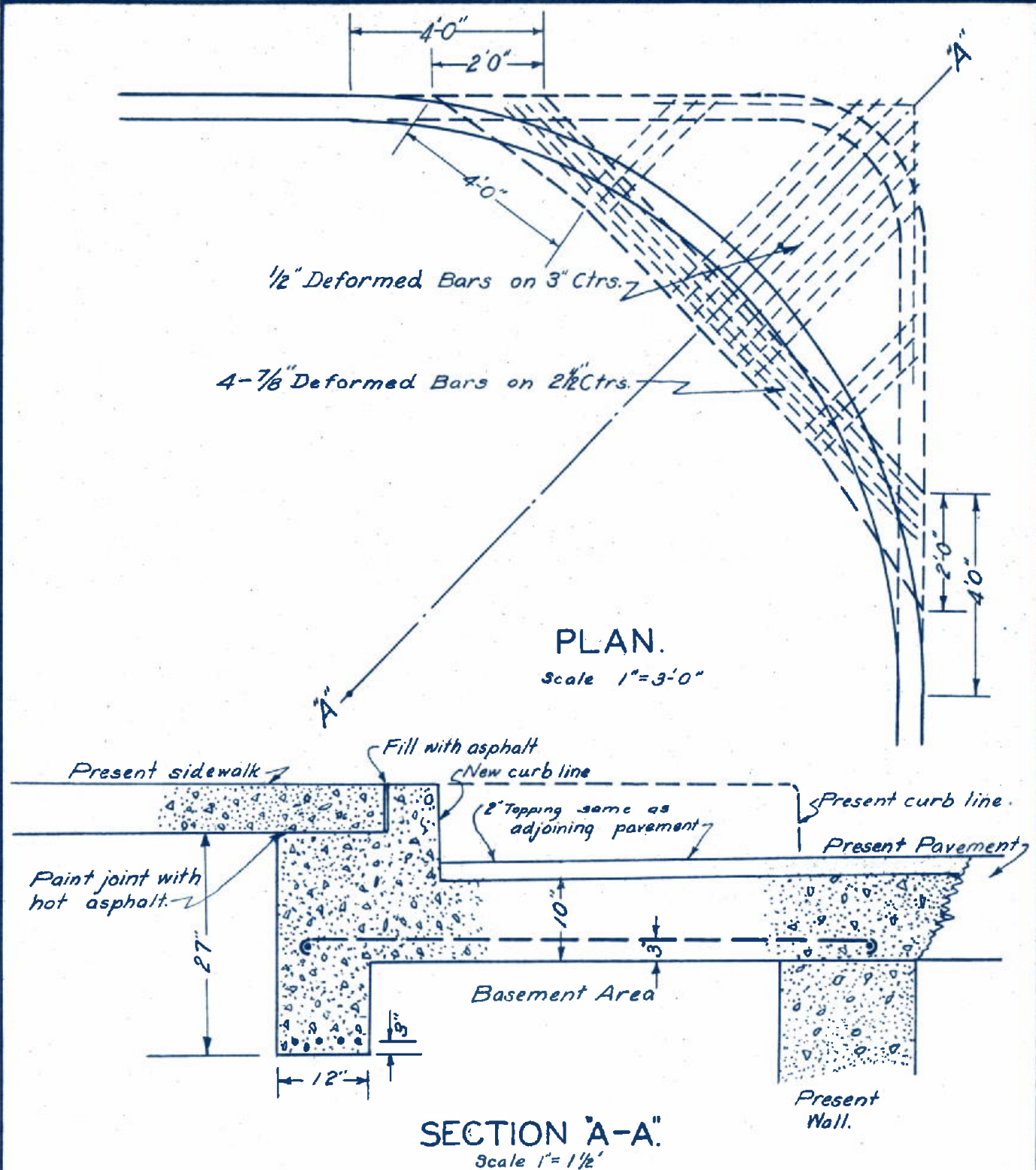
Transverse Expansion Joints to be constructed at intervals not to exceed 25'

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

CROSS SECTION OF COMBINATION CURB & GUTTER

APPROVED: *[Signature]* DATE: 9-8-57
CITY ENGINEER

REG. PROF. ENGR. NO. 1397, Mar. 1929



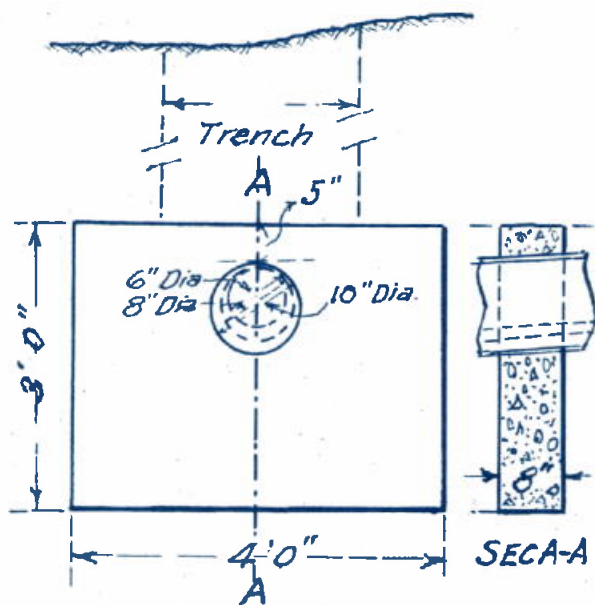
TYPICAL CONSTRUCTION FOR CHANGING
SIDEWALK CORNERS WITH 3' RADIUS TO
12' RADIUS WHEN OVER BASEMENT AREA

CITY OF PORTLAND, ORE.
DEPARTMENT OF PUBLIC WORKS.

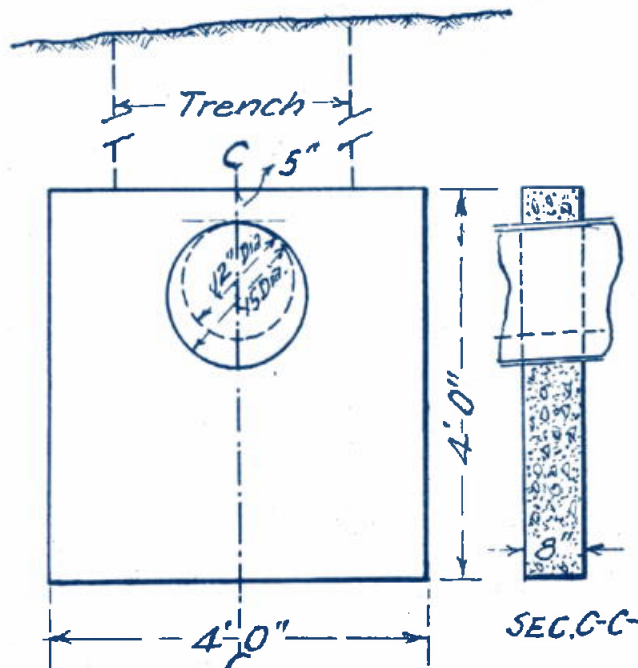
City Engineer

(Date)

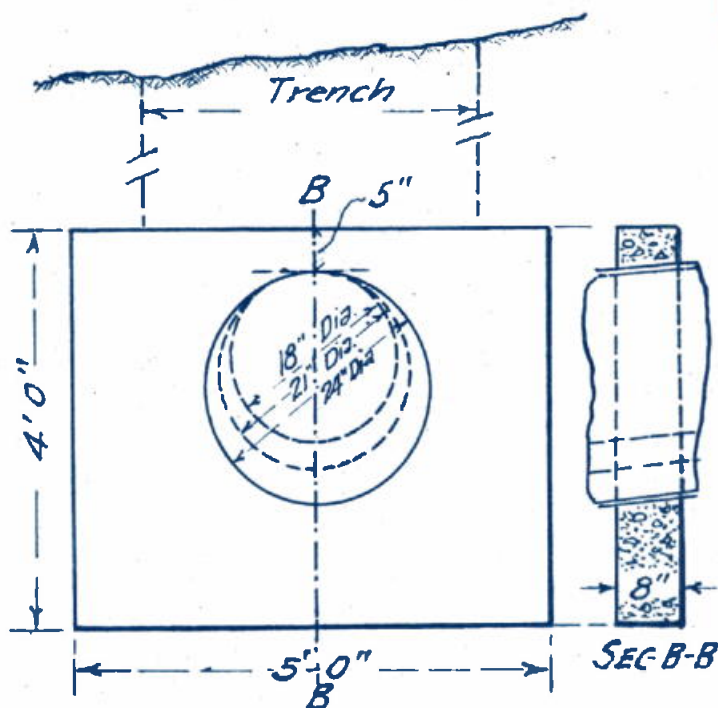
Reg. Prof. Engr. No. 1397, Mar. 1929



FOR 6"-8"&10"SEWER PIPE
0.29 Cu. Yds. Concrete each



FOR 12"&15"SEWER PIPE
0.37 Cu. Yds. Concrete each.



FOR 18"-21"&24"SEWER PIPE
0.42 Cu. Yds. Concrete each.

NOTE

All Concrete to be 1-2-4 Mix.
Walls to be placed where grade
is 18% or over.
Space between Walls to be 21 feet
on Slope Measurement.

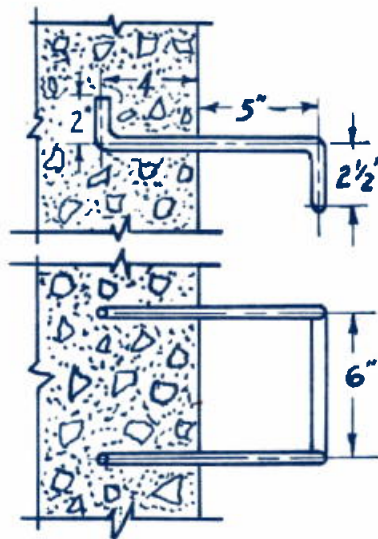
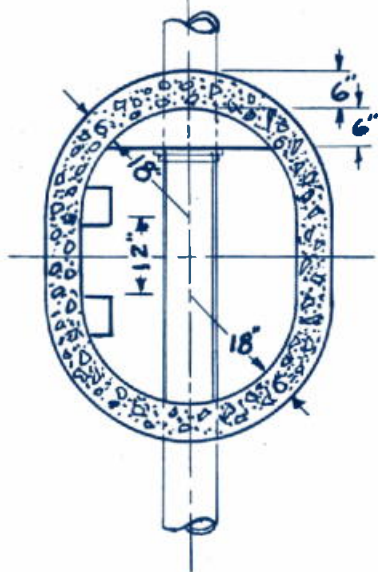
CITY OF PORTLAND, OREGON
DEPT. OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

STANDARD PLAN FOR ANCHOR WALLS

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

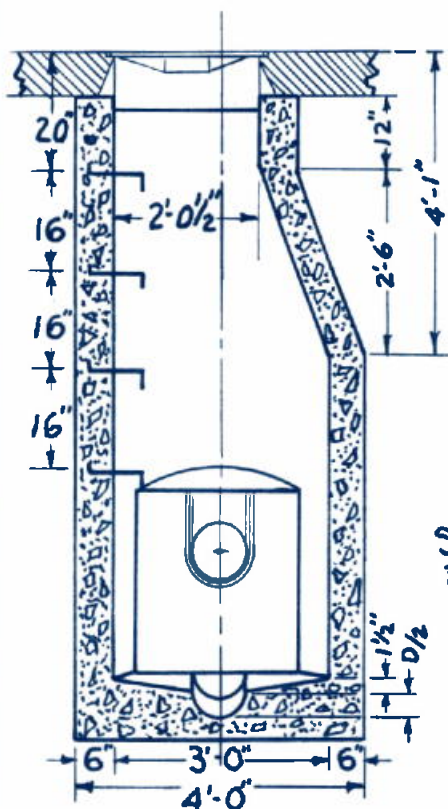
Drawn by L.F.S. Checked by R.V.

APPROVED *H. Remhal* DATE 9-8-59
CITY ENGINEER
Reg. Prof. Engr. No. 1397 Mar 1920

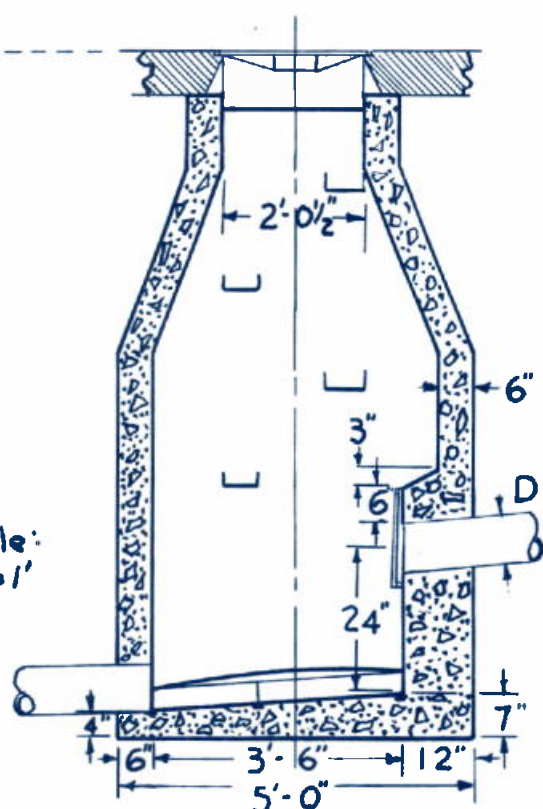


STANDARD STEP
3/4" Wrought Iron Rod
Hot-dip Galv. after
fabrication.

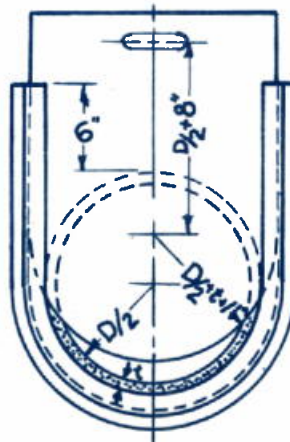
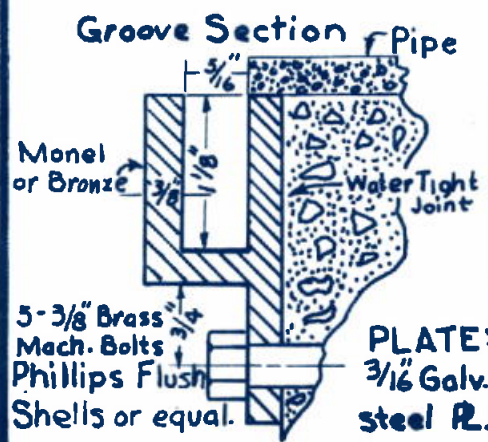
Scale:
1 1/2" = 1'



Scale:
3/8" = 1'



GUIDE & STOP PLATE DETAILS



DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

STANDARD SAMPLING MANHOLE

SCALE : AS SHOWN

DRAWN 3-22-55
M.W.P.
Retraced 9-8-59
P.E.C.

Approved:

[Signature] 9-8-59

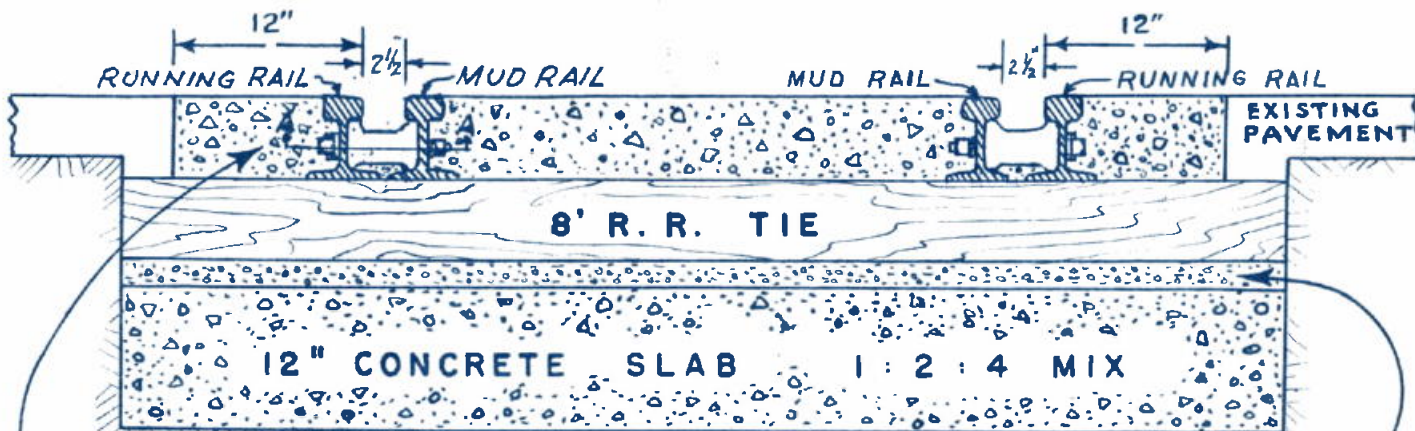
City Engineer

Date

No. 1397

Mar 1929

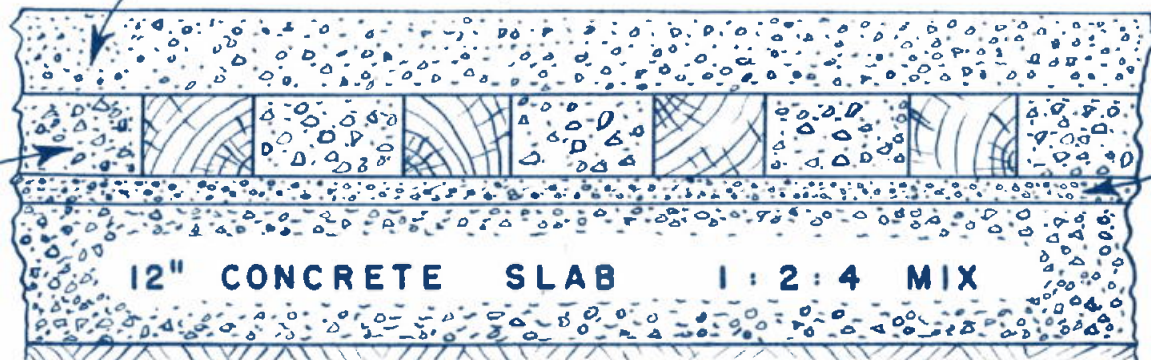
TYPICAL SECTIONS FOR R.R. TRACK CONSTRUCTION (ALTERNATE NO. 1.)



CROSS SECTION

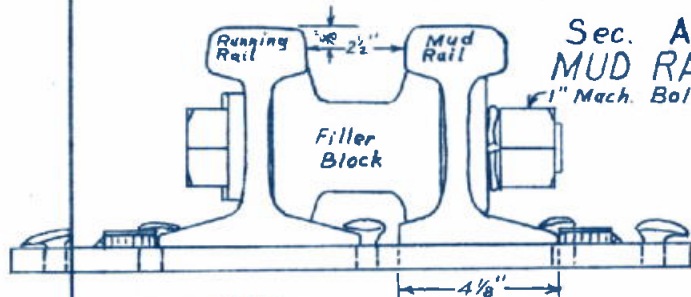
2" OF 1/2" CRUSHED ROCK & 1:2 CEMENT GROUT

CONCRETE PAVEMENT
1:2:3 MIX OR PORTLAND HOT MIX



LONGITUDINAL SECTION

NO WOOD SHALL BE USED FOR GUARD RAILS, AND HI-EARLY CEMENT SHALL BE USED IF DIRECTED BY THE CITY ENGINEER. GROUT SUBGRADE WHEN UNSTABLE.



Sec. A-A
MUD RAIL ASSEMBLY

CITY OF PORTLAND OREGON
DEPT. OF PUBLIC WORKS
OFFICE OF CITY ENGINEER
STANDARD PLANS

APPROVED:

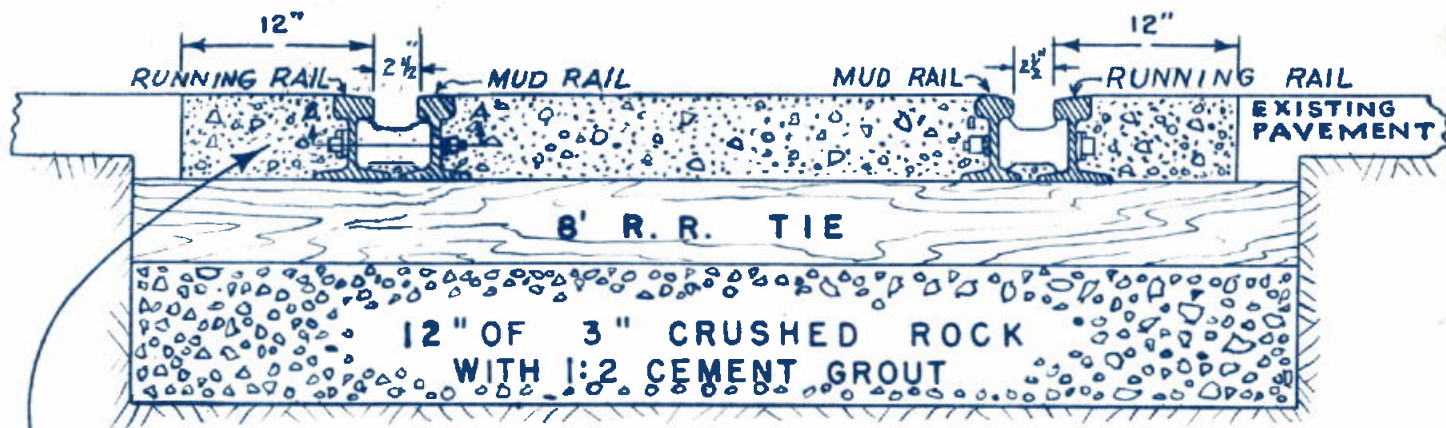
[Signature]

DATE: 7-8-59

CITY ENGINEER

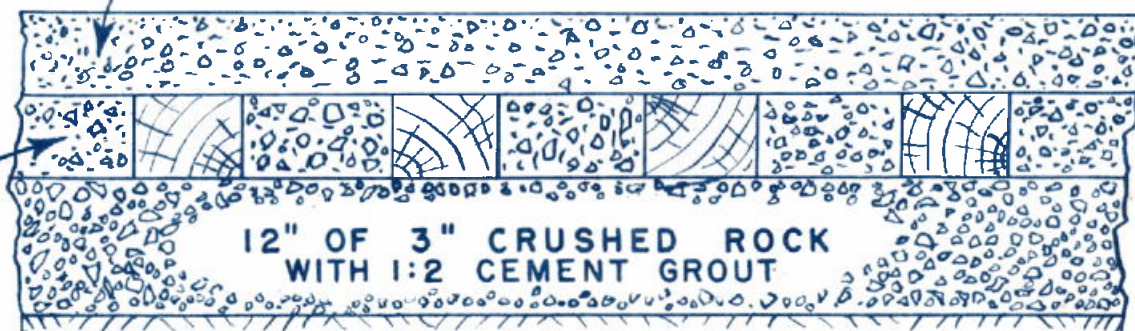
REG. PROF. ENG. NO. 1397 Mar. 1929

TYPICAL SECTIONS FOR R.R. TRACK CONSTRUCTION (ALTERNATE NO. 2.)



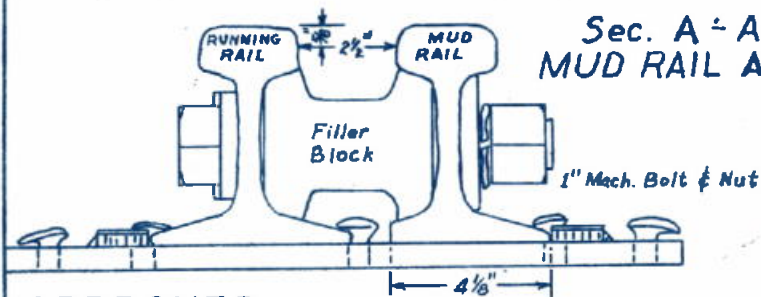
CROSS SECTION

CONCRETE PAVEMENT
1:2:3 MIX OR PORTLAND HOT MIX



3" CRUSHED ROCK WITH 1:2 CEMENT GROUT, OR 1:2:3 MIX CONC. BETWEEN TIES
LONGITUDINAL SECTION

NO WOOD SHALL BE USED FOR GUARD RAILS, AND HI-EARLY CEMENT SHALL BE USED
IF DIRECTED BY THE CITY ENGINEER. GROUT SUBGRADE WHEN UNSTABLE.



Sec. A - A
MUD RAIL ASSEMBLY

CITY OF PORTLAND OREGON
DEPT. OF PUBLIC WORKS
OFFICE OF CITY ENGINEER
STANDARD PLANS

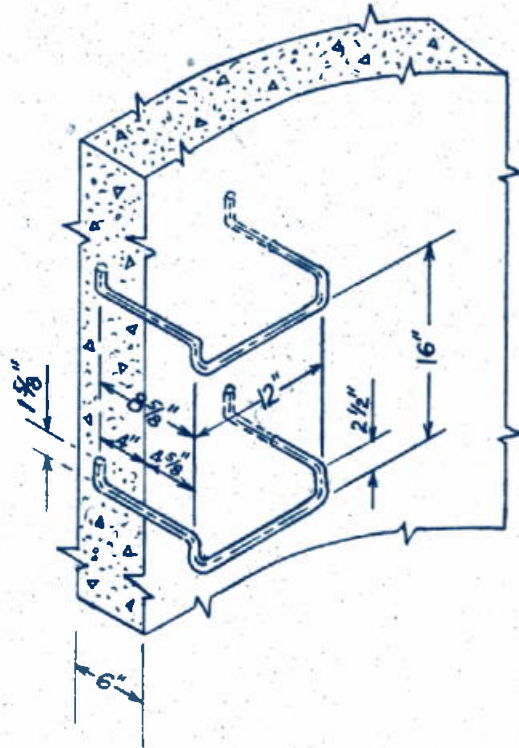
APPROVED:

E. M. K.

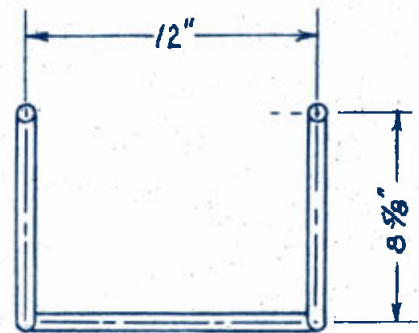
DATE: 9-8-59

CITY ENGINEER

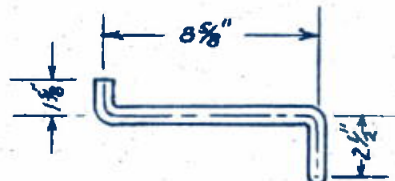
REG. PROF. ENG. NO. 1397 Mar. 1929



CUTAWAY VIEW (STD. M.H.)



PLAN VIEW



SIDE VIEW



FRONT VIEW

MATERIAL $\frac{3}{4}$ " X $39\frac{5}{16}$ " Genuine W.I. A.S.T.M. A-207-39
No coating or plating required

CITY OF PORTLAND
DEPARTMENT OF PUBLIC WORKS
OFFICE OF CITY ENGINEER

STANDARD WROUGHT IRON STEP

APPROVED: *[Signature]* DATE: 9-8-59
CITY ENGINEER
REG. PROF. ENGR. NO. 1937 MAR. 1929

DRAWN BY: D.V.K.

TRACED BY: R.S.F.