STANDARD DETAILS

FOR

SEWERS

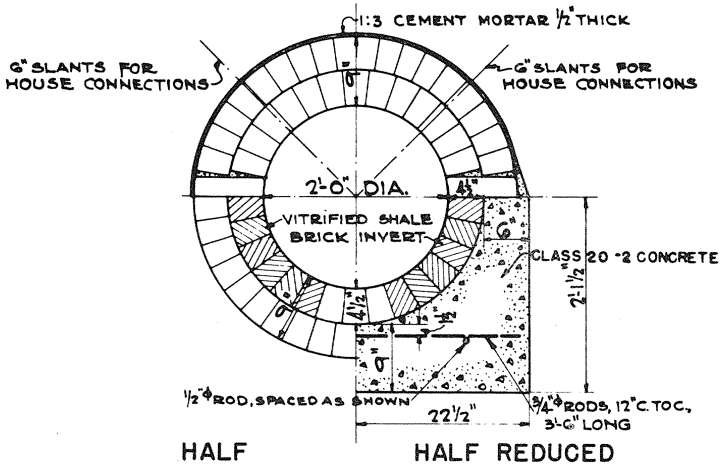
WATER DEPARTMENT
CITY OF PHILADELPHIA

1956

CIRCULAR BRICK SEWERS

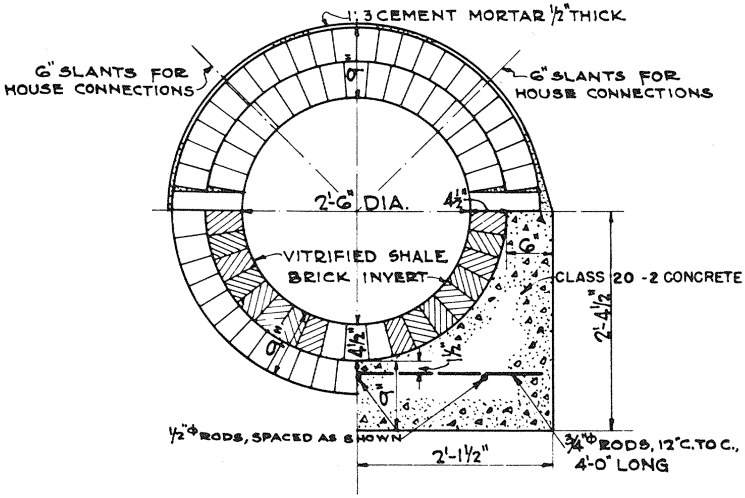
CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Gaskoky
CHIEF ENGINEER



HALF MINIMUM SECTION

HALF REDUCED CRADLE SECTION



HALF MINIMUM SECTION

HALF REDUCED CRADLE SECTION

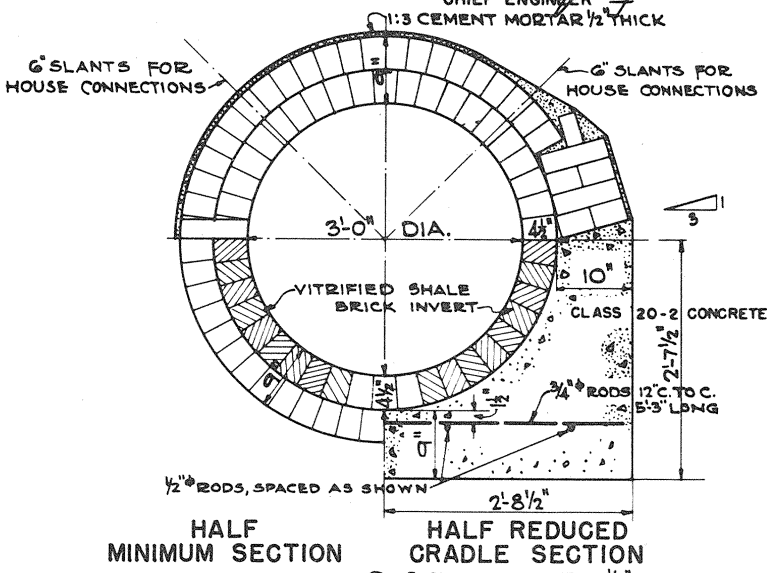
PLATE I

1956

CIRCULAR BRICK SEWERS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



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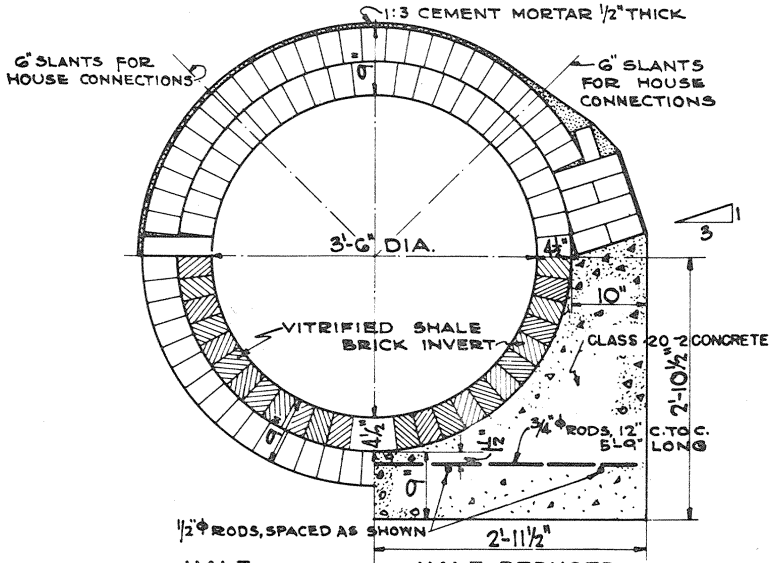

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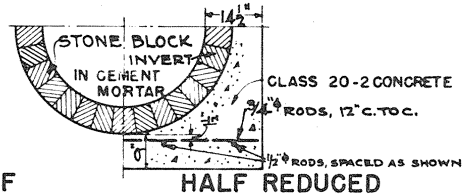


HALF MINIMUM SECTION

HALF REDUCED CRADLE SECTION

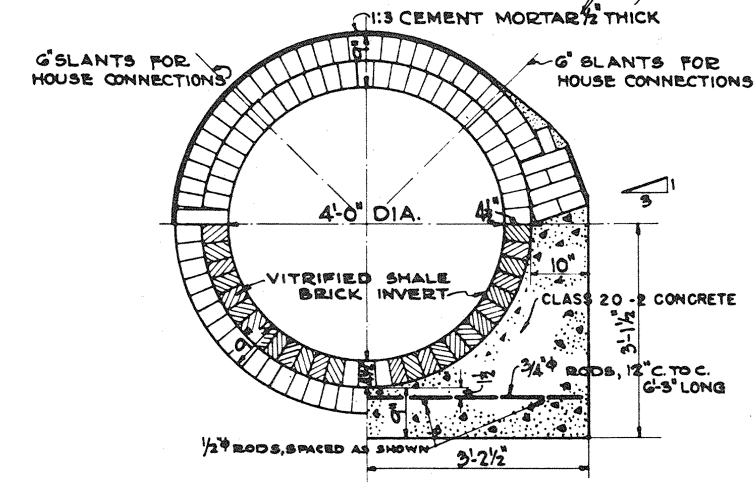
PLATE 2

1956

CIRCULAR BRICK SEWERS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



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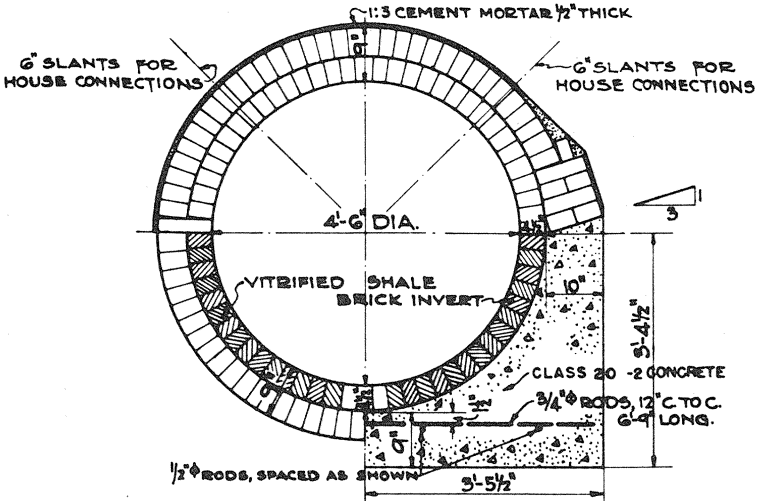

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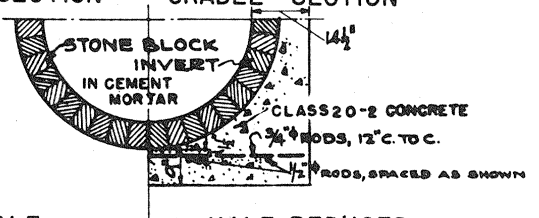
HALF REDUCED CRADLE SECTION



HALF MINIMUM SECTION

HALF REDUCED CRADLE SECTION

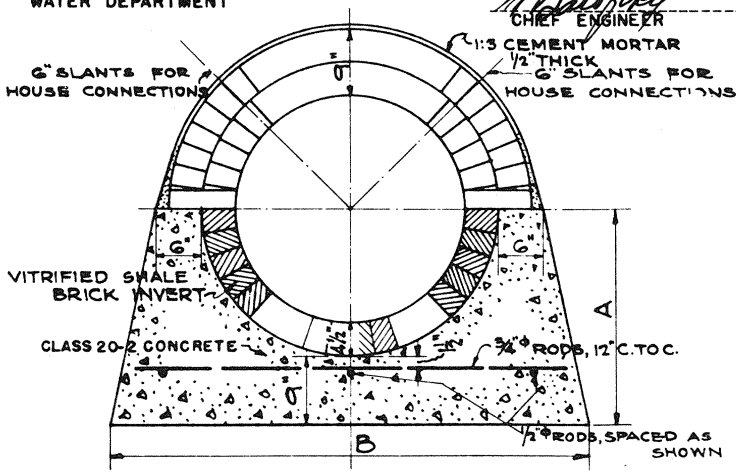
PLATE 3

1956

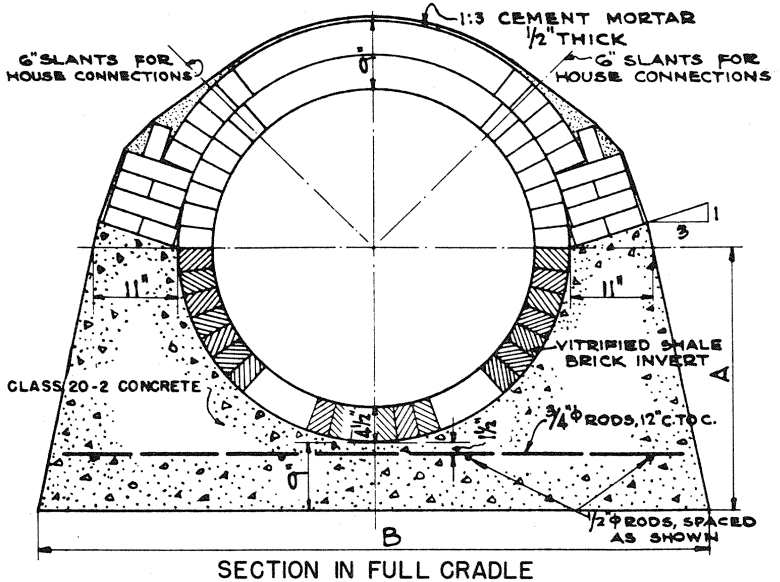
CIRCULAR BRICK SEWERS

CITY OF PHILADELPHIA
WATER DEPARTMENT

M Brooke
CHIEF ENGINEER



SECTION IN FULL CRADLE
FOR SIZES 2'-0" DIAMETER AND 2'-6" DIAMETER



SECTION IN FULL CRADLE
FOR SIZES 3'-0" DIAMETER AND OVER

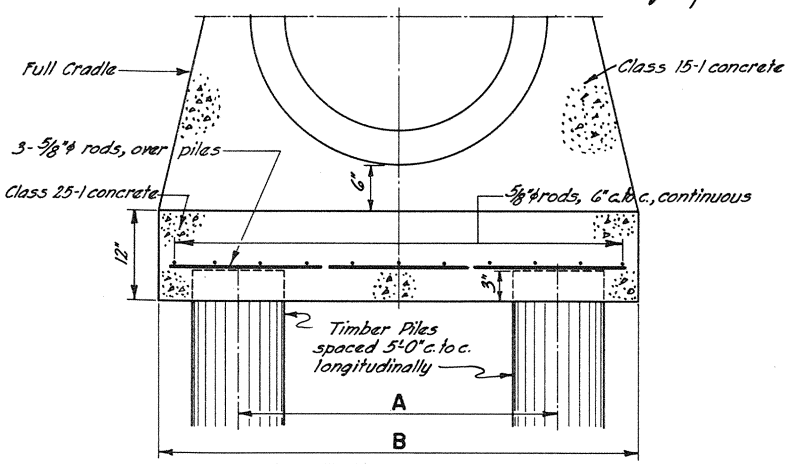
NOTE: For sewer details not shown see Standard Sections.

SIZE	A	B	ROD LENGTH
2'-0" DIA.	2'-1½"	4'-7	4'-0"
2'-6" "	2'-4½"	5'-3"	4'-9"
3'-0" "	2'-7½"	6'-10"	6'-3"
3'-6" "	2'-10½"	7'-4"	6'-9"
4'-0" "	3'-1½"	7'-10"	7'-3"
4'-6" "	3'-4½"	8'-2"	7'-9"

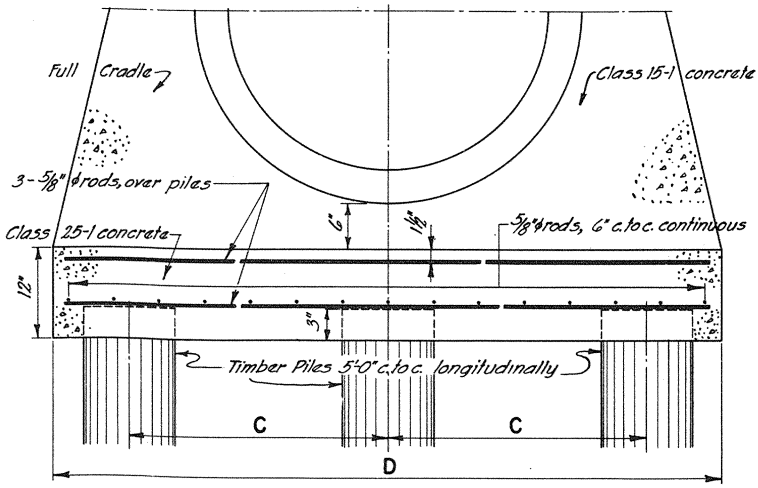
CIRCULAR BRICK SEWERS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



SECTION ON PILES
FOR SIZES 2'-0" DIAMETER AND 2'-6" DIAMETER



SECTION ON PILES
FOR SIZES 3'-0" DIAMETER AND OVER

NOTE:- For sewer details not shown see Standard Sections

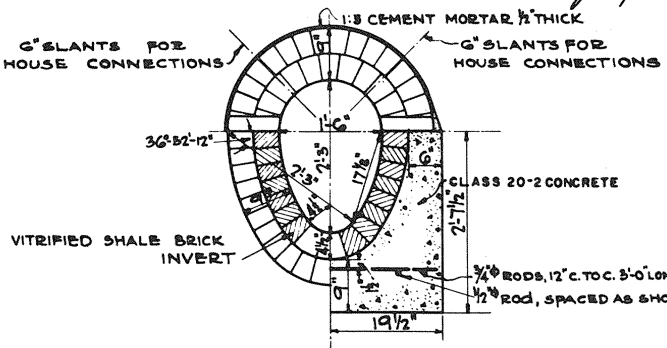
SIZE	A	B	C	D
2'-0" DIA.	2'-10"	4'-7"		
2'-6" DIA.	3'-6"	5'-3"		
3'-0" DIA.			2'-7"	6'-10"
3'-6" DIA.			2'-10"	7'-4"
4'-0" DIA.			3'-2"	7'-10"
4'-6" DIA.			3'-3"	8'-2"

1956

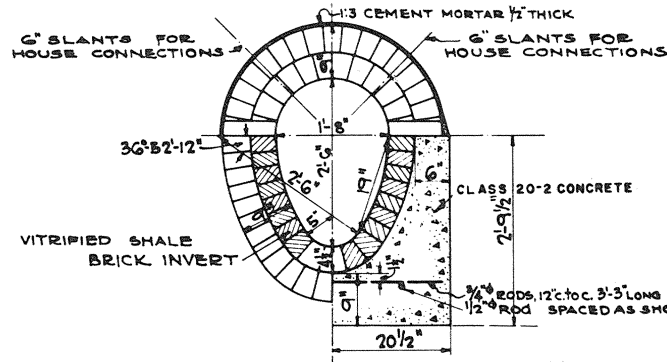
EGG-SHAPED BRICK SEWER

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



HALF MINIMUM SECTION | HALF REDUCED CRADLE SECTION



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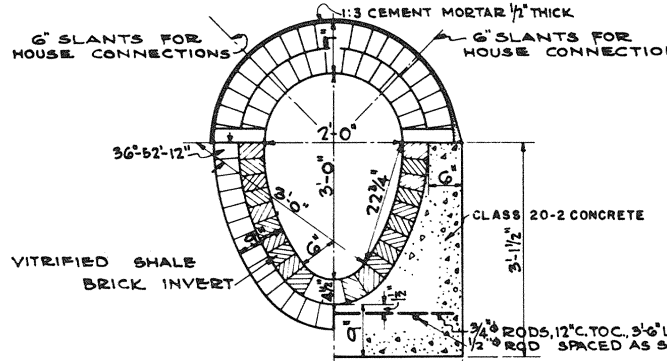


HALF MINIMUM SECTION | HALF REDUCED CRADLE SECTION

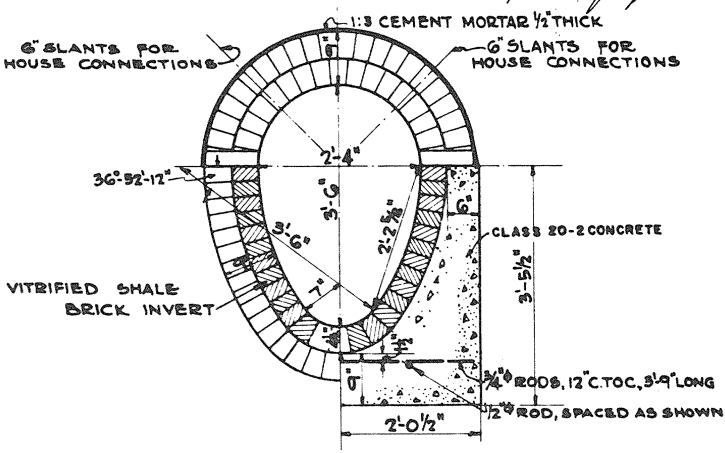
PLATE 6

1956

EGG-SHAPED BRICK SEWER

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



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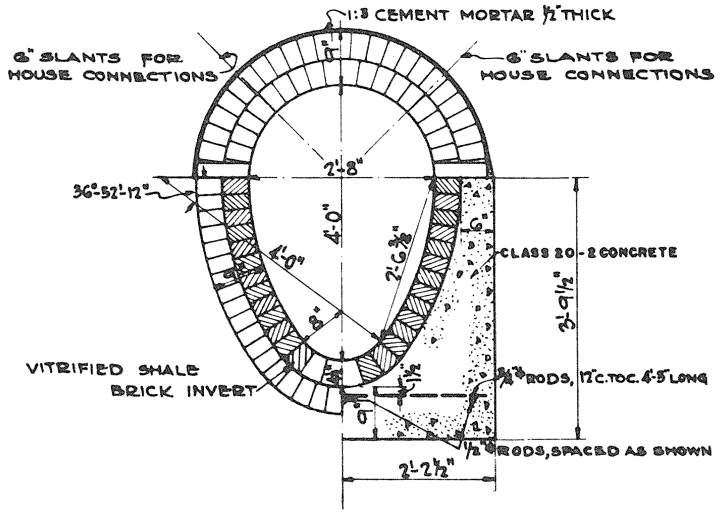
HALF REDUCED CRADLE SECTION



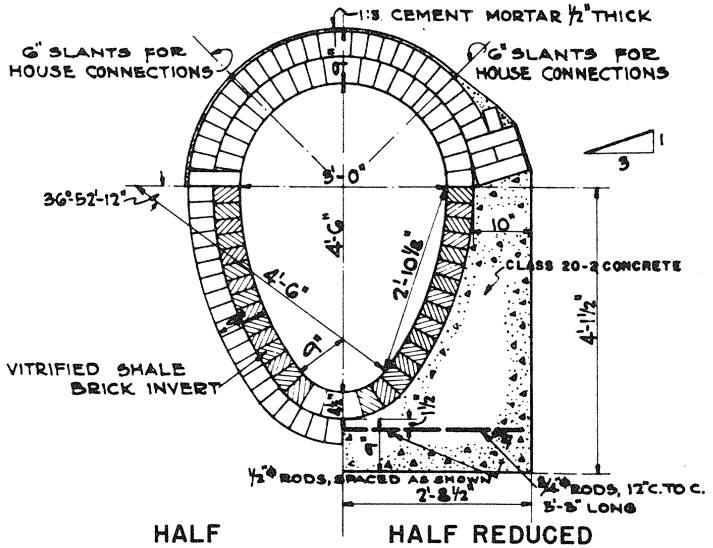
HALF MINIMUM SECTION

HALF REDUCED CRADLE SECTION

EGG-SHAPED BRICK SEWER

CITY OF PHILADELPHIA
WATER DEPARTMENT

M Burpee
CHIEF ENGINEER



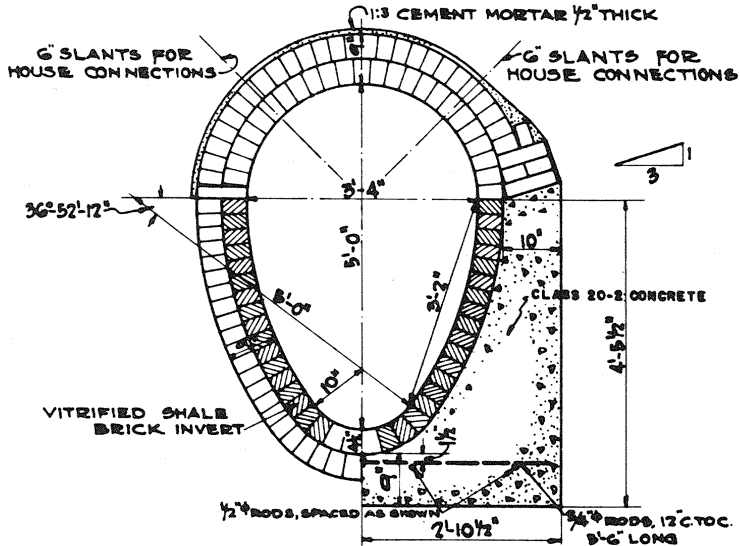


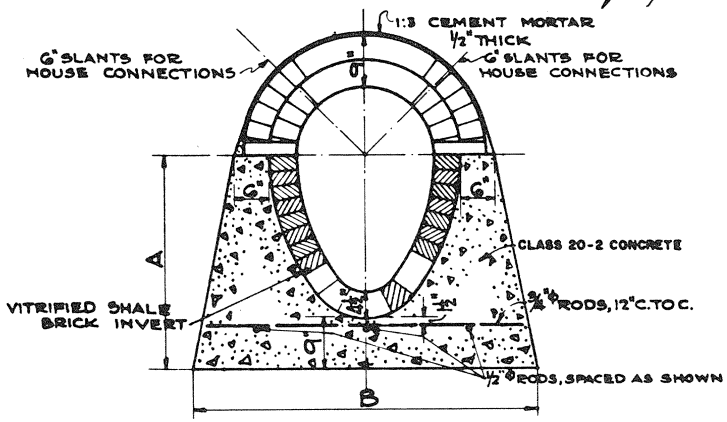
PLATE 8

1956

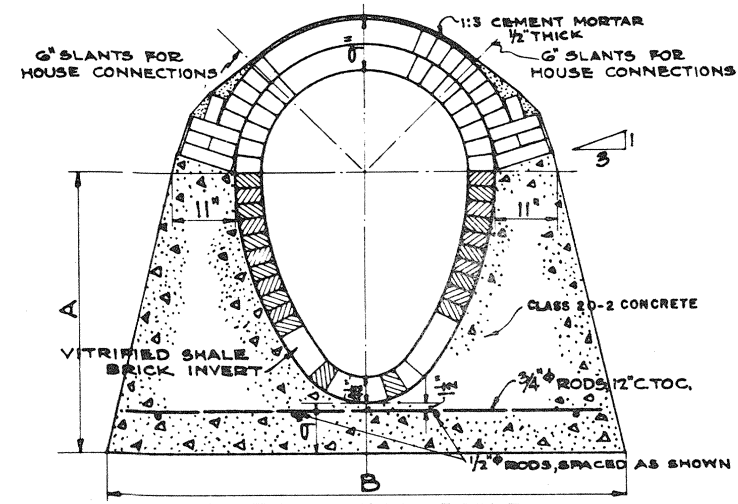
EGG-SHAPED BRICK SEWER

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



SECTION IN FULL CRADLE
FOR SIZES 4'-0" x 2'-8" AND UNDER



SECTION IN FULL CRADLE
FOR SIZES 4'-6" x 3'-0" AND 5'-0" x 3'-4"

NOTE:- For sewer details not shown see Standard Sections.

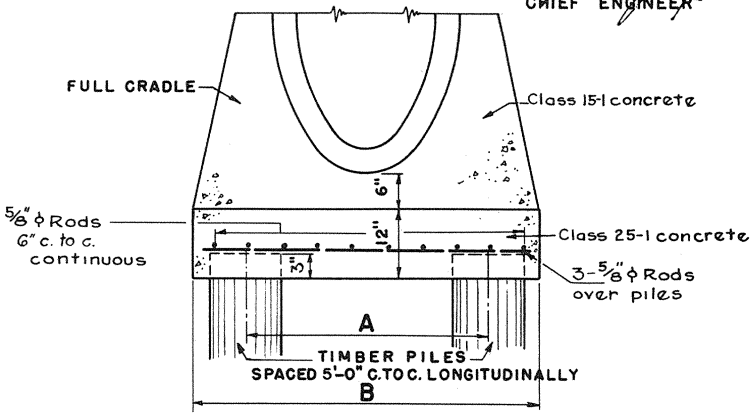
SIZE	A	B	ROD LENGTH
2'-3" x 1'-6"	2'-7½"	4'-3	3'-9"
2'-6" x 1'-8"	2'-9½"	4'-6	4'-0"
3'-0" x 2'-0"	3'-1½"	5'-0"	4'-6"
3'-6" x 2'-4"	3'-5½"	5'-6"	5'-0"
4'-0" x 2'-8"	3'-9½"	5'-11"	5'-6"
4'-6" x 3'-0"	4'-1½"	7'-6"	7'-0"
5'-0" x 3'-4"	4'-5½"	8'-0"	7'-6"

1956

EGG-SHAPED BRICK SEWER

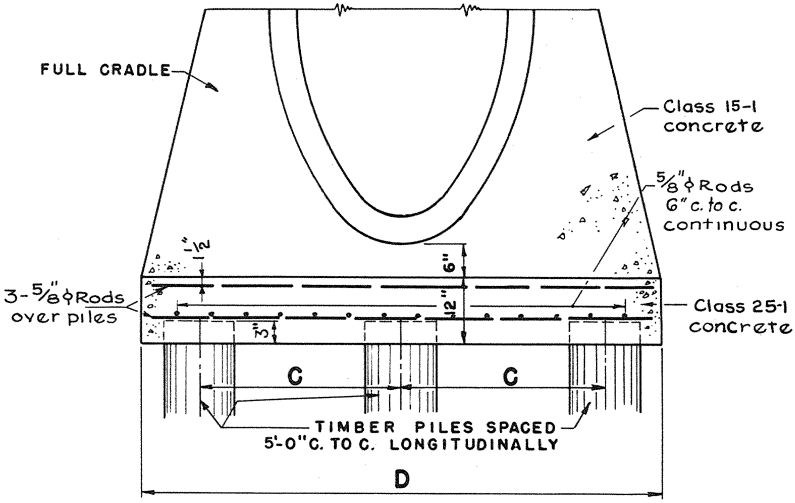
CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Bartholomew
CHIEF ENGINEER



SECTION ON PILES
FOR SIZES 4'-0" x 2'-8" AND UNDER

NOTE:- For sewer details not shown see Standard Sections.



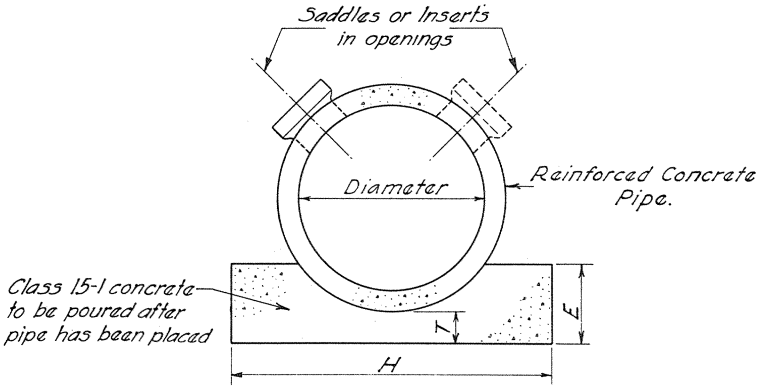
SECTION ON PILES
FOR SIZES 4'-6" X 3'-0" AND 5'-0" X 3'-4"

SIZE	A	B	C	D
2'-3" x 1'-6"	2'-10"	4'-3"		
2'-6" x 1'-8"	3'-0"	4'-6"		
3'-0" x 2'-0"	3'-6"	5'-0"		
3'-6" x 2'-4"	4'-0"	5'-6"		
4'-0" x 2'-8"	4'-6"	5'-11"		
4'-6" x 3'-0"			2'-11"	7'-6"
5'-0" x 3'-4"			3'-2"	8'-0"

REINFORCED CONCRETE CIRCULAR PIPE SEWERS

CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Barstow
CHIEF ENGINEER



Diameter	T	E	H
15"	4"	8½"	2'-7"
18"	4"	9"	2'-11"
21"	4"	10"	3'-3"
24"	4"	10½"	3'-6"
27"	4"	11"	3'-9"
30"	4"	12"	4'-1"
33"	4"	12½"	4'-5"
36"	4"	13½"	4'-8"
42"	4"	14½"	5'-4"
48"	4½"	16"	6'-0"
54"	5"	17½"	6'-8"
60"	5½"	19"	7'-2"
66"	6"	21"	7'-9"
72"	6½"	23"	8'-4"
78"	7"	25"	8'-11"
84"	7½"	27"	9'-6"
96"	7½"	31"	10'-5"
102"	7½"	33"	10'-11"

Notes

All reinforced concrete pipe shall conform to the requirements of and shall be tested in accordance with the Standard Specifications for Reinforced Concrete Sewer Pipe of the A.S.T.M., current at the time of receipt of bids.

In hard rock excavation, the width of the concrete base shall be reduced to a width 3" greater than the outside diameter of the sewer pipe.

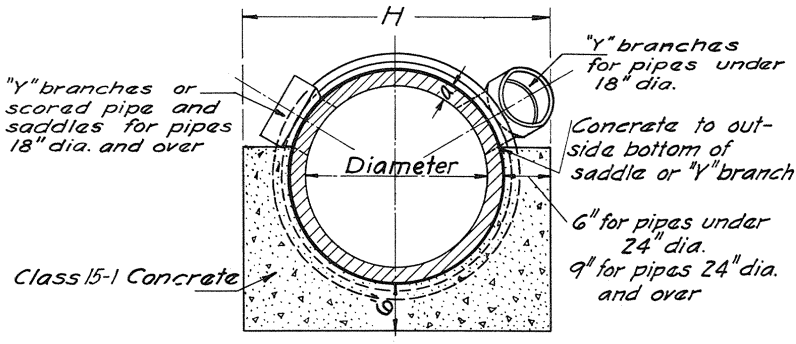
PLATE II

1956

VITRIFIED PIPE SEWERS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



Dia.	a		H
10"	7/8"		2'-3 3/4"
12"	1"		2'-2"
15"	1 1/4"		2'-5 1/2"
18"	1 1/2"		2'-9"
21"	1 3/4"		3'-0 1/2"
24"	2"		3'-10"
27"	2 1/4"		4'-1 1/2"
30"	2 1/2"		4'-5"
33"	2 5/8"		4'-8 1/4"
36"	2 3/4"		4'-11 1/2"

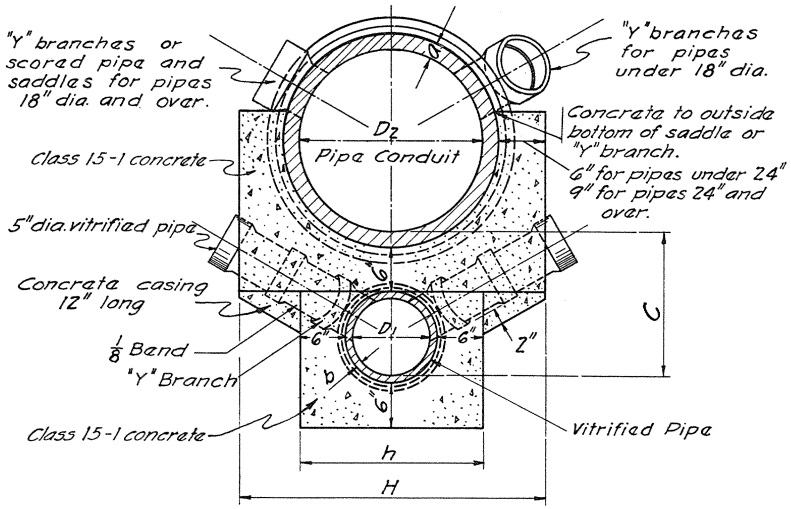
1956

SEPARATE SYSTEM

VITRIFIED PIPE SEWER WITH VITRIFIED PIPE STORMWATER CONDUIT

CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Bawtofsky
CHIEF ENGINEER



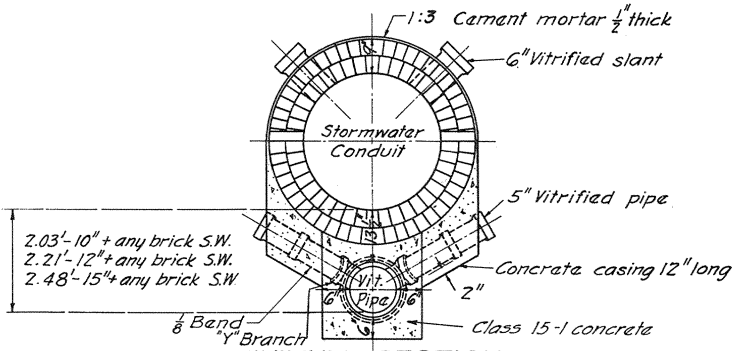
NOTE: The cross sections of the separate system must conform in all respects to the general details of vitrified pipe sewers.

Size		a	b		H	h	C
D1	Dz						
10"	15"	$1\frac{1}{4}$"	$\frac{7}{8}$"		2'-$5\frac{1}{2}$"	23$\frac{3}{4}$"	1.51'
10"	18"	$1\frac{1}{2}$"	$\frac{7}{8}$"		2'-9"	23$\frac{3}{4}$"	1.53'
10"	21"	$1\frac{3}{4}$"	$\frac{7}{8}$"		3'-0$\frac{1}{2}$"	23$\frac{3}{4}$"	1.55'
10"	24"	2"	$\frac{7}{8}$"		3'-10"	23$\frac{3}{4}$"	1.57'
10"	27"	2$\frac{1}{4}$"	$\frac{7}{8}$"		4'-1$\frac{1}{2}$"	23$\frac{3}{4}$"	1.59'
10"	30"	2$\frac{1}{2}$"	$\frac{7}{8}$"		4'-5"	23$\frac{3}{4}$"	1.61'
10"	33"	2$\frac{5}{8}$"	$\frac{7}{8}$"		4'-8$\frac{1}{4}$"	23$\frac{3}{4}$"	1.63'
10"	36"	2$\frac{3}{4}$"	$\frac{7}{8}$"		4'-11$\frac{1}{2}$"	23$\frac{3}{4}$"	1.64'
12"	30"	2$\frac{1}{2}$"	1"		4'-5"	2'-2"	1.79'
12"	33"	2$\frac{5}{8}$"	1"		4'-8$\frac{1}{4}$"	2'-2"	1.80'
12"	36"	2$\frac{3}{4}$"	1"		4'-11$\frac{1}{2}$"	2'-2"	1.81'

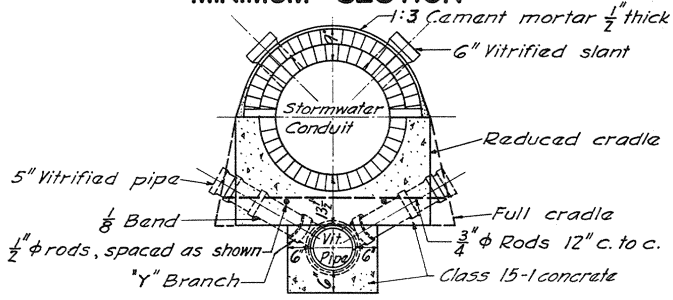
SEPARATE SYSTEM
VITRIFIED PIPE SEWER WITH BRICK STORMWATER CONDUIT

CITY OF PHILADELPHIA
WATER DEPARTMENT

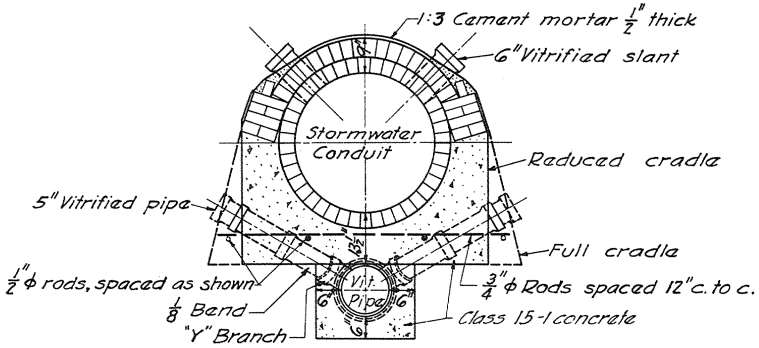
M Baudoky
CHIEF ENGINEER



MINIMUM SECTION



SECTION IN CRADLE
FOR SEWERS 2'-0" DIA. AND 2'-6" DIA.



SECTION IN CRADLE
FOR SEWERS OVER 2'-6" DIAMETER

Note: The cross-sections of the separate system sewers must conform in all respects to the General Details of Brick and Pipe Sewers.

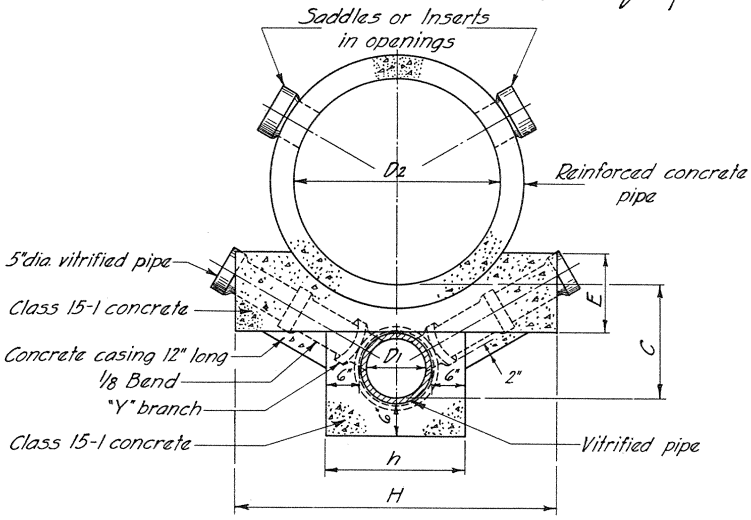
PLATE 14

1956

SEPARATE SYSTEM
VITRIFIED PIPE SEWER WITH REINFORCED CONCRETE PIPE STORMWATER CONDUIT

CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Baumgarten
CHIEF ENGINEER



Size		h	H	E	C
D1	D2				
10"	15"	23 3/4"	2'-7"	9 1/2"	1.51'
10"	18"		2'-11"	10"	1.53'
10"	21"		3'-3"	11"	1.55'
10"	24"		3'-6"	11 1/2"	1.57'
10"	27"		3'-9"	12 1/4"	1.59'
10"	30"		4'-1"	13"	1.61'
10"	33"		4'-5"	13 1/2"	1.63'
10"	36"		4'-8"	14 3/8"	1.64'
10"	42"		5'-4"	15"	2.04'
10"	48"		6'-0"	15 1/2"	2.04'
10"	54"	↓	6'-8"	16"	2.06'
12"	30"	2'-2"	4'-1"	13"	1.79'
12"	33"		4'-5"	13 3/8"	1.80'
12"	36"		4'-8"	14 1/4"	1.81'
12"	42"		5'-4"	15"	2.21'
12"	48"		6'-0"	15 1/2"	2.21'
12"	54"		6'-8"	16"	2.23'
12"	60"		7'-2"	16"	2.23'
12"	66"	↓	7'-9"	17"	2.23'
15"	48"	2'-5 1/2"	6'-0"	15 1/2"	2.48'
15"	54"		6'-8"	16"	2.48'
15"	60"		7'-2"	16"	2.48'
15"	66"	↓	7'-9"	17"	2.48'

NOTE: All reinforced concrete pipe shall conform to the requirements of, and shall be tested in accordance with, the Standard Specification for Reinforced Concrete Pipe of the A.S.T.M. current at the time of receipt of bids.

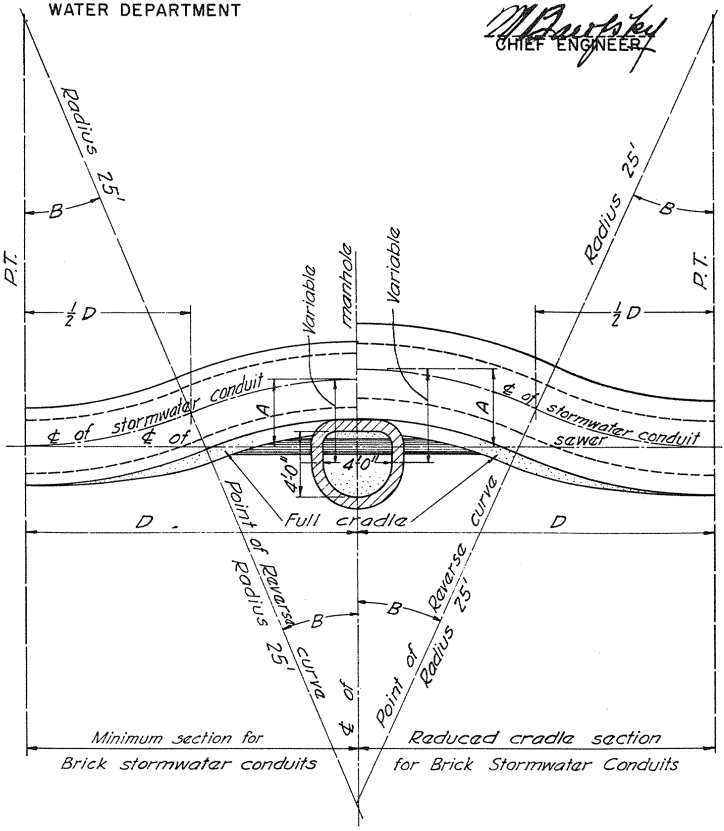
PLATE 15

1956

TURNOUTS FOR SEPARATE SYSTEM
BRICK STORMWATER CONDUITS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



Type of S.W. Conduit	Size of S.W. Conduit	A	B	D
Minimum Section	2'-0" to 4'-6" incl.	$4'-8\frac{1}{4}"$	25°00'	$21'-1\frac{5}{8}"$
Reduced Cradle	2'-0" to 4'-6" incl.	5'-3"	26°30'	$22'-3\frac{3}{4}"$

PLATE 16

1956

TURNOUTS FOR SEPARATE SYSTEM PIPE STORMWATER CONDUITS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER

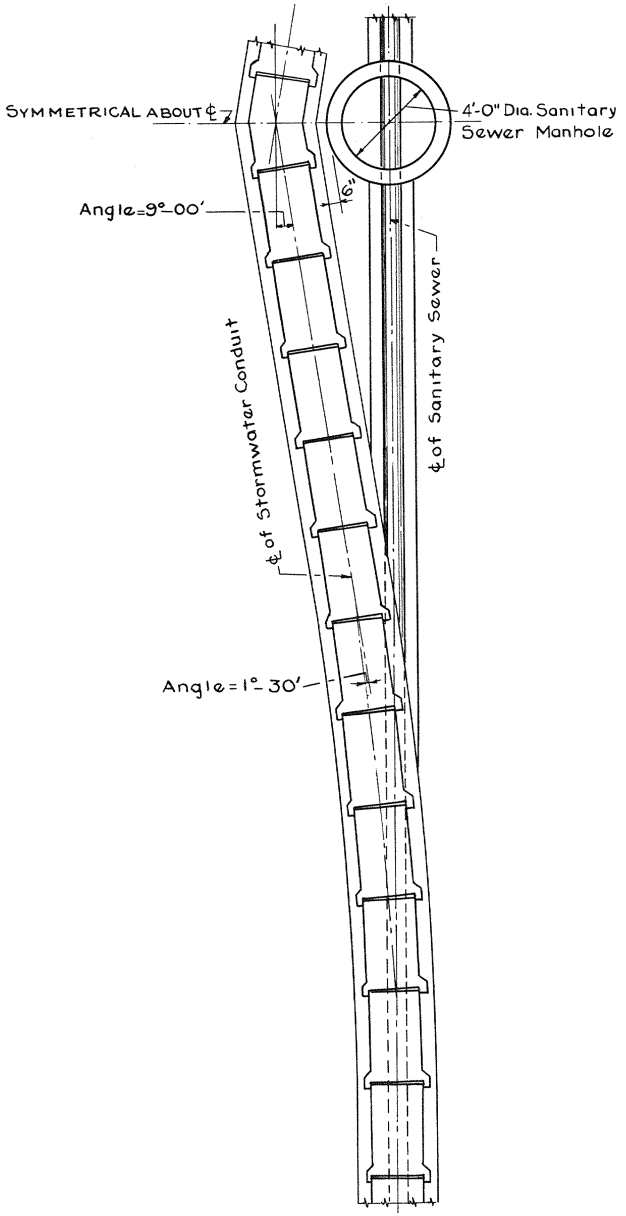


PLATE 17

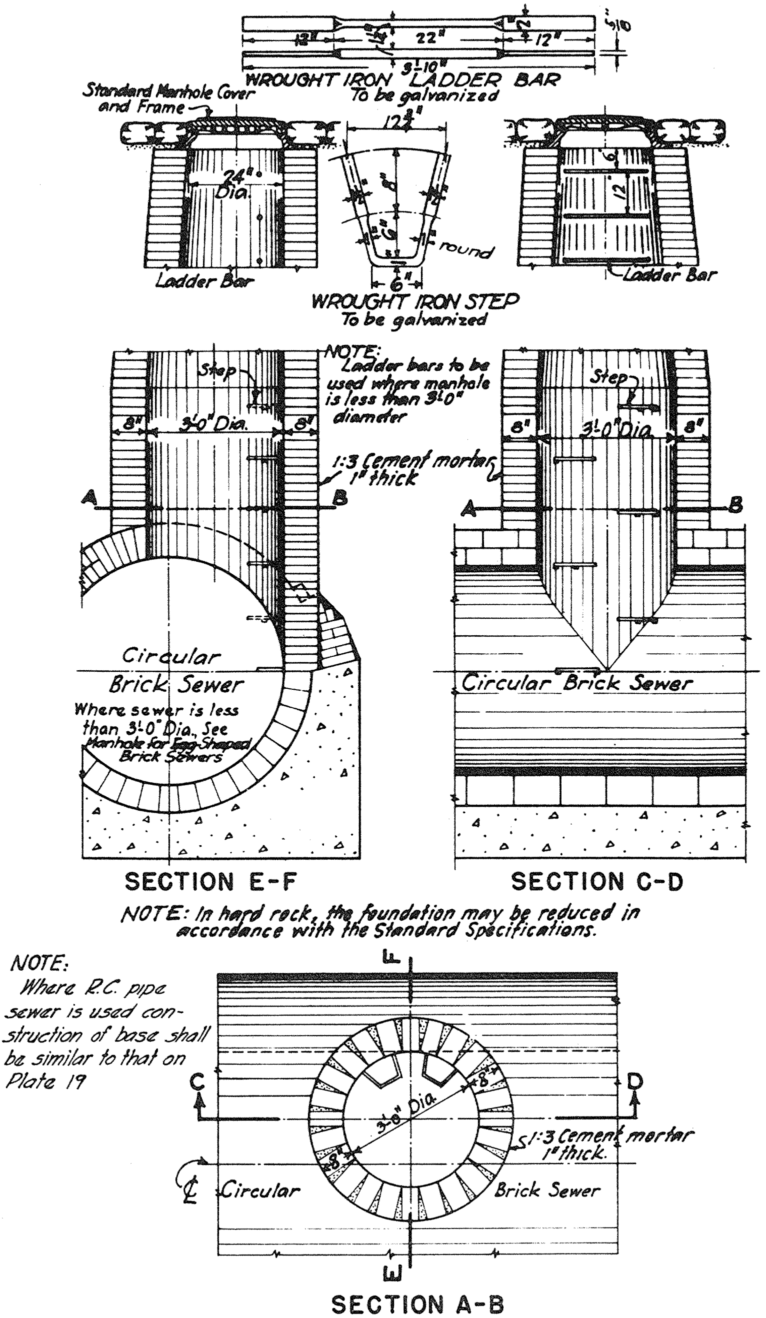
1956

BRICK MANHOLE

FOR CIRCULAR SEWERS 3'-0" DIA. AND OVER

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



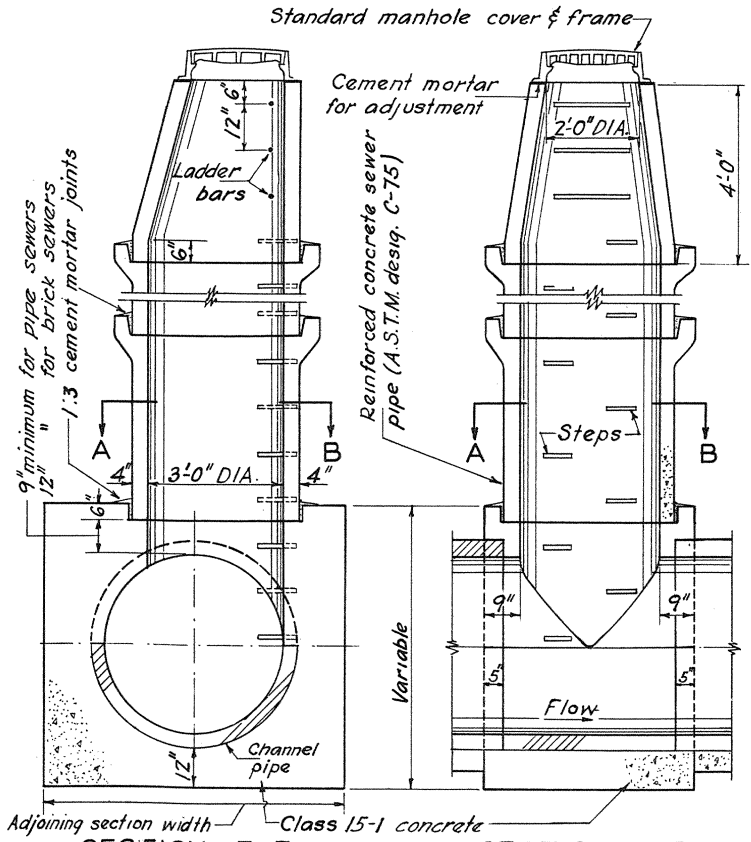
12"
22"
12"
3'-10"
WROUGHT IRON LADDER BAR
To be galvanized
Standard Manhole Cover and Frame
24" Dia.
Ladder Bar
12 3/4"
6"
round
WROUGHT IRON STEP
To be galvanized
Ladder Bar
NOTE: Ladder bars to be used where manhole is less than 3'-0" diameter
Step
8"
3'-0" Dia.
8"
1:3 Cement mortar 1" thick
A
B
Circular Brick Sewer
Where sewer is less than 3'-0" Dia. See Manhole for Egg-Shaped Brick Sewers
Circular Brick Sewer
SECTION E-F
SECTION C-D
NOTE: In hard rock, the foundation may be reduced in accordance with the Standard Specifications.
NOTE: Where R.C. pipe sewer is used construction of base shall be similar to that on Plate 19
F
C
D
3'-0" Dia.
8"
1:3 Cement mortar 1" thick.
Circular
Brick Sewer
E
SECTION A-B

R.C. MANHOLE

FOR CIRCULAR SEWERS 3'-0" DIA. AND OVER

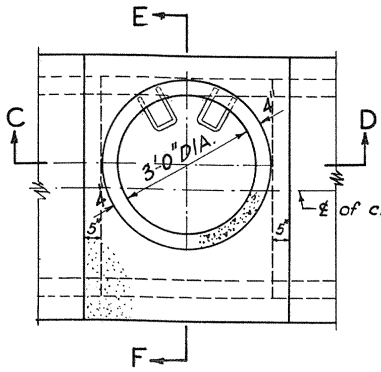
CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Bershky
CHIEF ENGINEER



SECTION E-F

SECTION C-D



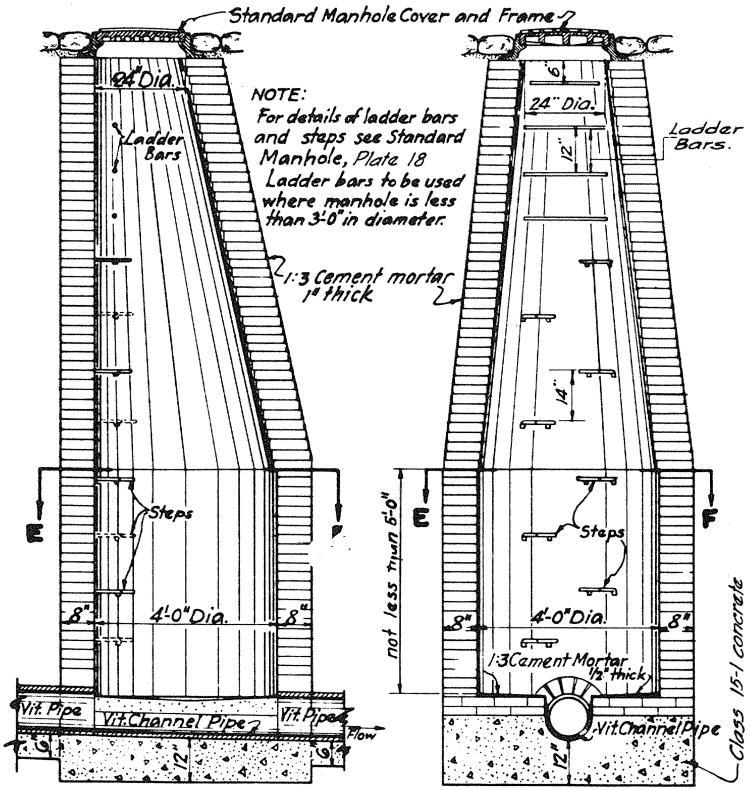
SECTION A-B

Note:
For details of steps and ladder bars, see Plate No. 21

BRICK MANHOLE
FOR PIPE SEWERS UNDER 36" DIA.

CITY OF PHILADELPHIA
WATER DEPARTMENT

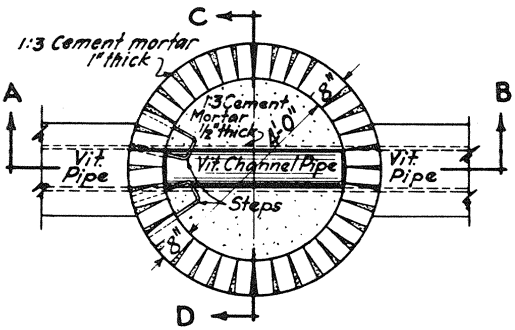
M. Barclay
CHIEF ENGINEER



SECTION A-B

SECTION C-D

NOTE: Vitrified Channel Pipe in pipe manholes shall be double strength.



SECTION E-F

PLATE 20

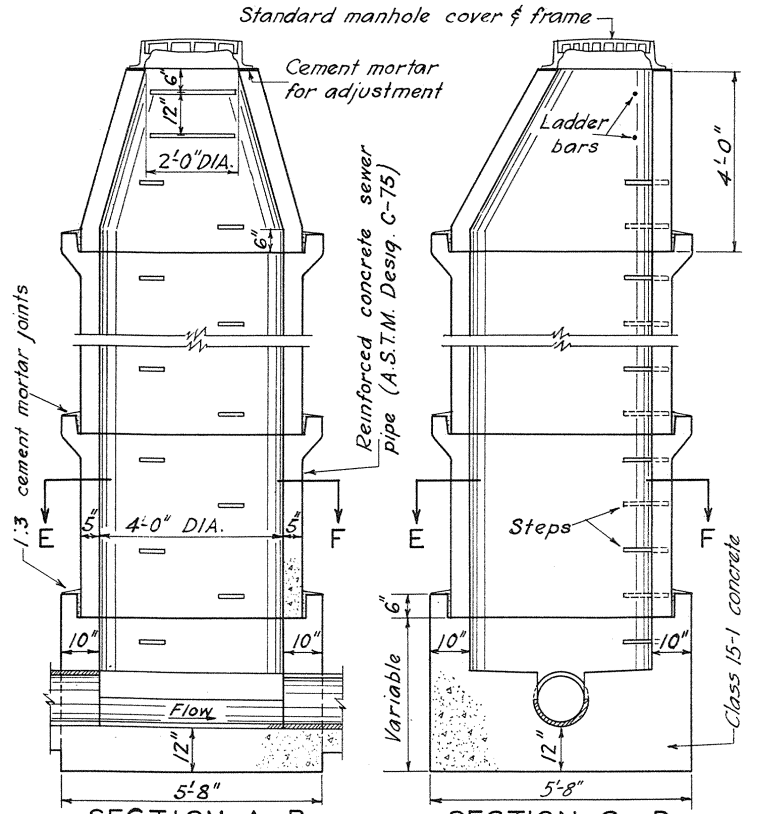
1956

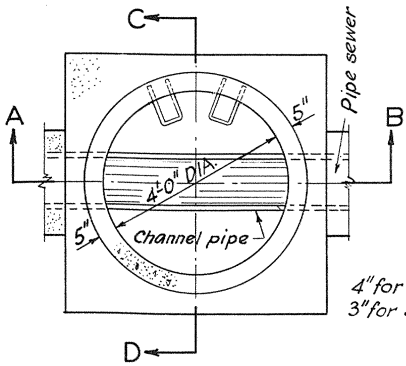
R.C. MANHOLE

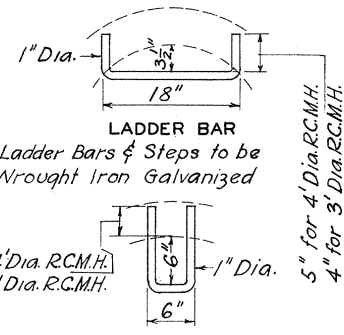
FOR CIRCULAR SEWERS UNDER 36" DIA.

CITY OF PHILADELPHIA
WATER DEPARTMENT

M Bancroft
CHIEF ENGINEER







LADDER BAR & STEP DETAILS

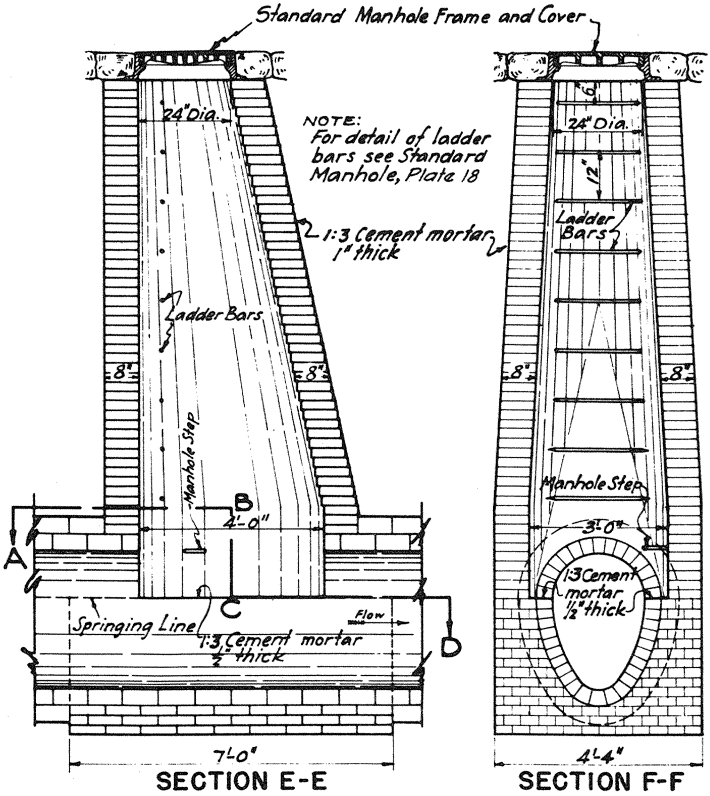
PLATE 21

1956

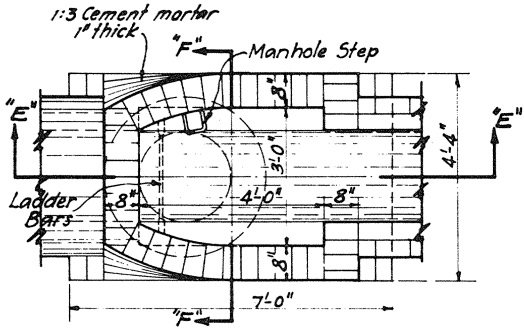
BRICK MANHOLE
FOR EGG-SHAPED BRICK SEWERS
AND CIRCULAR BRICK SEWERS UNDER 3'-0" DIA.

CITY OF PHILADELPHIA
WATER DEPARTMENT

M Buckley
CHIEF ENGINEER



NOTE: In hard rock the foundation may be reduced in accordance with the Standard Specifications.

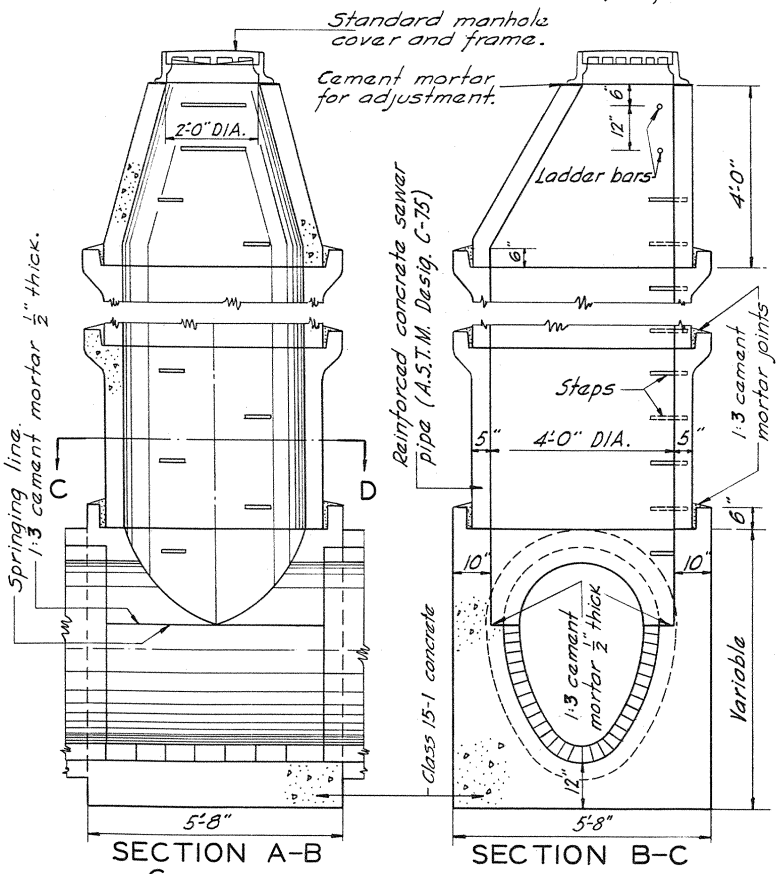


SECTION A-B-C-D

R.C. MANHOLE
FOR
EGG-SHAPED BRICK SEWERS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



Note:
For details of steps and ladder bars see Plate 21.

PLATE 23

1956

BRICK JUNCTION MANHOLE

CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Bausky
CHIEF ENGINEER

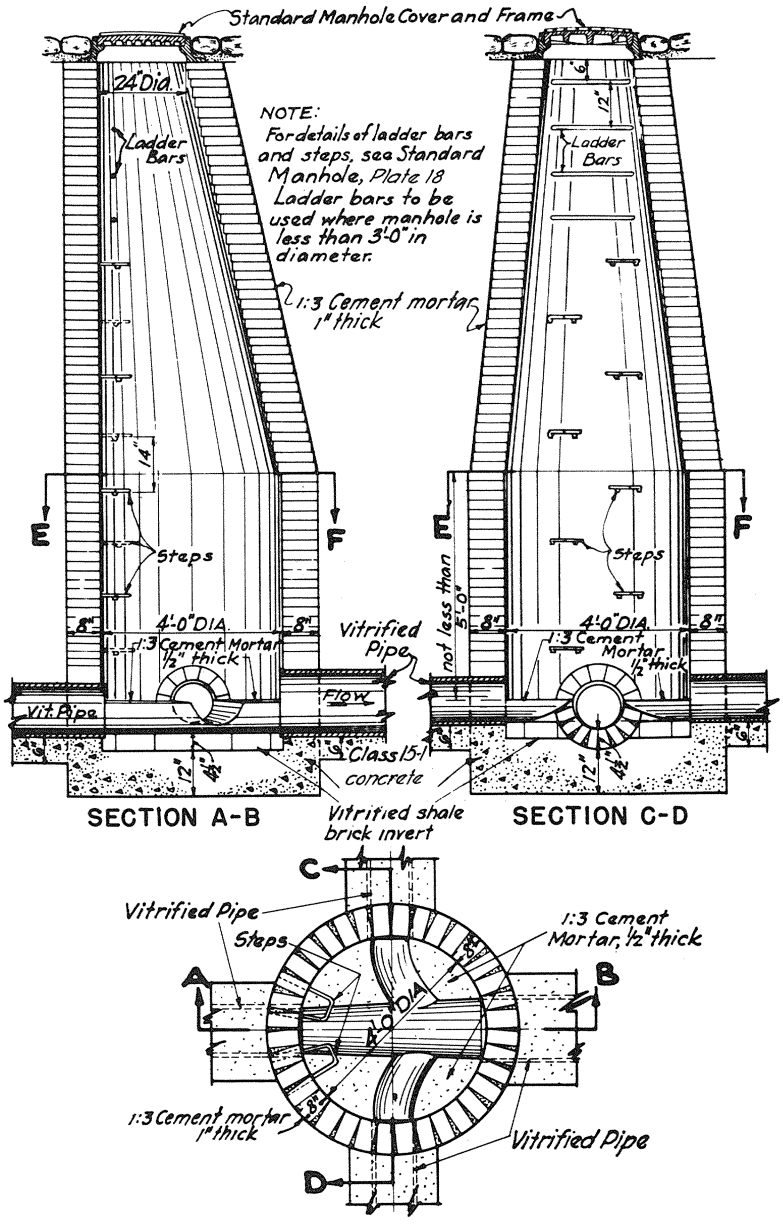


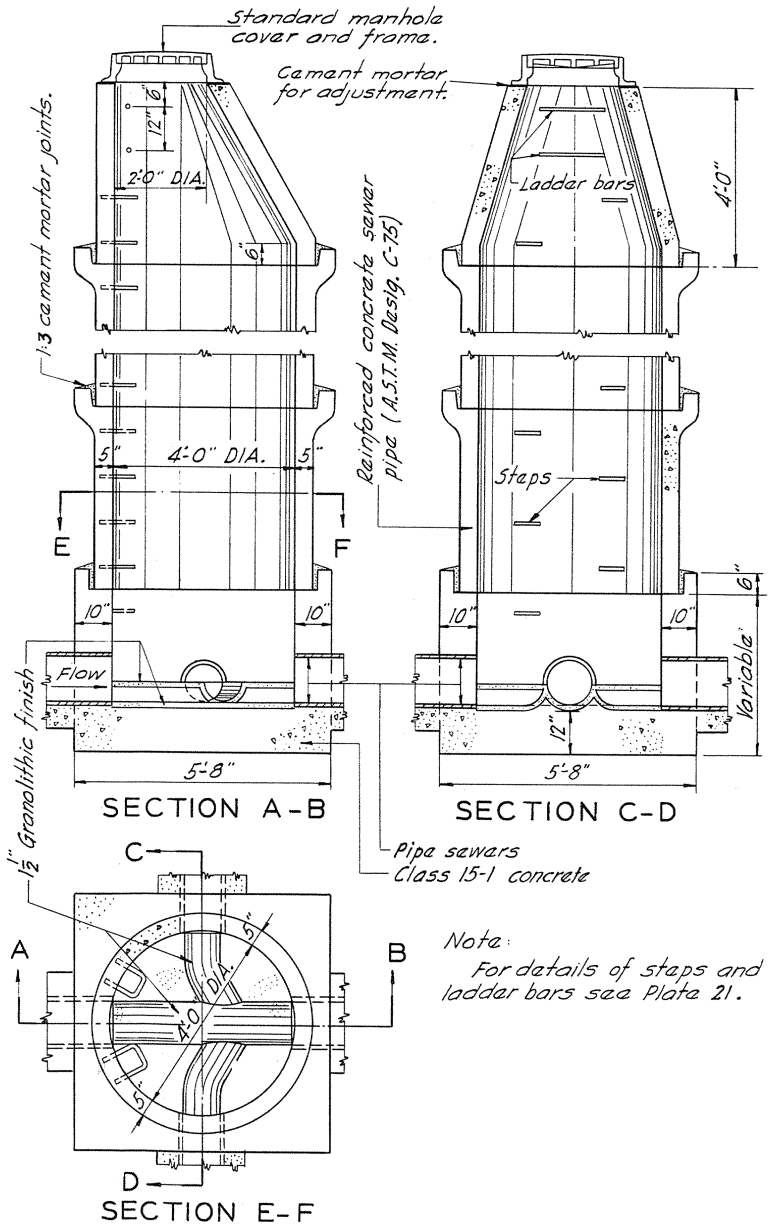
PLATE 24

1956

R.C. JUNCTION MANHOLE

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



Note:
For details of steps and ladder bars see Plate 21.

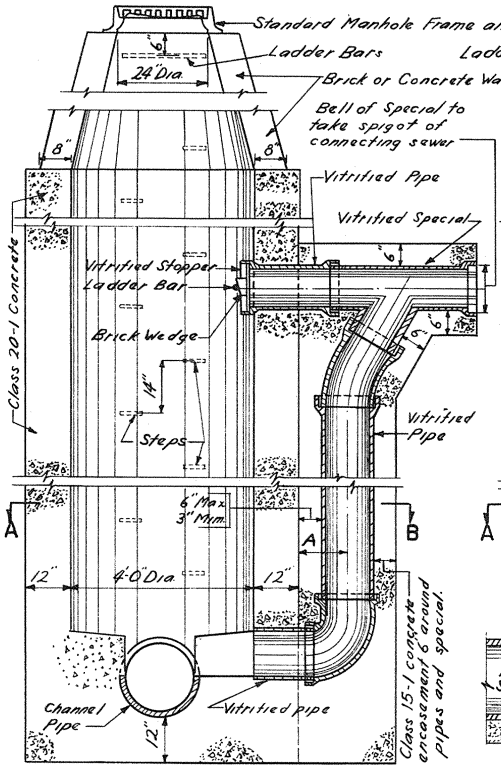
PLATE 25

1956

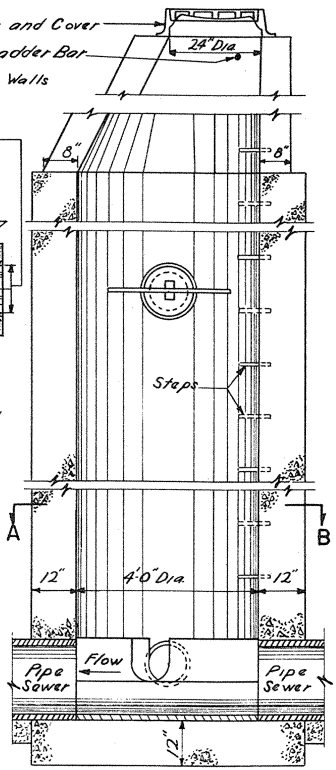
PIPE SEWER
DROP MANHOLE
(WITH VITRIFIED SPECIAL)

CITY OF PHILADELPHIA
WATER DEPARTMENT

M Gaudoky
CHIEF ENGINEER



SECTION C-D



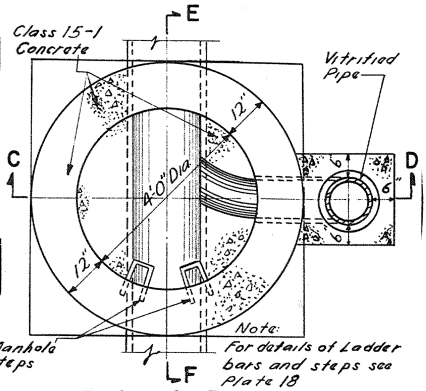
SECTION E-F

VITRIFIED CUT ELBOWS (90°)

PIPE SIZE	OUTSIDE DIA.	A ℄ OF PIPE TO OUTSIDE EDGE OF M.H. WALL	EXTRA PIPE NEEDED
8"	9½"	10¾"	14¾"
10"	11¾"	11⅞"	14⅜"
12"	14"	13"	14¼"
15"	17½"	14¾"	13¾"

2 VITRIFIED CUT CURVES (45°)

18"	21"	16½"	8¼"

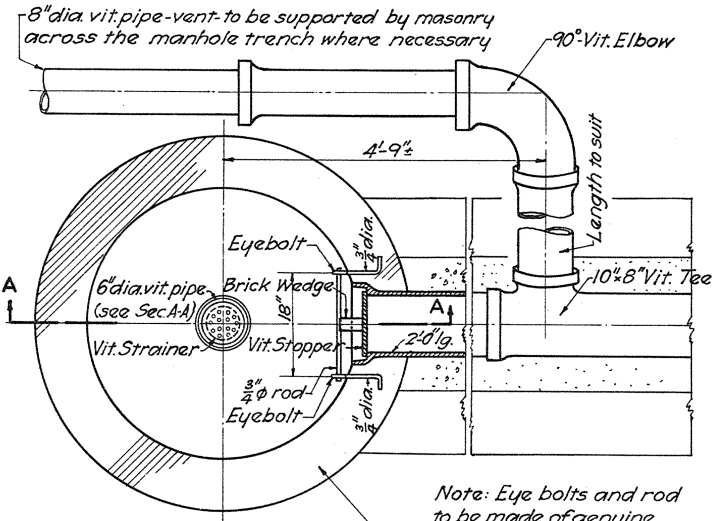


PLAN A-B

SPECIAL MANHOLE

CITY OF PHILADELPHIA
WATER DEPARTMENT

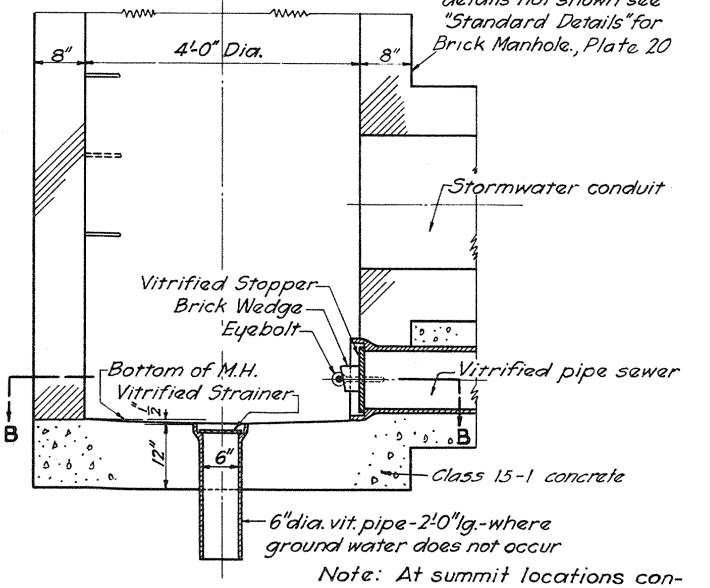
CHIEF ENGINEER



Note: Eye bolts and rod to be made of genuine wrought iron (galvanized)

SECTION B-B

For dimensions and details not shown see "Standard Details" for Brick Manhole., Plate 20



Note: At summit locations construction must be similar at opposite side of manhole

SECTION A-A

PLATE 27

1956

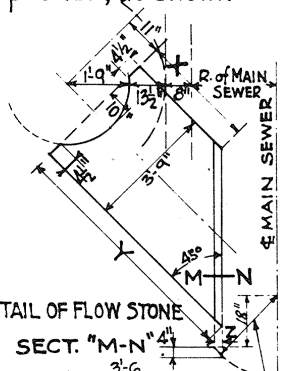
WELLHOLE DETAILS

CITY OF PHILADELPHIA
WATER DEPARTMENT

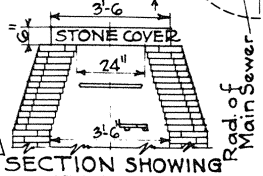
M Beverly
CHIEF ENGINEER

SEWER DIA.	X	Y	Z	SEWER DIA.	X	Y	Z
4'-0"	4'-0 1/4"	7'-9 1/4"	6"	9'-6"	2'-10 1/4"	6'-7 1/4"	1 5/8"
4'-6"	3'-8"	7'-5	4 1/2"	10'-0"	2'-9 7/8"	6'-6 7/8"	1 1/2"
5'-0"	3'-5 5/8"	7'-2 5/8"	3 1/2"	10'-6"	2'-9 3/8"	6'-6 5/8"	1 1/2"
5'-6"	3'-3 7/8"	7'-0 7/8"	3"	11'-0"	2'-9 3/8"	6'-6 3/8"	1 3/8"
6'-0"	3'-2 5/8"	6'-11 5/8"	2 1/2"	11'-6"	2'-9 1/8"	6'-6 1/8"	1 3/8"
6'-6"	3'-1 5/8"	6'-10 5/8"	2 3/8"	12'-0"	2'-8 7/8"	6'-5 7/8"	1 1/4"
7'-0"	3'-0 7/8"	6'-9 7/8"	2 1/4"	12'-6"	2'-8 3/4"	6'-5 3/4"	1 1/4"
7'-6"	3'-0 1/8"	6'-0 5/8"	2"	13'-0"	2'-8 1/2"	6'-5 1/2"	1 1/8"
8'-0"	2'-11 5/8"	6'-8 5/8"	1 3/4"	13'-6"	2'-8 1/4"	6'-5 1/4"	1 1/8"
8'-6"	2'-11 1/8"	6'-8 5/8"	1 3/4"	14'-0"	2'-8 1/8"	6'-5 1/8"	1"
9'-0"	2'-10 3/4"	6'-7 3/4"	1 5/8"	14'-6"	2'-8"	6'-5"	1"

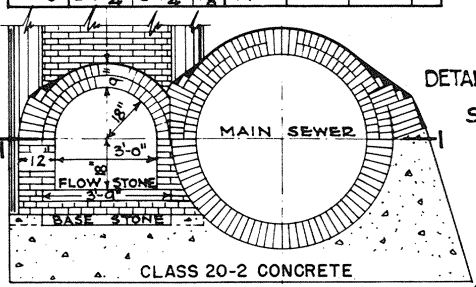
NOTE:
Drip Stones shall be 5'-0" apart, if possible, as shown.



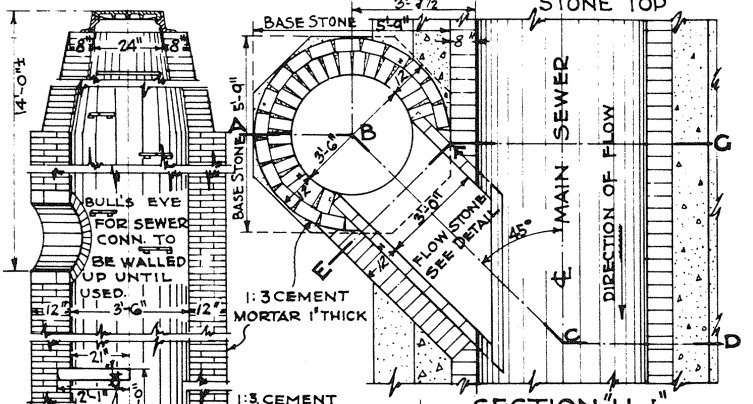
DETAIL OF FLOW STONE
SECT. "M-N"



SECTION SHOWING STONE TOP



SECTION E-F-G



SECTION "H-I"

SECTION A-B-C-D

Note:
For details of steps and ladder bars, see Plate 18.

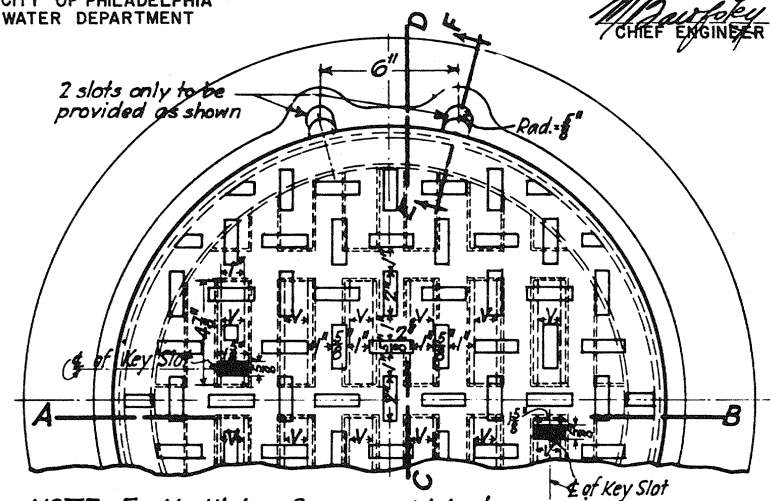
PLATE 28

1956

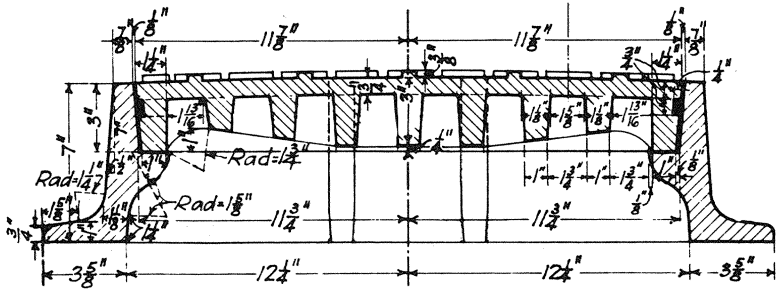
CAST IRON MANHOLE COVER AND FRAME

CITY OF PHILADELPHIA
WATER DEPARTMENT

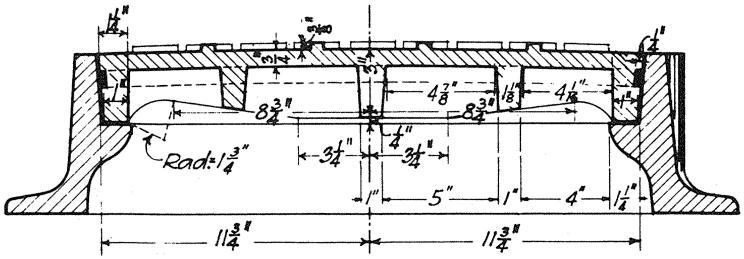
M. Bentley
CHIEF ENGINEER



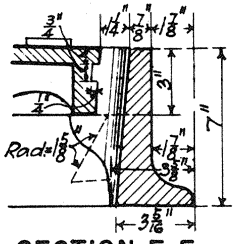
NOTE:- For Ventilating Covers, provide twelve openings as shown by dotted lines where marked "V."



SECTION A-B



SECTION C-D



SECTION E-F

Ventilating Cover	= 200 lbs.
Closed Cover	= 215 lbs.
Frame	= 270 lbs.

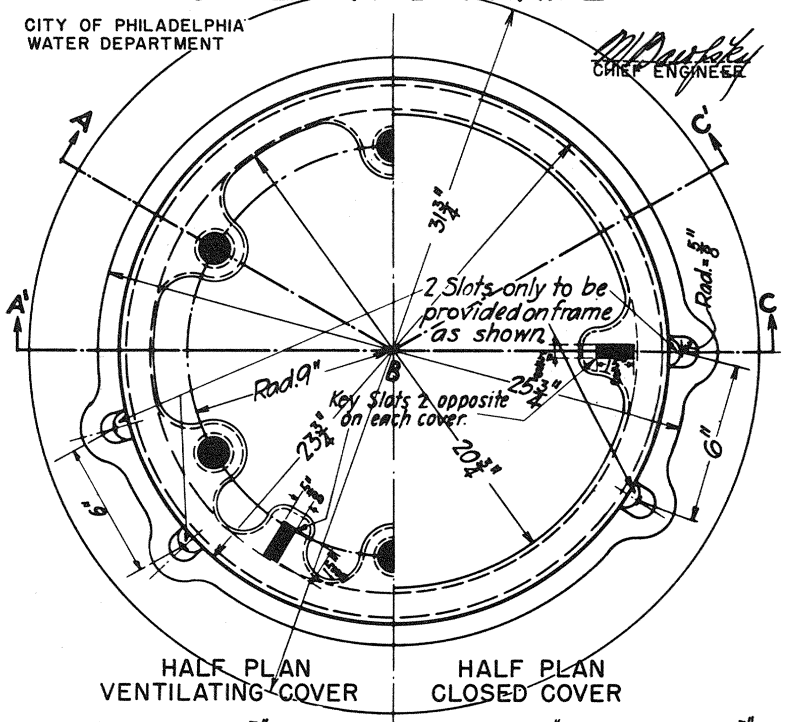
PLATE 29

1956

ASPHALT FILLED MANHOLE COVER AND FRAME

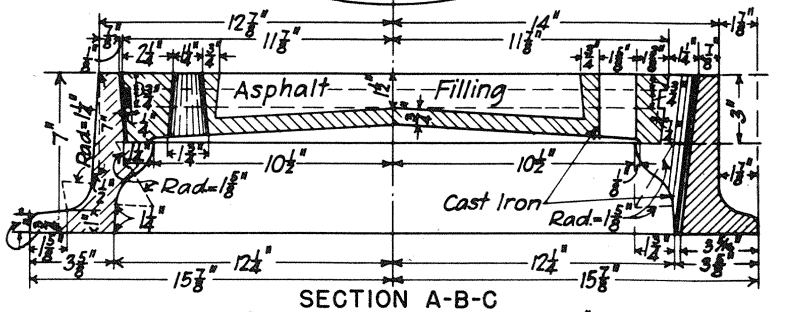
CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Pawley
CHIEF ENGINEER

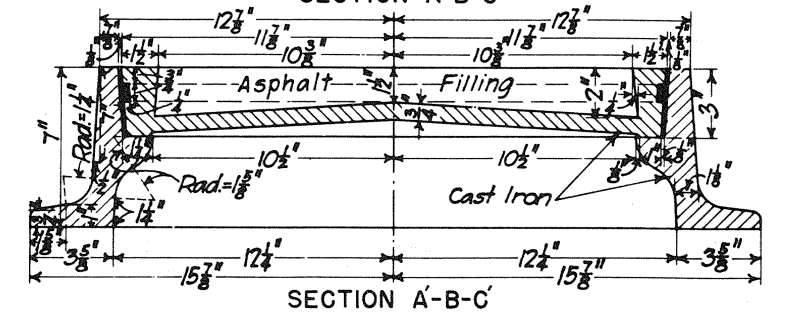


HALF PLAN
VENTILATING COVER

HALF PLAN
CLOSED COVER



SECTION A-B-C



SECTION A'-B-C'

Weights

Closed Cover (without filling)	*142 lbs.*
Ventilating Cover (without filling)	*165 lbs.*
Frame	*270 lbs.*

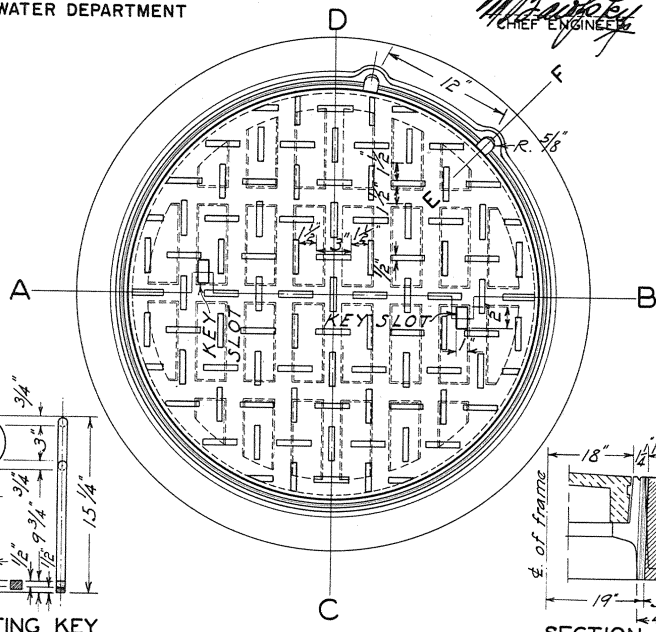
PLATE 30

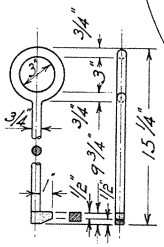
1956

CAST STEEL MANHOLE COVER AND FRAME 3'-0" DIAMETER

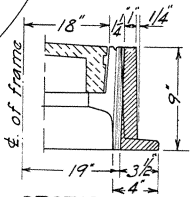
CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER

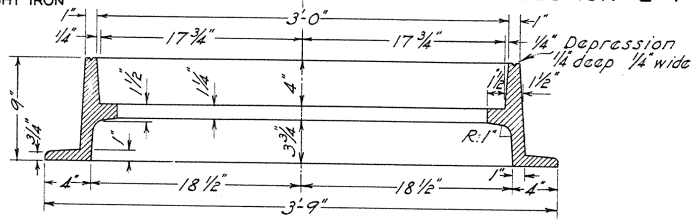




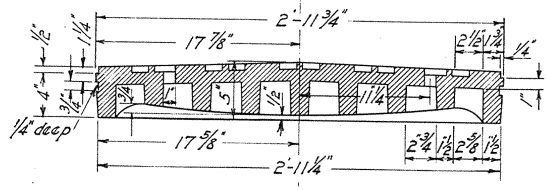
LIFTING KEY
WROUGHT IRON



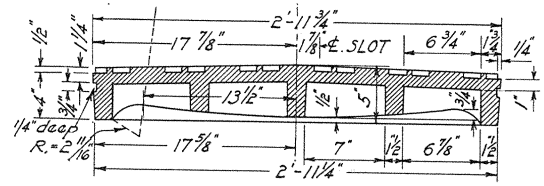
SECTION E-F



SECTION OF FRAME ON LINE A-B
WEIGHT OF FRAME - 740 LBS.



SECTION OF COVER ON LINE A-B
WEIGHT OF COVER - 540 LBS.



SECTION OF COVER ON LINE C-D

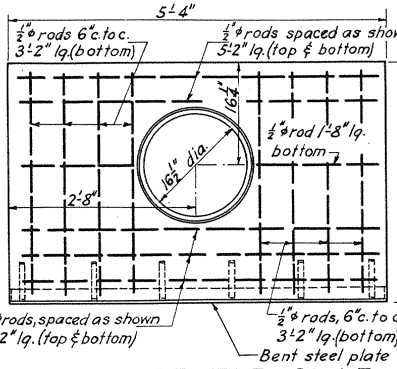
PLATE 31

1956

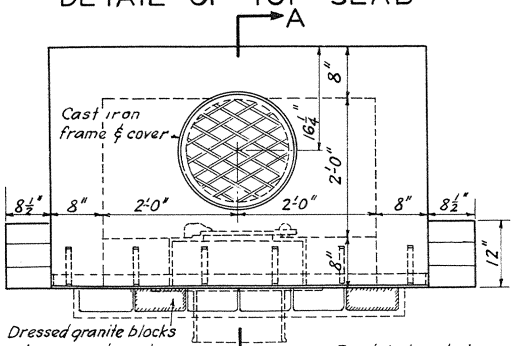
CITY INLET

CITY OF PHILADELPHIA
WATER DEPARTMENT

M Beyer
CHIEF ENGINEER

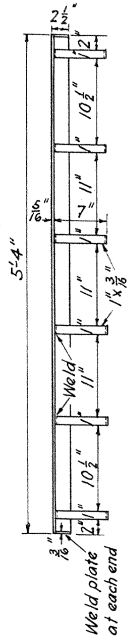


DETAIL OF TOP SLAB



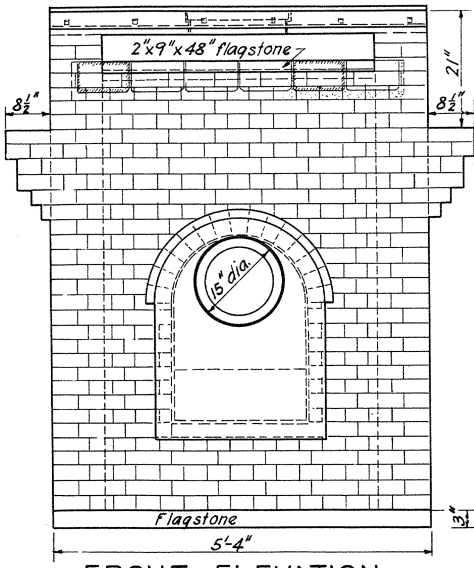
PLAN

For details not shown
see City Inlet Details

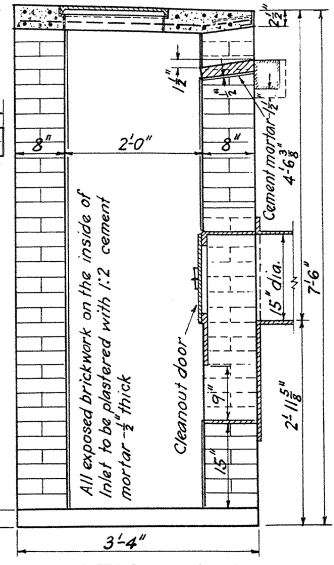


DETAIL OF BENT STEEL
PLATE & ANCHORS
(To be hot dipped galvanized after assembly)

Flagstone shall be natural cleft
Wyoming Valley (Pa.) or Hudson
Valley (N.Y.) flagging.



FRONT ELEVATION

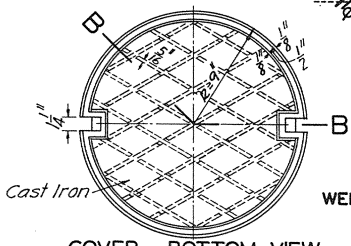


SECTION A-A

CITY INLET DETAILS

CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Pastorius
CHIEF ENGINEER



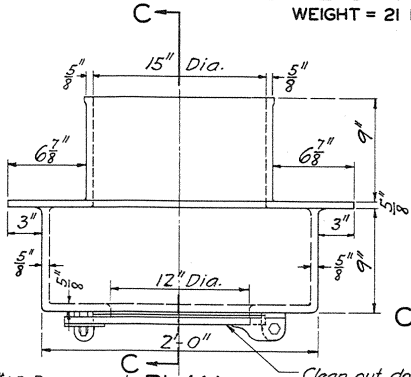
WEIGHT OF COVER = 59 LBS.

COVER BOTTOM VIEW

SECTION B-B

Cast Iron

DETAIL OF FRAME
WEIGHT = 21 LBS.

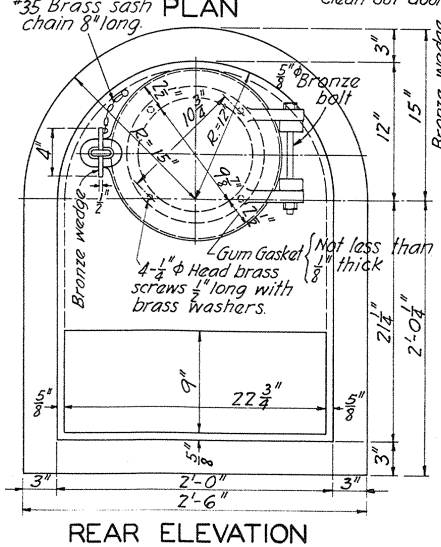


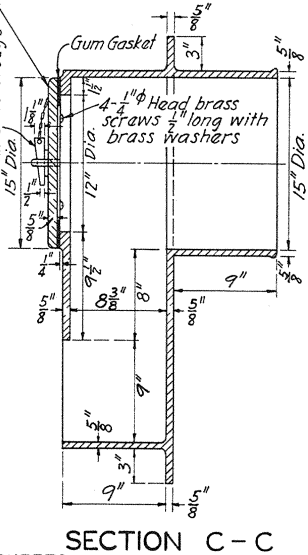
DETAIL OF
CAST IRON OUTLET
WEIGHT = 465 LBS.

PLAN

#35 Brass sash chain 8" long.

Clean out door





REAR ELEVATION

SECTION C-C

PLATE 33

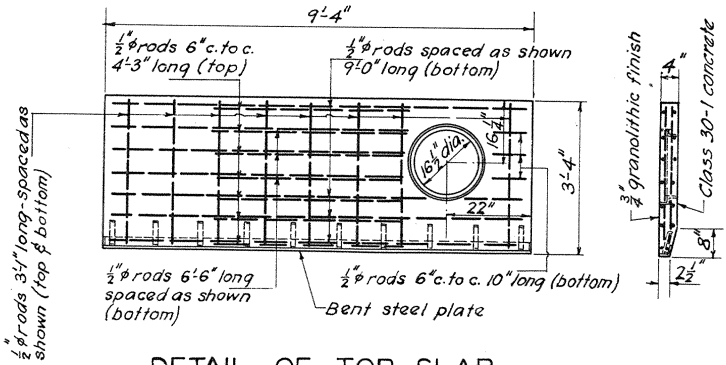
SHEET 2 OF 2 SHEETS

1956

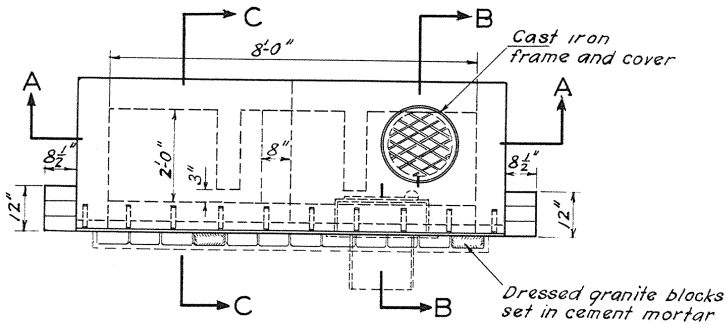
DOUBLE CITY INLET

CITY OF PHILADELPHIA
WATER DEPARTMENT

M. Davidson
CHIEF ENGINEER

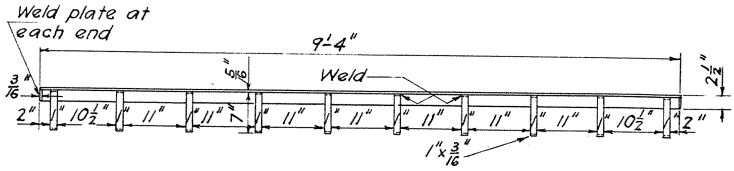


DETAIL OF TOP SLAB



PLAN

For details not shown see City Inlet details



DETAIL OF BENT STEEL PLATE & ANCHORS

(To be hot dipped galvanized after assembly)

SHEET 1 OF 2 SHEETS

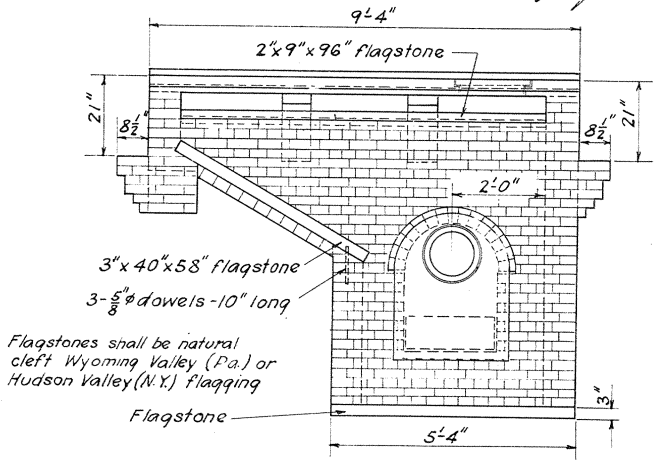
PLATE 34

1956

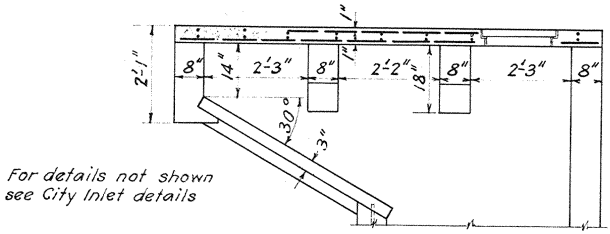
DOUBLE CITY INLET

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER

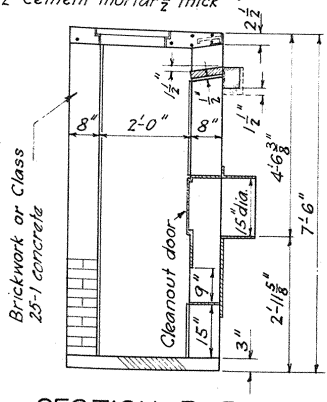


FRONT ELEVATION

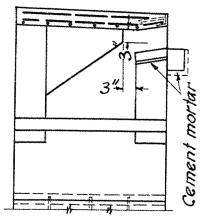


SECTION A - A

All exposed brickwork on the inside of inlet to be plastered with 1:2 cement mortar ½" thick



SECTION B-B



SECTION C - C

SHEET 2 OF 2 SHEETS

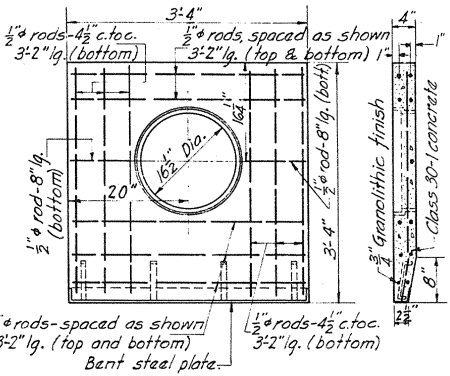
PLATE 35

1956

INLET "B"

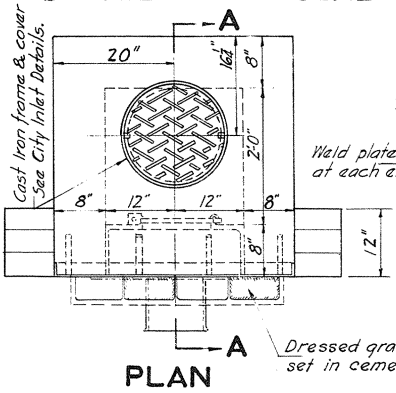
CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER

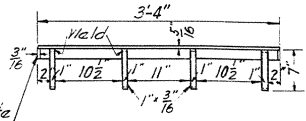


DETAIL OF TOP SLAB

Flagstone shall be natural cleft Wyoming Valley (Pa.) or Hudson Valley (N.Y.) flagging.



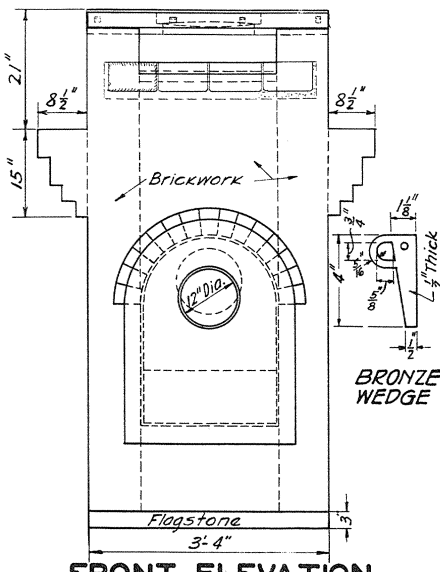
PLAN



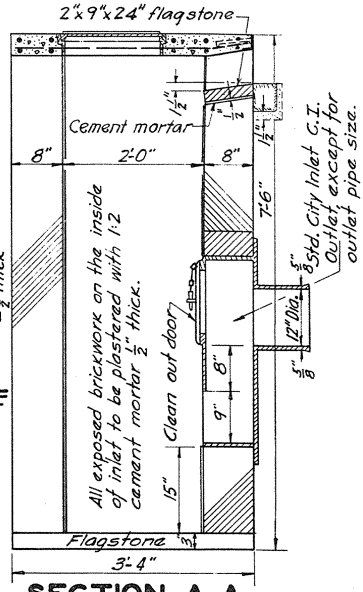
Weld plate at each end.

DETAIL OF BENT STEEL PLATE AND ANCHORS

(To be hot dipped galvanized after assembly)



FRONT ELEVATION



SECTION A-A

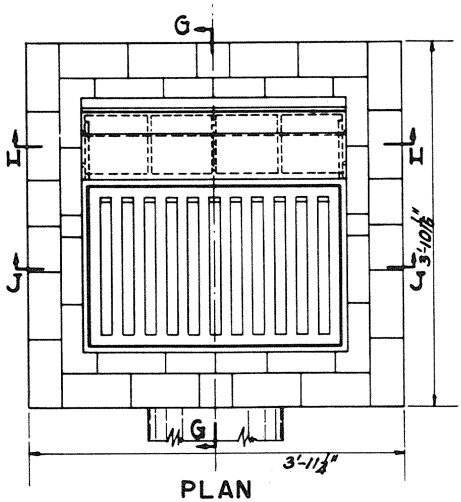
PLATE 36

1956

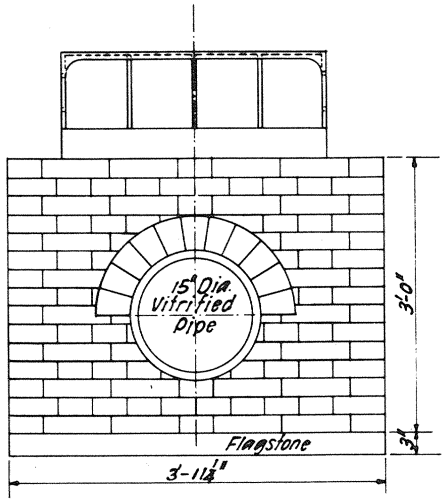
OPEN MOUTH - GRATE INLET
ASSEMBLED DETAILS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



PLAN



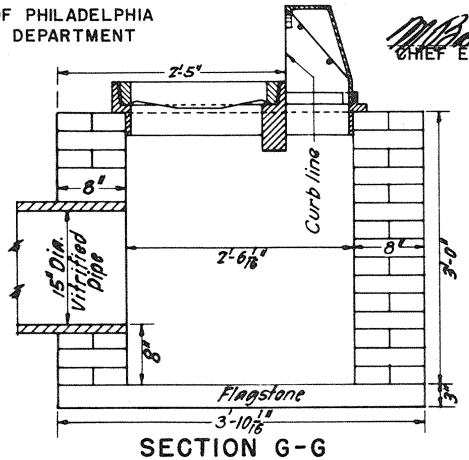
FRONT ELEVATION

All inlets shall be set approximately 2" below the grade of the gutter or ditch as directed by the Engineer in each case.

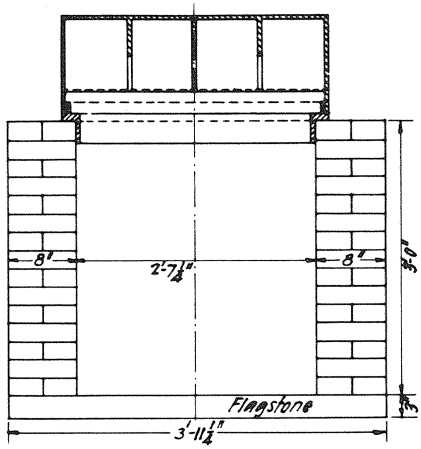
OPEN MOUTH GRATE INLET
ASSEMBLED DETAILS

CITY OF PHILADELPHIA
WATER DEPARTMENT

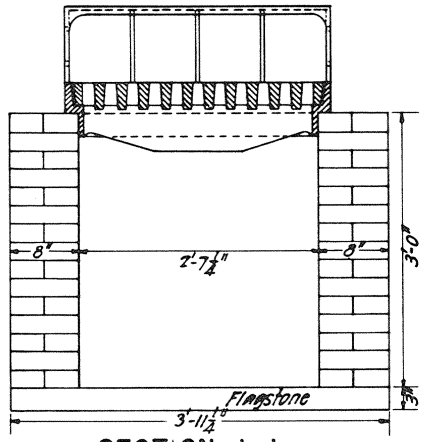
CHIEF ENGINEER



SECTION G-G



SECTION H-H



SECTION J-J

PLATE 38

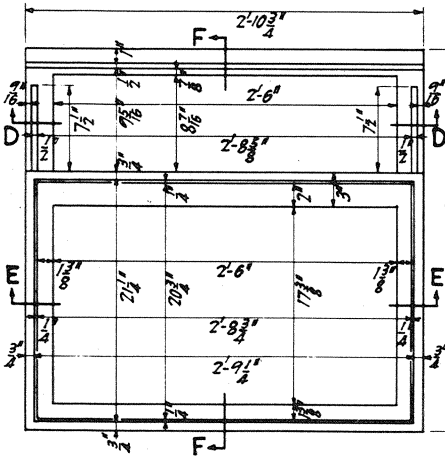
SHEET 2 OF 4 SHEETS

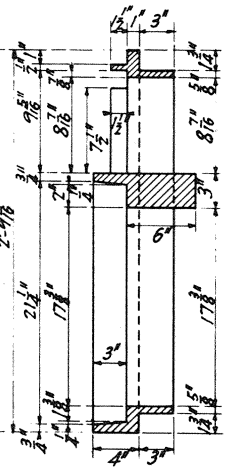
1956

OPEN MOUTH GRATE INLET
FRAME DETAILS
CAST IRON

CITY OF PHILADELPHIA
WATER DEPARTMENT

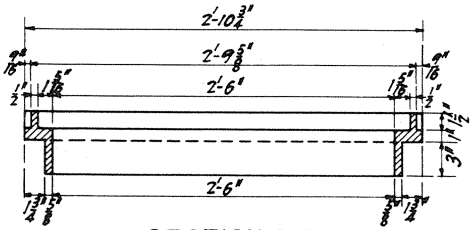
M. Barkley
CHIEF ENGINEER



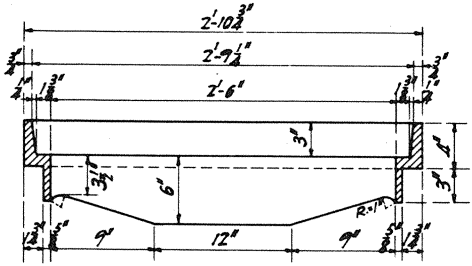


SECTION F-F

PLAN OF FRAME



SECTION D-D



SECTION E-E

Estimated weight of Frame = 345 lbs.

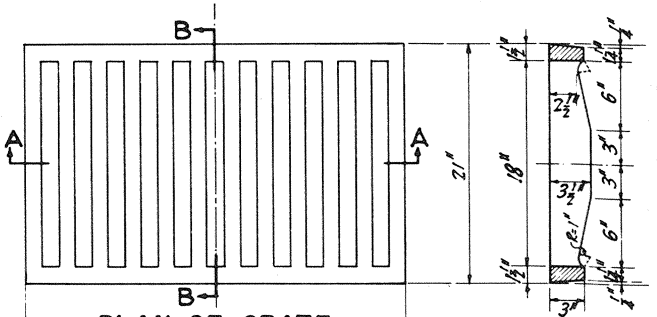
OPEN MOUTH GRATE INLET

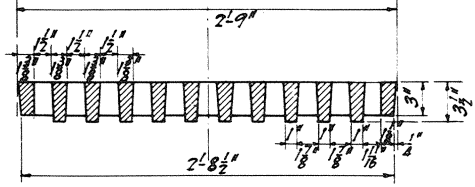
GRATE AND HOOD DETAILS

CAST IRON

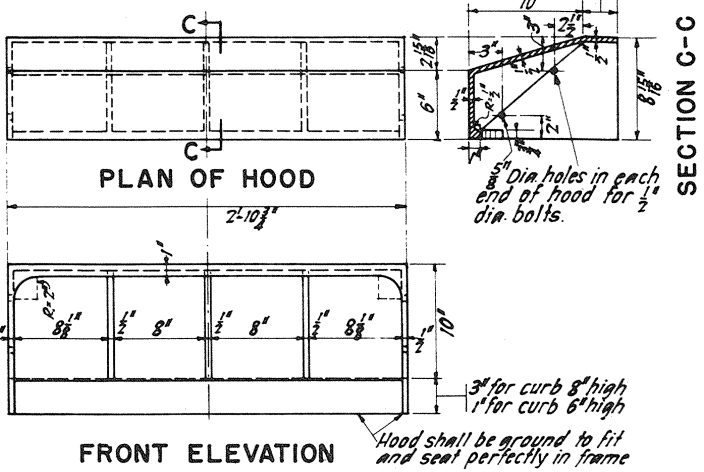
CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER





Estimated weight of Grate = 282 lbs.



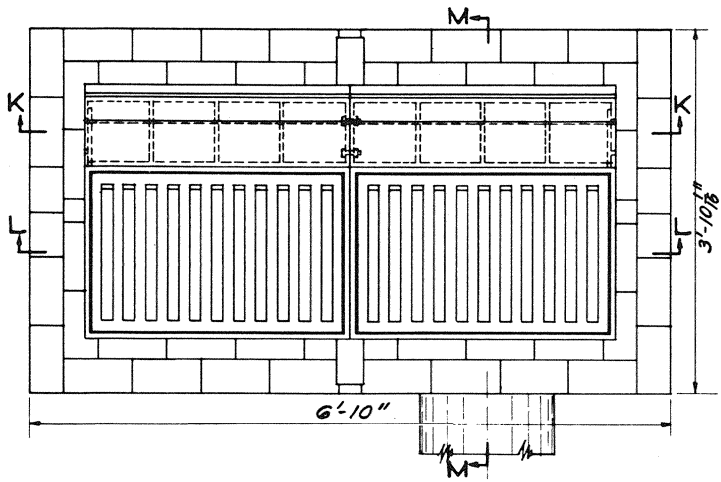
Estimated weight of Hood for curb 8" high = 124 lbs.
" " " " " " 6 " = 110 "

MULTIPLE OPEN MOUTH-GRATE INLET

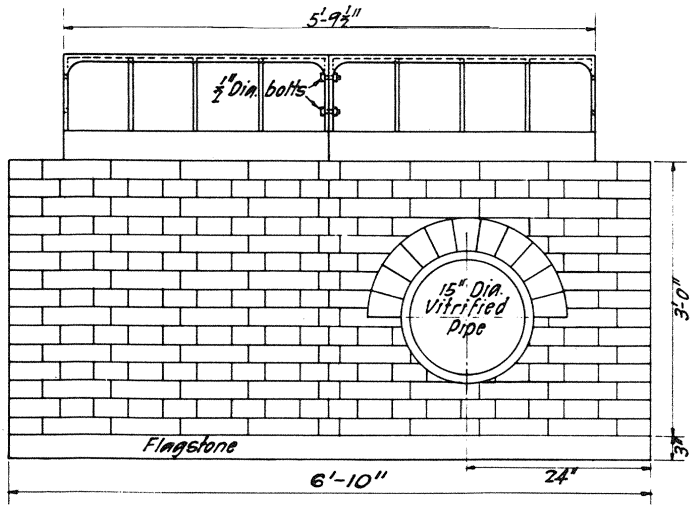
ASSEMBLED DETAILS

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



PLAN



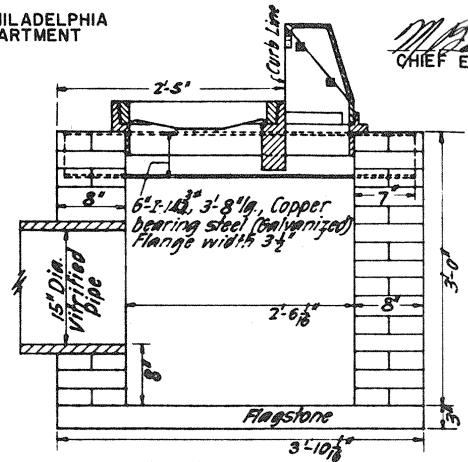
FRONT ELEVATION

All inlets shall be set approximately 2" below the grade of the gutter or ditch as directed by the Engineer in each case.

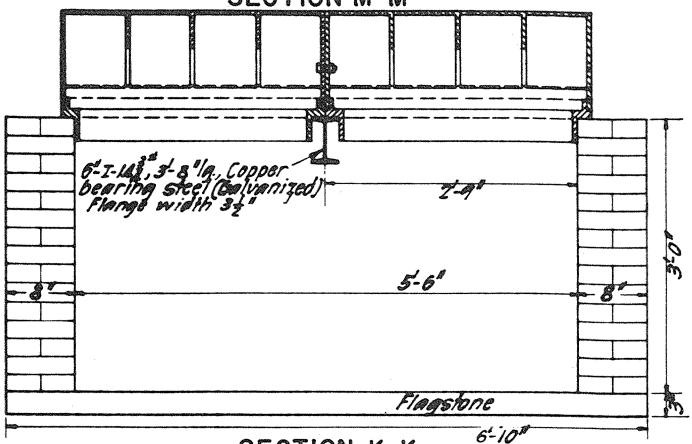
MULTIPLE OPEN MOUTH-GRATE INLET
ASSEMBLED DETAILS

CITY OF PHILADELPHIA
WATER DEPARTMENT

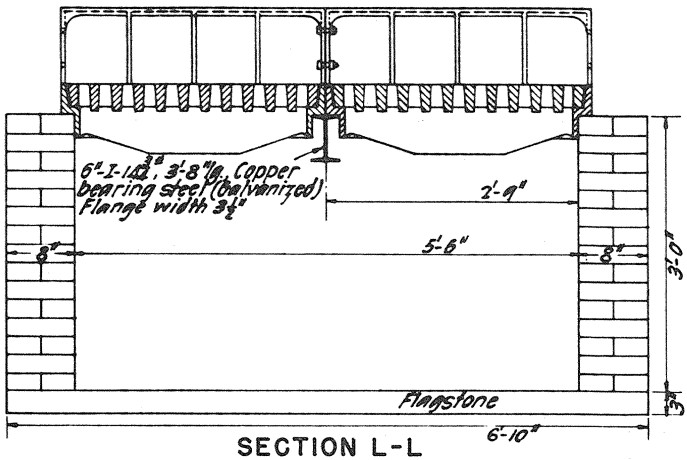
CHIEF ENGINEER



SECTION M-M



SECTION K-K



SECTION L-L

PLATE 42

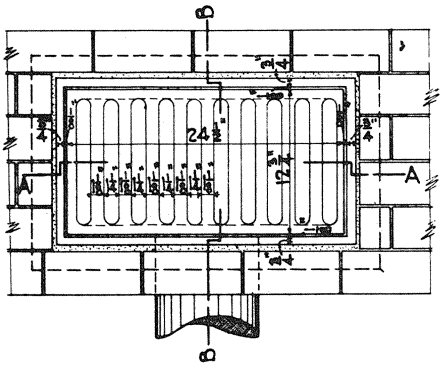
SHEET 2 OF 2 SHEETS

1956

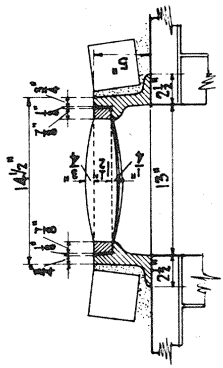
GRATE TOP COUNTRY ROAD INLET

CITY OF PHILADELPHIA
WATER DEPARTMENT

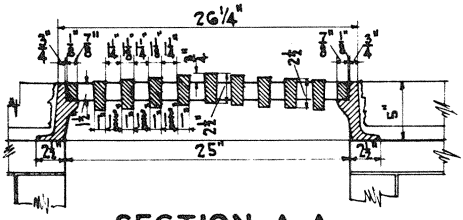
M. Gaskill
CHIEF ENGINEER



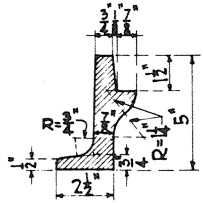
TOP VIEW



SECTION B-B

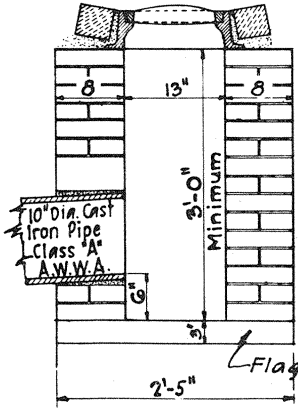


SECTION A-A

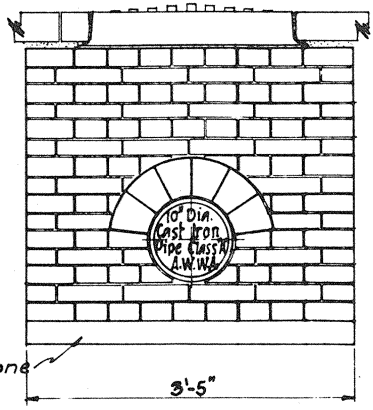


SECTION THRU FRAME

·WEIGHT·
Grate and Frame = 217 lbs.



SECTION B-B



FRONT VIEW

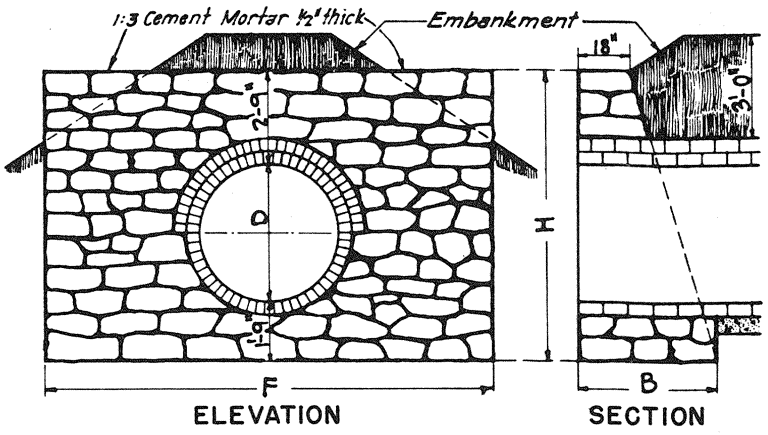
PLATE 43

1956

INTAKE AND OUTLET WALLS

CITY OF PHILADELPHIA
WATER DEPARTMENT

M Burpee
CHIEF ENGINEER



Foundation to extend to satisfactory bottom.
Wall to be of concrete (Class 15-2) or Rubble Masonry, pointed as directed.

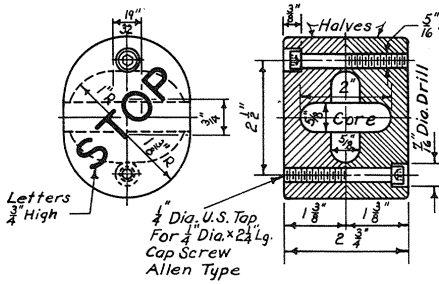
CIRCULAR SEWERS				
D	H	B	F	Cu. Yds.
12"	5'-6"	2'-6"	6'-0"	2.26
15"	5'-9"	2'-8"	7'-0"	2.86
18"	6'-0"	2'-9"	8'-0"	3.41
2'-0"	6'-6"	3'-0"	9'-0"	3.53
2'-6"	7'-0"	3'-3"	10'-0"	4.34
3'-0"	7'-6"	3'-6"	11'-0"	5.01
3'-6"	8'-0"	3'-9"	12'-0"	6.04
4'-0"	8'-6"	4'-0"	13'-0"	7.18
4'-6"	9'-0"	4'-3"	14'-0"	8.50
5'-0"	9'-6"	4'-6"	15'-0"	8.60

EGG-SHAPED SEWERS				
D	H	B	F	Cu. Yds.
2'-3"x1'-6"	6'-9"	3'-3"	8'-0"	3.31
2'-6"x1'-8"	7'-0"	3'-5"	8'-6"	3.89
3'-0"x2'-0"	7'-6"	3'-6"	9'-0"	4.18
3'-3"x2'-2"	7'-9"	3'-7½"	9'-6"	4.66
3'-6"x2'-4"	8'-0"	3'-9"	10'-0"	5.16
4'-0"x2'-8"	8'-6"	4'-0"	10'-6"	5.86
4'-6"x3'-0"	9'-0"	4'-3"	11'-0"	6.20
5'-0"x3'-4"	9'-6"	4'-6"	11'-6"	6.93

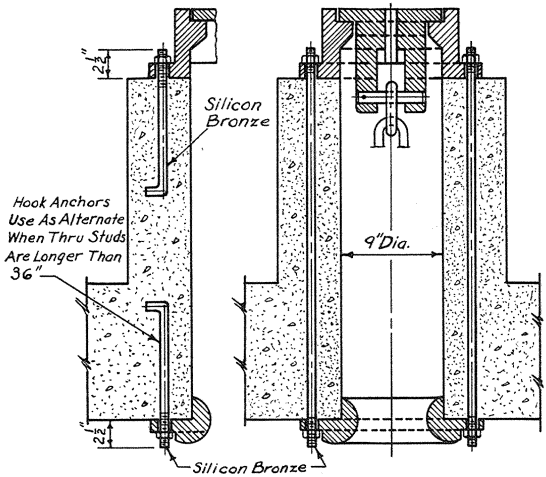
CHAIN HOLE FRAME-COVER AND LIFTING CHAIN

CITY OF PHILADELPHIA
WATER DEPARTMENT

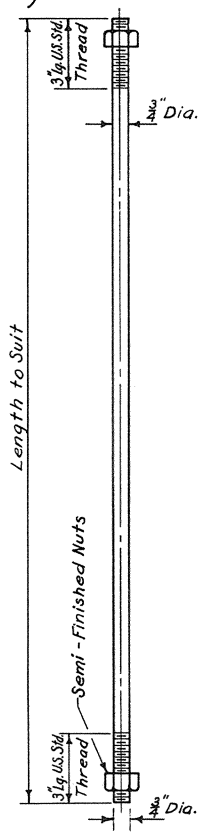
CHIEF ENGINEER



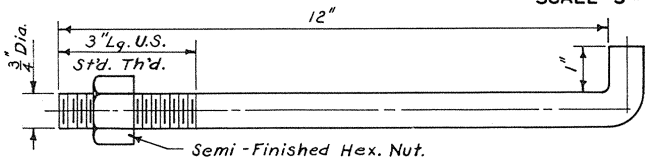
CHAIN INDICATOR BLOCK
CAST IRON
SCALE 6" = 1'-0"



ASSEMBLY
SCALE 1½" = 1'-0"



STUD AND NUTS
SCALE 3" = 1'-0"



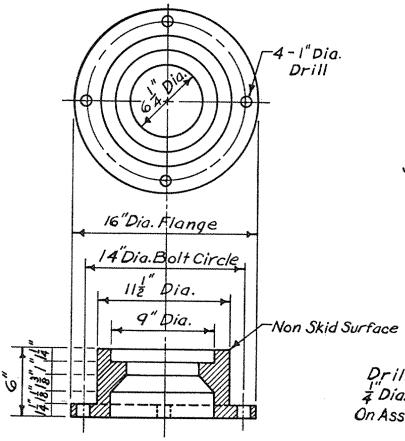
HOOK ANCHOR & NUT
SILICON BRONZE
SCALE 6" = 1'-0"

Note:
Chain ½" BBB Steel Chain (20'-0" To Be Furnished With Each Unit)
Schackles ½" No G-213 Drop Forged Steel
All Hot Dipped Galvanized.
Cast Iron Shall Be In Accordance With A.S.T.M. Designation A-126, Class B.

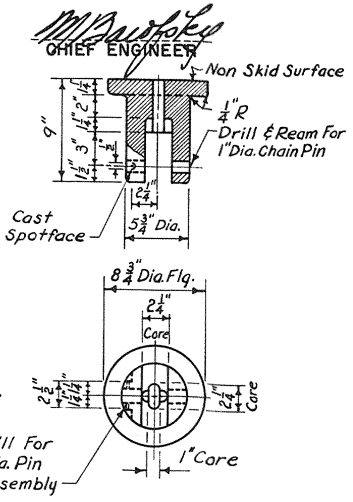
CHAIN HOLE FRAME-COVER AND LIFTING CHAIN

CITY OF PHILADELPHIA
WATER DEPARTMENT

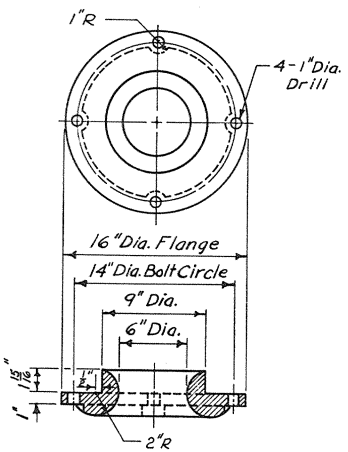
CHIEF ENGINEER



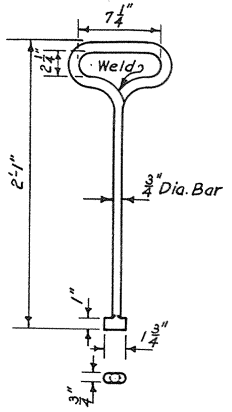
CHAIN GUIDE COVER
CAST IRON
SCALE 1 1/2" = 1'-0"



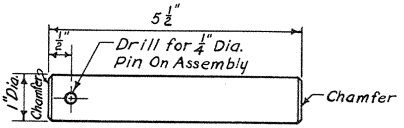
CHAIN PLUG
CAST IRON
SCALE 1 1/2" = 1'-0"



CHAIN GUIDE
CAST IRON
SCALE 1 1/2" = 1'-0"



LIFTING KEY
COLD ROLLED STEEL
SCALE 1 1/2" = 1'-0"



CHAIN PLUG PIN
COLD ROLLED STEEL
SCALE 6" = 1'-0"

PLATE 46

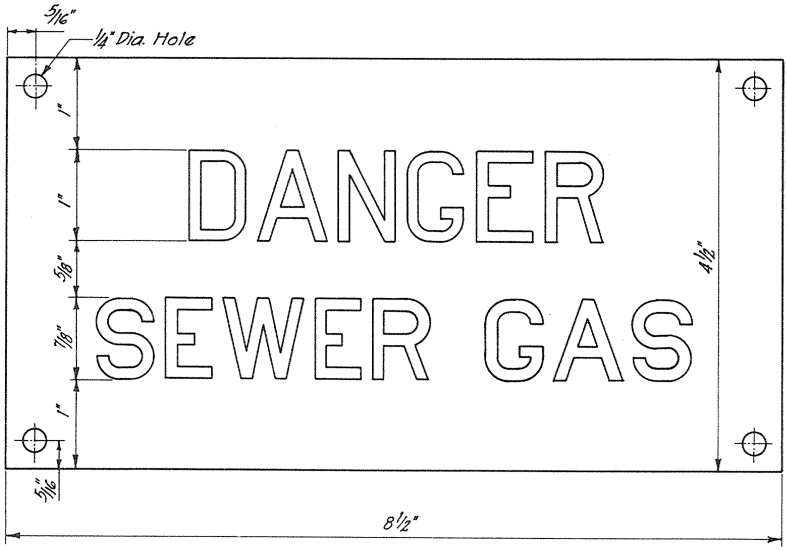
SHEET 2 OF 2 SHEETS

1956

GAS WARNING SIGN

CITY OF PHILADELPHIA
WATER DEPARTMENT

CHIEF ENGINEER



Note:

Signs are to be made of 1/8" thick aluminum plates (anodized).

Letters are to be painted with red enamel.

All enamel used for lettering is to be acid and fume resistant, synthetic finish in color as called for.

Signs are to be firmly attached to the inside wall of the regulating compartment of the Intercepting Chamber, with 1/4" bolts and concrete inserts, in a conspicuous location near the steps.