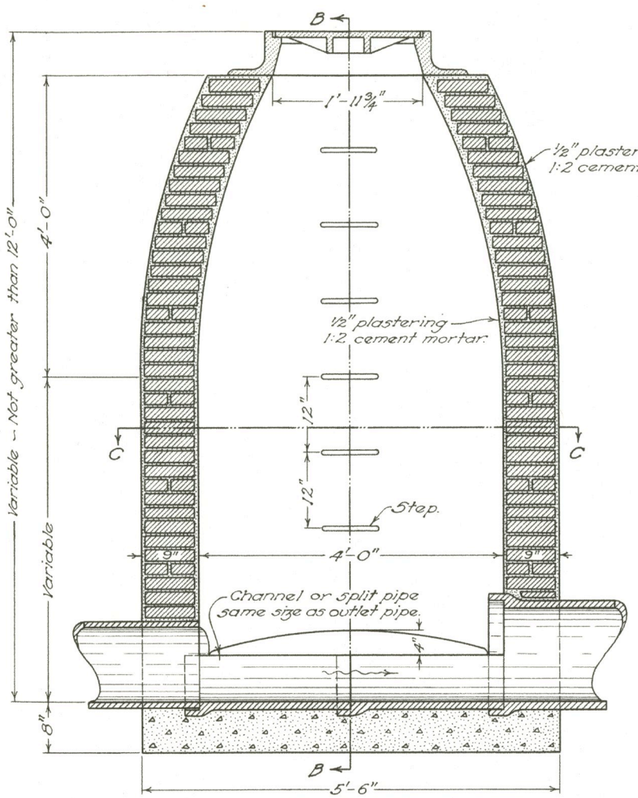
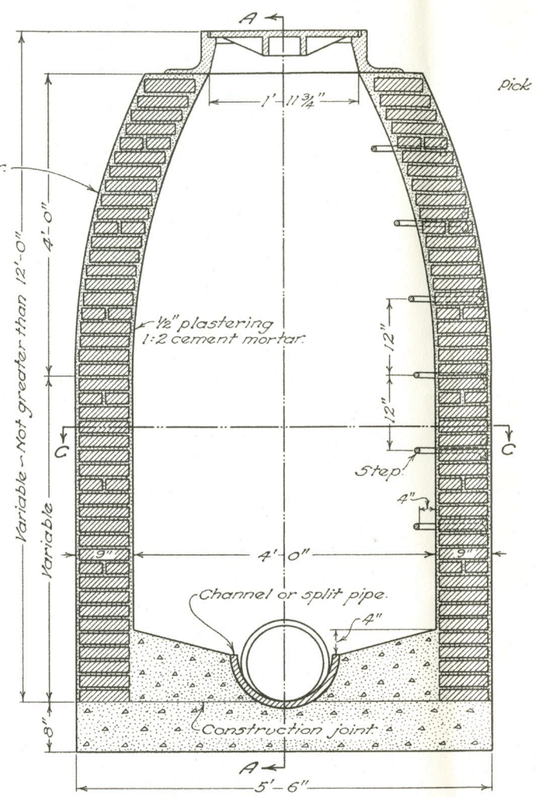
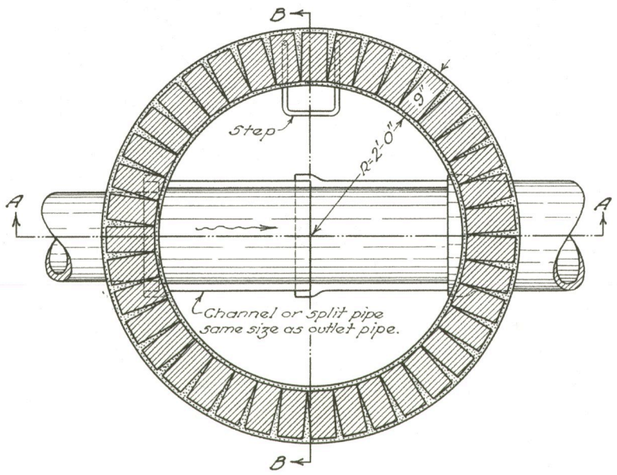
# STANDARD No. 1 MANHOLE



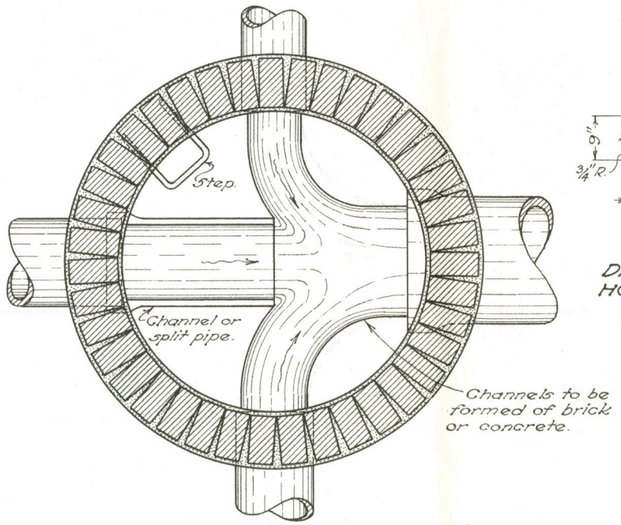

SECTION A-A



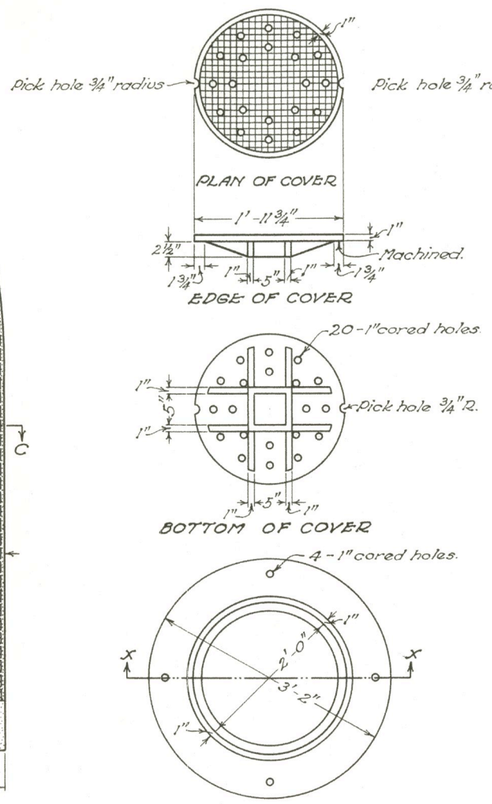

SECTION B-B




SECTION C-C

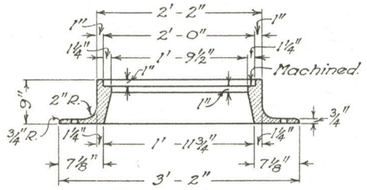



SECTION BELOW SPRING LINE
Showing method of turning side drains.



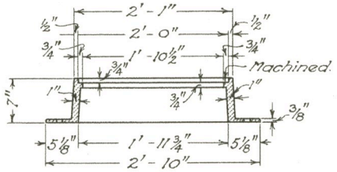

PLAN OF FRAME

PLAN OF FRAME



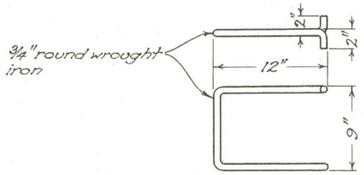

SECTION X-X

DETAIL OF HEAVY MANHOLE FRAME & COVER
WEIGHT 500 #




SECTION Y-Y

DETAIL OF LIGHT MANHOLE FRAME & COVER
WEIGHT 300 #




DETAIL OF MANHOLE STEP

## NOTES

BEARING AREAS:—
Bearing areas of frame and cover shall be machined to provide a firm and even seat for any portion of the cover.

SETTING OF CASTING:—
The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

CASTING:—
The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.
The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.
All castings to be in accordance with Section M-7.8 of the Material Details.
Manhole castings may be made in accordance with details shown herewith, or may be of similar design but of equal weight.

STEPS:—
Steps shall be of good quality wrought iron in accordance with Section M-7.6 of the Material Details, free from cracks and painted with two coats of red lead.

MANHOLES:—
Manholes shall be built of brick laid in Portland cement mortar, every sixth course to be a stretcher course.
Water tables and bases of manholes may be constructed of either concrete, 1:5½ mix, or brick.

BUREAU OF LOCATION & DESIGN
OHIO
DEPARTMENT OF HIGHWAYS

STANDARD MANHOLE

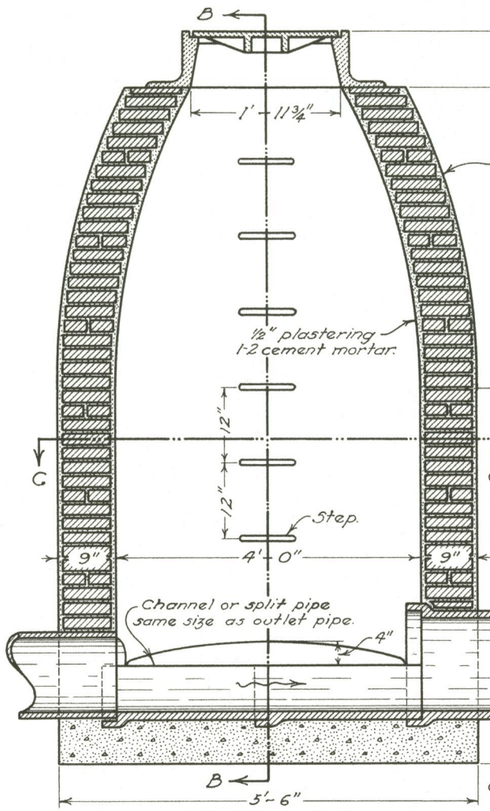
STANDARD CONSTRUCTION DRAWING

I-8 M.H.
No. 1

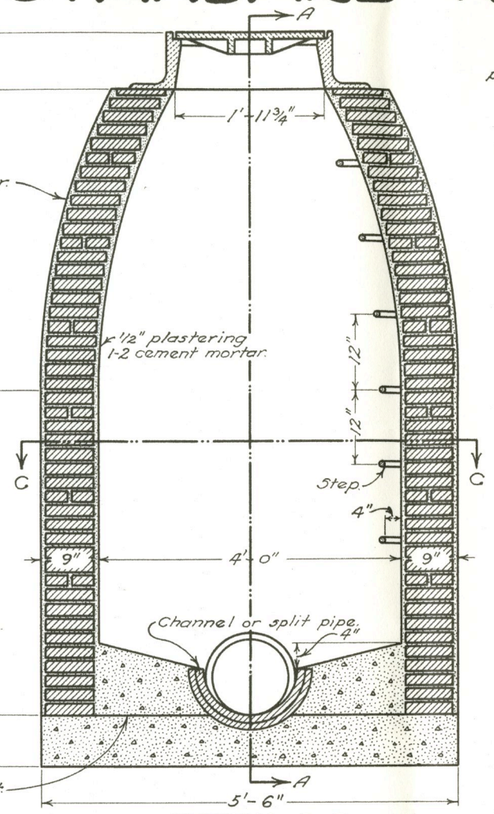
APPROVED K. L. R. CHIEF ENGINEER

SEPT. 193
APRIL-193

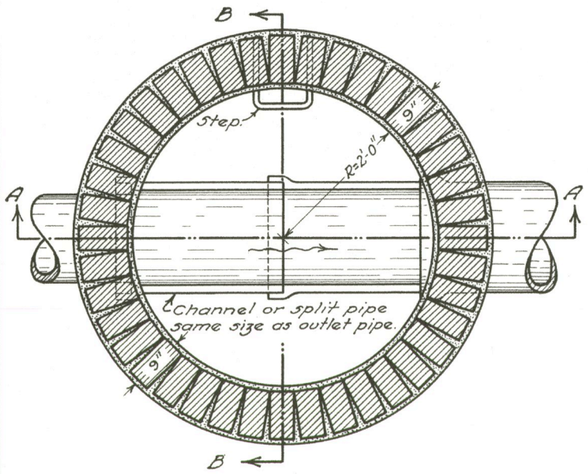
# STANDARD No. 1 MANHOLE



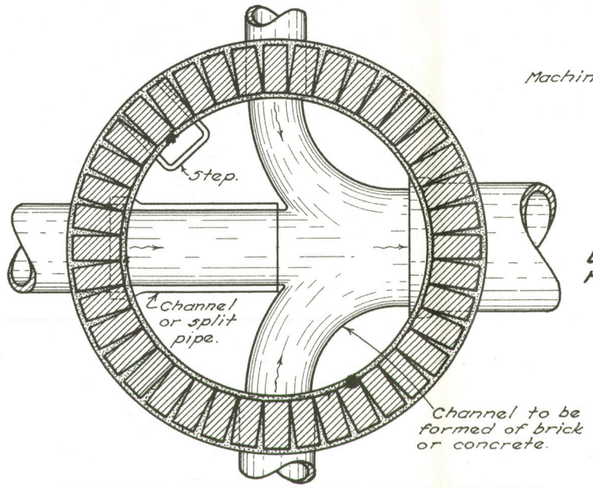

SECTION A-A



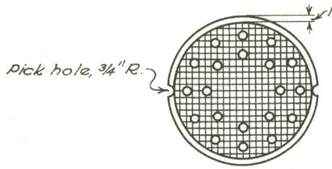

SECTION B-B



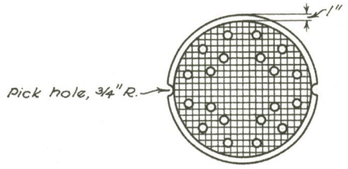

SECTION C-C



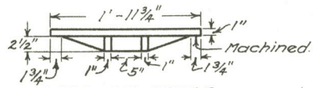

SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS.



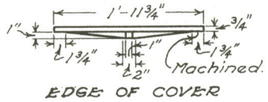

PLAN OF COVER



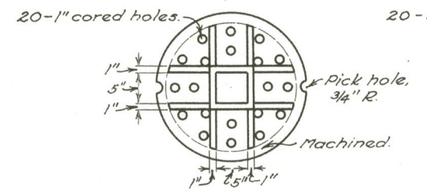

PLAN OF COVER



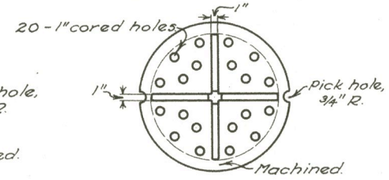

EDGE OF COVER



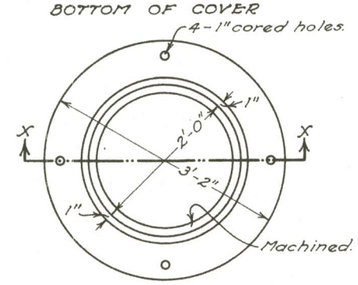

EDGE OF COVER



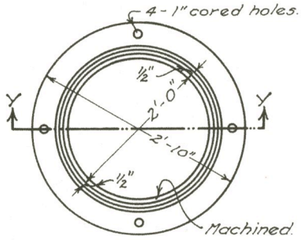

BOTTOM OF COVER



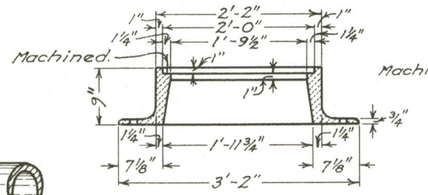

BOTTOM OF COVER




PLAN OF FRAME

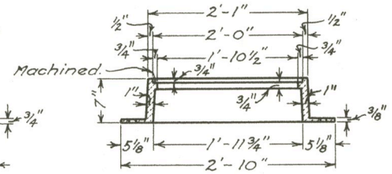



PLAN OF FRAME



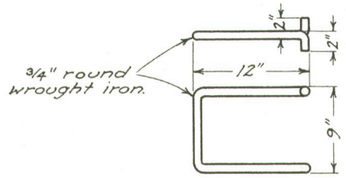

SECTION X-X

**DETAIL OF HEAVY MANHOLE FRAME & COVER**




SECTION Y-Y

**DETAIL OF LIGHT MANHOLE FRAME & COVER**




**DETAIL OF MANHOLE STEP**

## NOTES

**BEARING AREAS** of frame and cover shall be machined to provide a firm and even seat for any portion of the cover. Frames and covers to be matched and marked.

**SETTING OF CASTING**:- The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

**CASTINGS**:- The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.

The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.

Castings shall be of cast iron in accordance with Material Details. The designs shall be essentially the same and equally as strong as those shown hereon, and shall be given one coat of asphaltum paint as per specifications. Weight approximately of light frame and cover 300 pounds, of heavy frame and cover 500 pounds.

**STEPS** shall be of good quality wrought iron in accordance with Material Details, free from cracks and shall be given one coat of asphaltum paint as per specifications.

**CONSTRUCTION**:- Manholes shall be built of brick laid in Portland cement mortar, every sixth course to be a stretcher course, and to be plastered on the inside and outside with 1-2 cement mortar ½" thick.

Water tables and bases of manholes may be constructed of either brick, grout filled, or 1-5½ concrete.

BUREAU OF LOCATION & DESIGN
OHIO DEPARTMENT OF HIGHWAYS

**STANDARD MANHOLE**

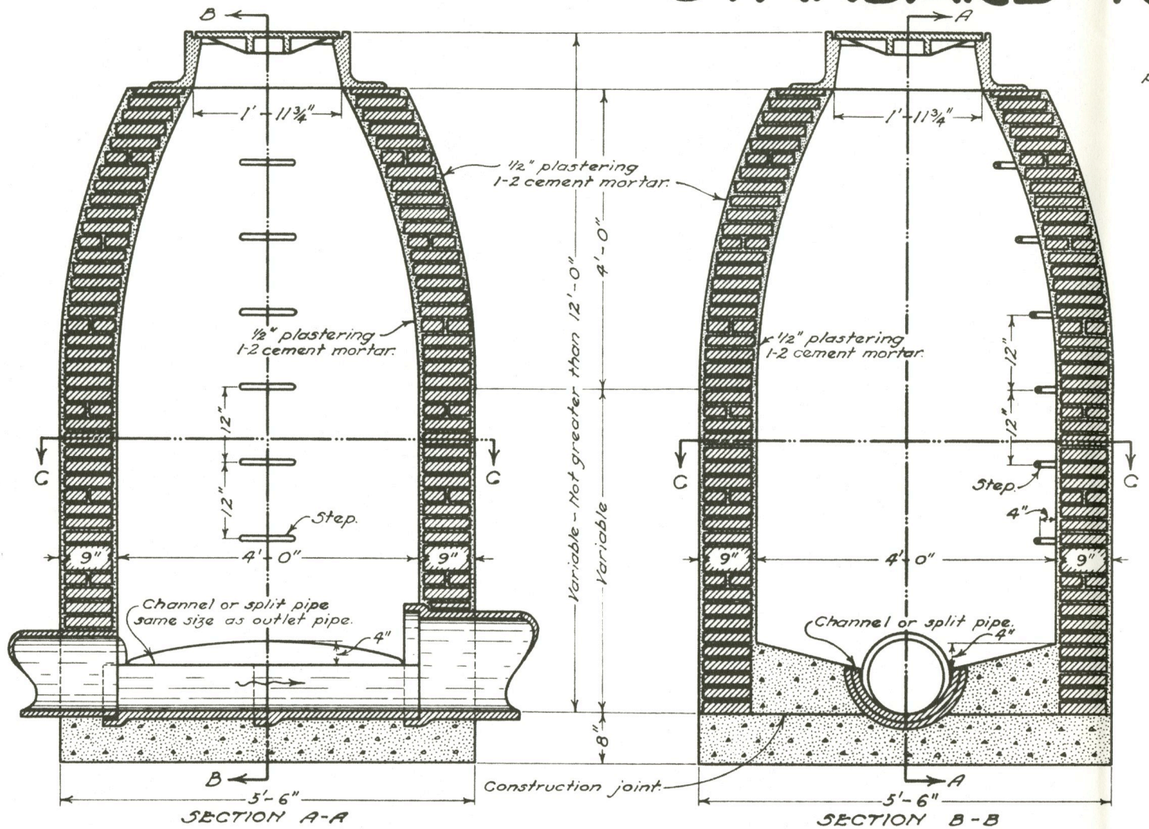
STANDARD CONSTRUCTION DRAWING

I-8 M.H.
No. 1

APPROVED H.L.R. CHIEF ENGINEER

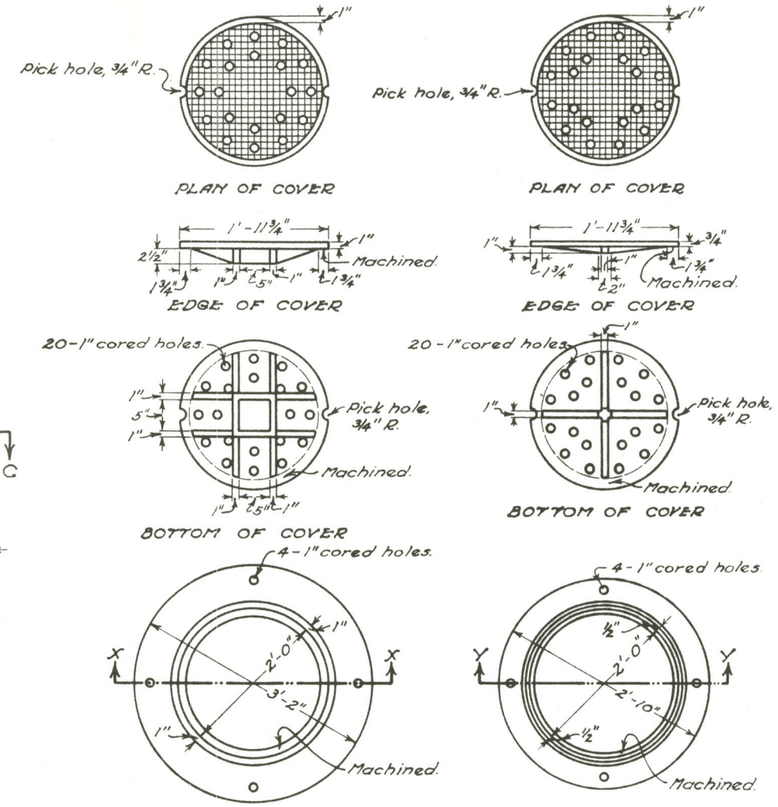
9-1933
4-1934
2-20-36

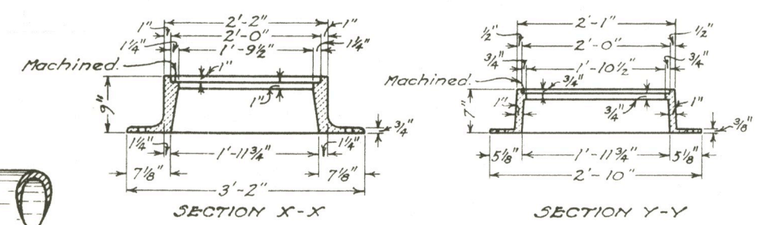
# STANDARD No. 1 MANHOLE




SECTION A-A

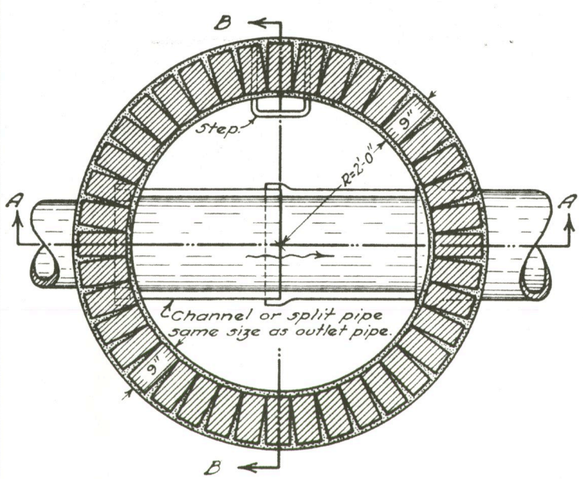
SECTION B-B



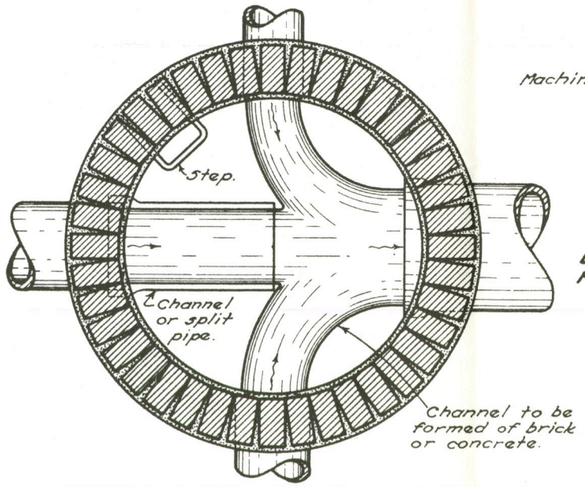




DETAIL OF HEAVY MANHOLE FRAME & COVER

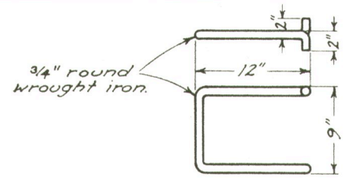
DETAIL OF LIGHT MANHOLE FRAME & COVER




SECTION C-C




SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS.




DETAIL OF MANHOLE STEP

## NOTES

**BEARING AREAS** of frame and cover shall be machined to provide a firm and even seat for any portion of the cover. Frames and covers to be matched and marked.

**SETTING OF CASTING:-** The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

**CASTINGS:-** The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.

The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.

Castings shall be of cast iron in accordance with Material Details. The designs shall be essentially the same and equally as strong as those shown hereon, and shall be given one coat of asphaltum paint as per specifications. Weight approximately of light frame and cover 300 pounds, of heavy frame and cover 500 pounds.

**STEPS** shall be of good quality wrought iron in accordance with Material Details, free from cracks and shall be given one coat of asphaltum paint as per specifications.

**CONSTRUCTION:-** Manholes shall be built of brick laid in Portland cement mortar; every sixth course to be a stretcher course, and to be plastered on the inside and outside with 1-2 cement mortar ½" thick.

Water tables and bases of manholes may be constructed of either brick, grout filled, or Class "C" concrete.

BUREAU OF LOCATION & RIGHT OF WAY
OHIO DEPARTMENT OF HIGHWAYS

**STANDARD MANHOLE**

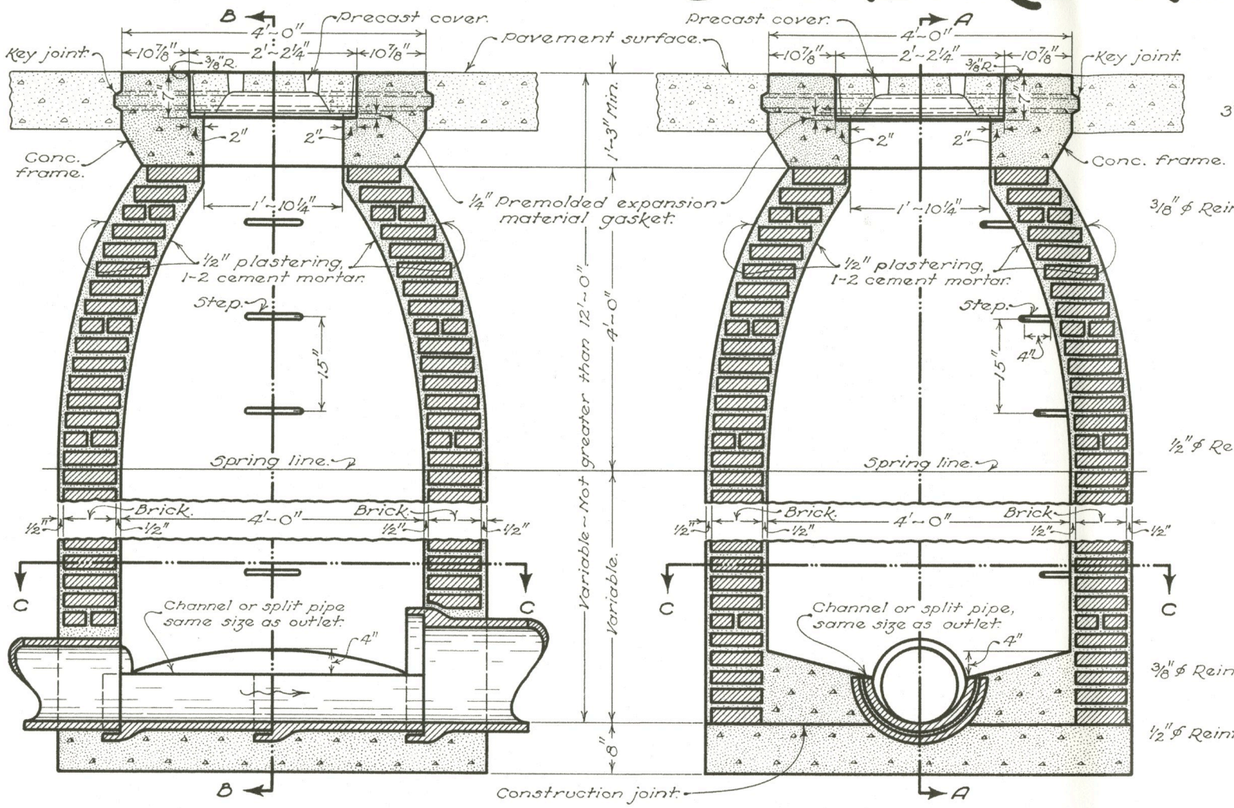
STANDARD CONSTRUCTION DRAWING

I-8 M.H.
No. 1

DATE
9-1933
4-1934
2-20-36
3-1-39

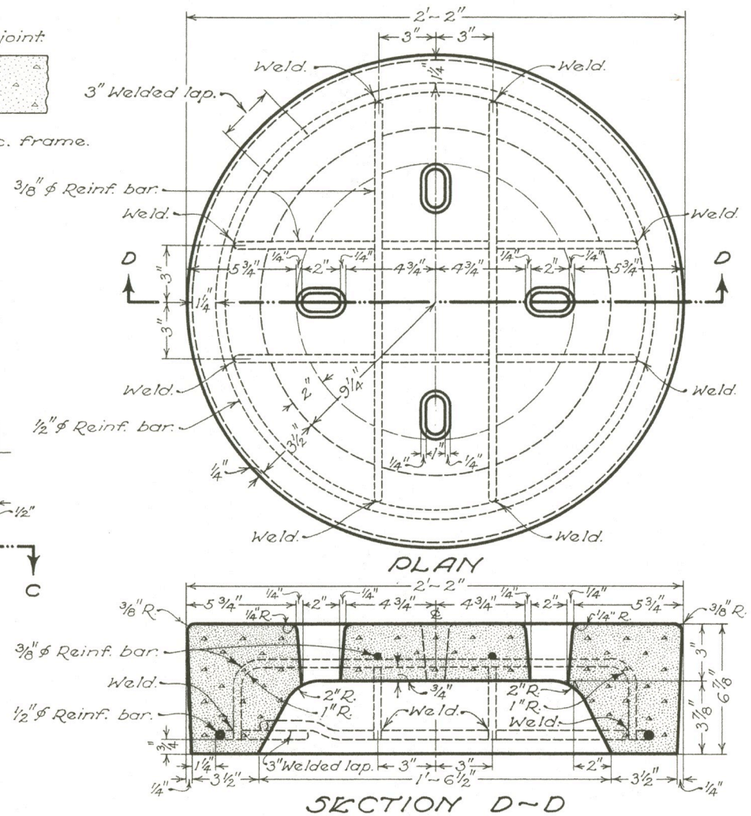
APPROVED _____ CHIEF ENGINEER

# STANDARD No. 1 MANHOLE




SECTION A-A

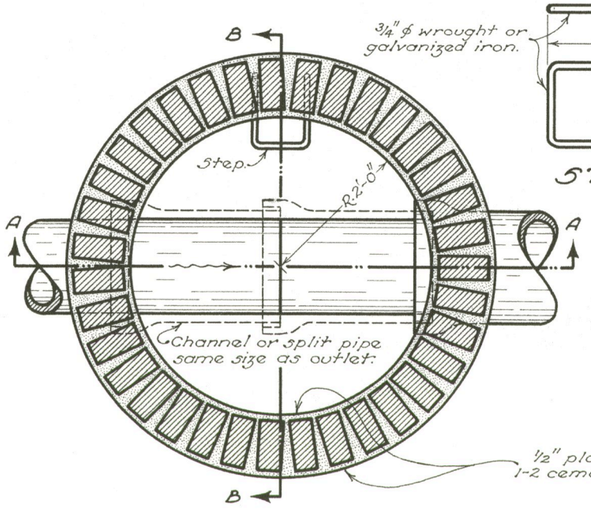
SECTION B-B



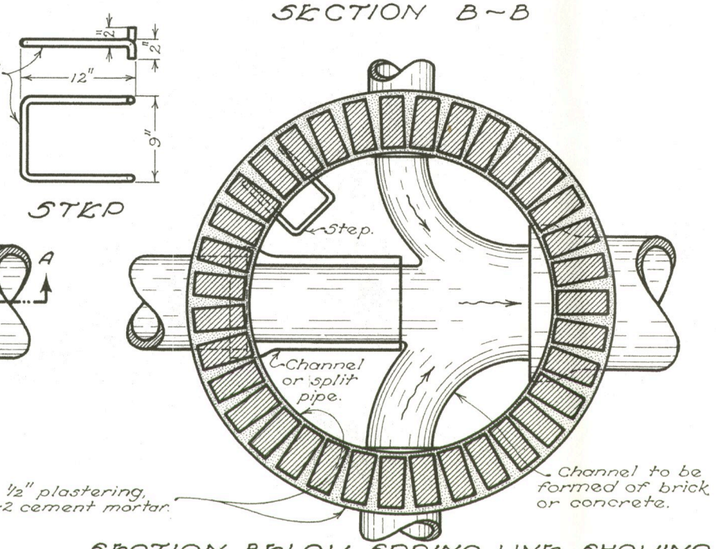

PLAN

SECTION D-D

## PRECAST CONCRETE COVER

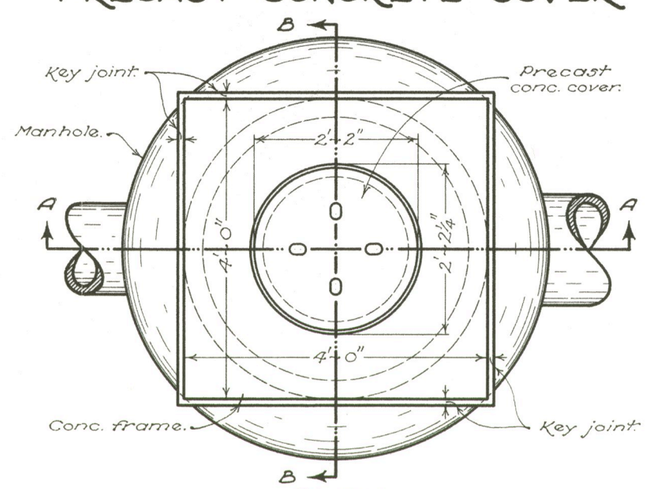



SECTION C-C




STEP

SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS




PLAN

## NOTES

**CONCRETE**:- The cover shall be precast of Class "C" concrete. The frame, or that portion blocked out of the pavement and surrounding the cover, shall be concrete of the same mix as used in the pavement, and paid for as part of the pavement.

Covers and frames for manholes not in the pavement area shall be the same as those within the pavement area except that the key on the frame, or that portion of concrete surrounding the cover, may be omitted.

**BEARING AREA** of frame and cover shall be fitted with a 1/4 inch thick gasket cut from bituminous premolded material meeting the requirement of Sec. M-10.1.

The gasket if made in more than one piece shall be neatly fitted to cover the entire bearing area, with no lapping of edges, and shall be cemented to the bearing area of the frame, or concrete surrounding the cover, with asphalt cement, Sec. M-5.1, A-1.

**STEPS** shall be 3/4 inch round wrought iron free from cracks and painted with one coat of asphaltum paint as per specifications, or galvanized iron, spaced 15 inches center to center.

**CONSTRUCTION**:- Manholes shall be built of brick laid in Portland cement mortar, every sixth course to be a stretcher course, and to be plastered on the inside and outside with 1-2 cement mortar 1/2 inch thick.

Water tables and bases of manholes may be constructed of either brick, grout filled, or Class "C" concrete.

BUREAU OF LOCATION & RIGHT OF WAY
OHIO DEPARTMENT OF HIGHWAYS

**STANDARD MANHOLE**

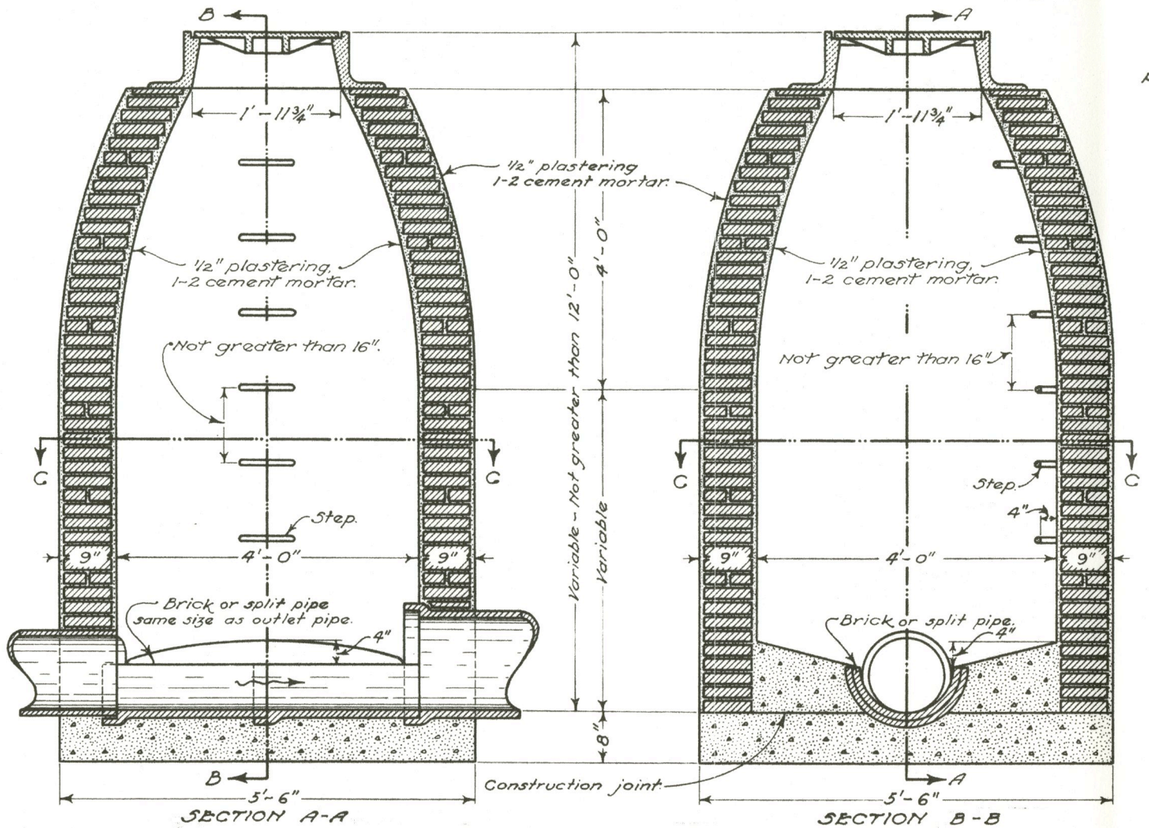
STANDARD CONSTRUCTION DRAWING

I-8 M.H.
No. 1

DATE
9-1933
4-1934
2-20-36
3-1-'39
4-1-42

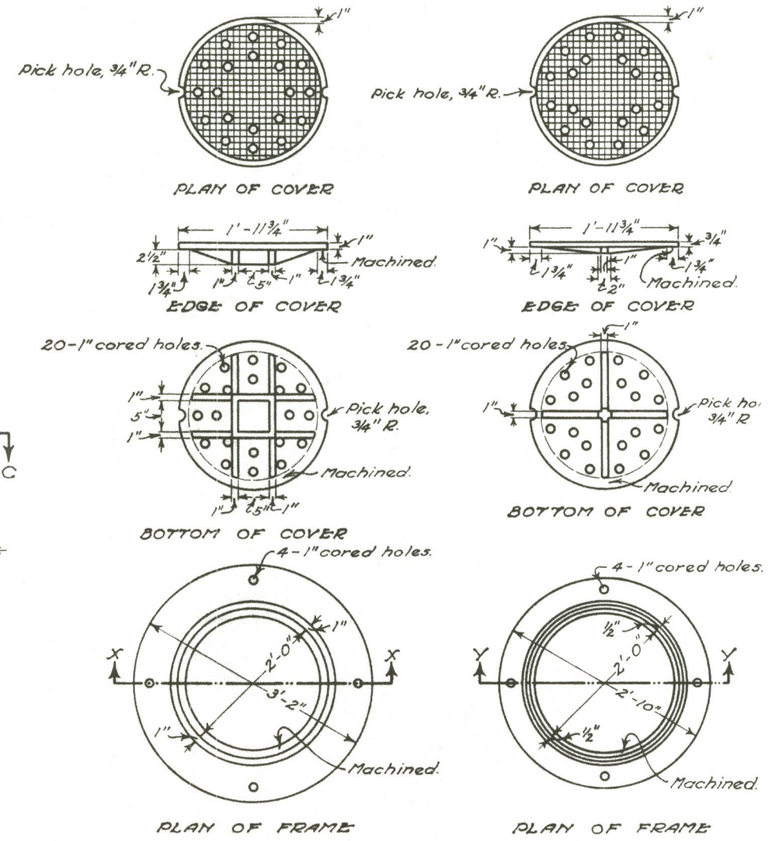
APPROVED M.D.S CHIEF ENGINEER

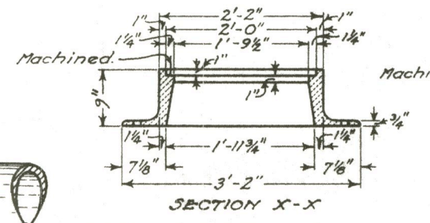
# STANDARD No. 1 MANHOLE



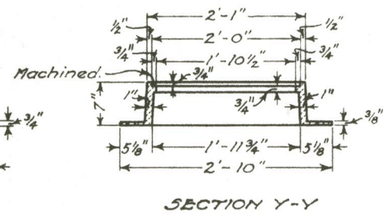

SECTION A-A

SECTION B-B

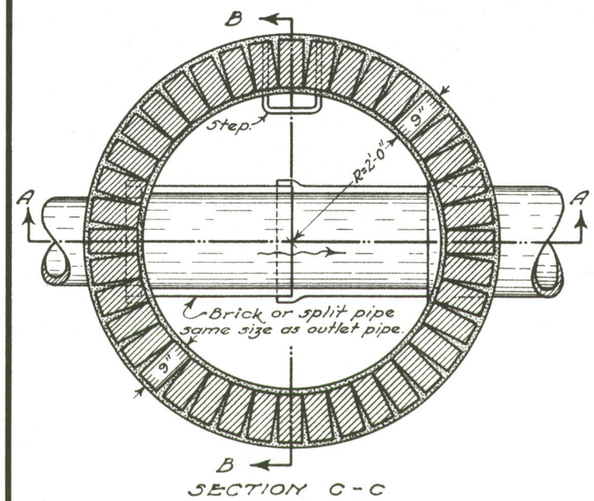


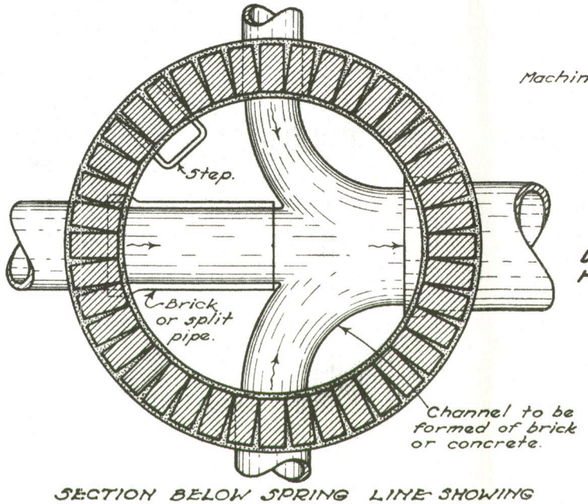

DETAIL OF HEAVY MANHOLE FRAME & COVER



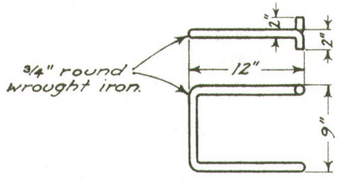

DETAIL OF LIGHT MANHOLE FRAME & COVER




SECTION C-C




SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS.




DETAIL OF MANHOLE STEP

## NOTES

**BEARING AREAS** of frame and cover shall be so fitted and finished as to provide a firm and even seat for all portions of the cover in the frame. No projections shall exist on bearing areas of either casting and each cover shall seat in its frame without rocking. Frames and covers shall be fitted, matched and marked before delivery to the project.

**SETTING OF CASTING**:- The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

**CASTINGS**:- The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.

The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.

Castings shall be of cast iron in accordance with Material Details. The designs shall be essentially the same and equally as strong as those shown hereon, and shall be given one coat of asphaltum paint as per specifications. Weight approximately of light frame and cover 300 pounds, of heavy frame and cover 500 pounds.

**STEPS** shall be of good quality wrought iron in accordance with Material Details, free from cracks and shall be given one coat of asphaltum paint as per specifications.

**CONSTRUCTION**:- Manholes shall be built of brick laid in Portland cement mortar, every sixth course to be a stretcher course, and to be plastered on the inside and outside with 1-2 cement mortar ½" thick.

Bottom of manhole shall be Class "C" concrete.

Channel sections in the manhole shall be constructed of split pipe or brick except curved sections which may be built by forming a channel in the concrete.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

**STANDARD MANHOLE**

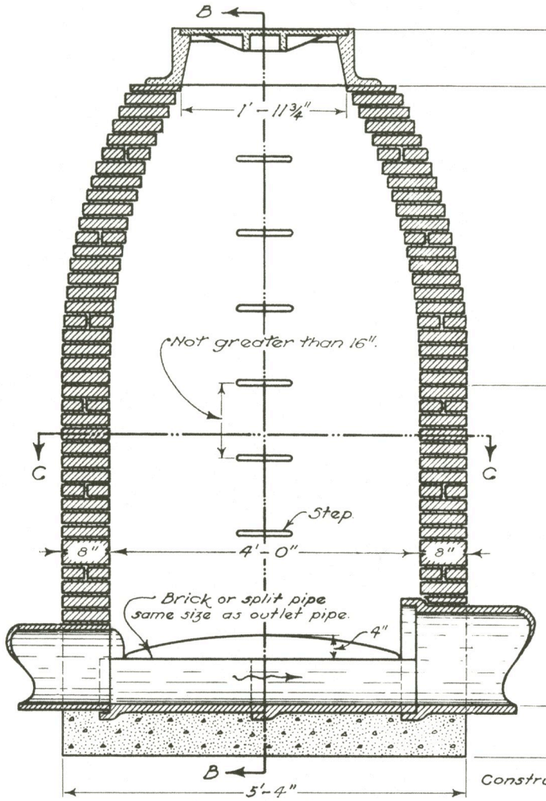
STANDARD CONSTRUCTION DRAWING

I-8 M.H. No. 1

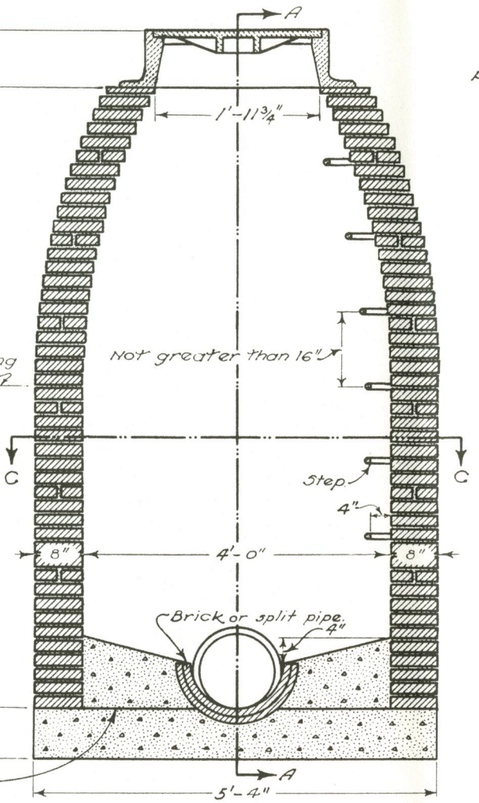
APPROVED G. S. J. CHIEF ENGINEER

DATE
9-1933
4-1934
2-20-36
3-1-39
4-1-42
3-1-39
5-1-47

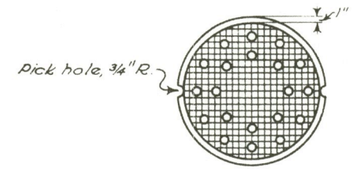
# STANDARD No. 1 MANHOLE



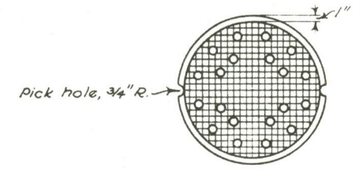

SECTION A-A



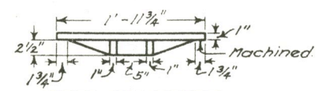

SECTION B-B



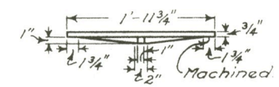

PLAN OF COVER



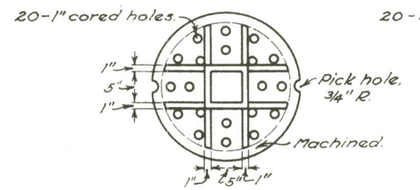

PLAN OF COVER



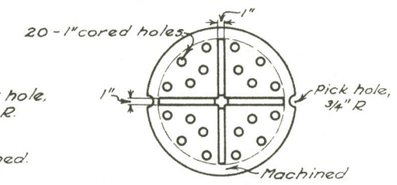

EDGE OF COVER




EDGE OF COVER




BOTTOM OF COVER

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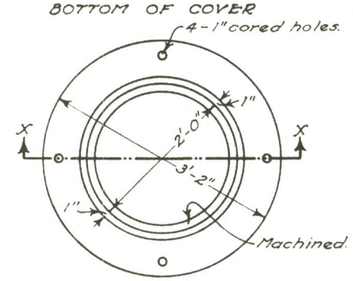
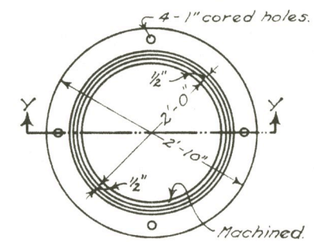
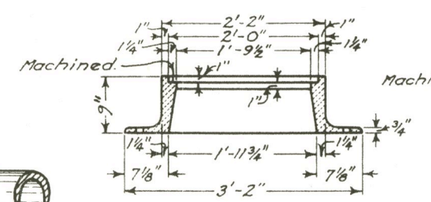



PLAN OF FRAME

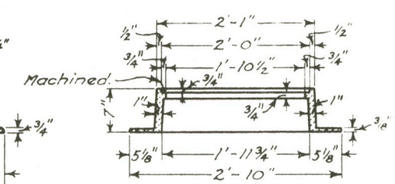



PLAN OF FRAME



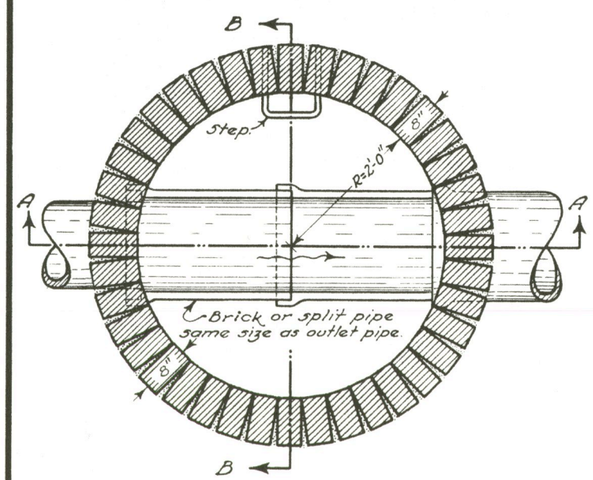

SECTION X-X

**DETAIL OF HEAVY MANHOLE FRAME & COVER**

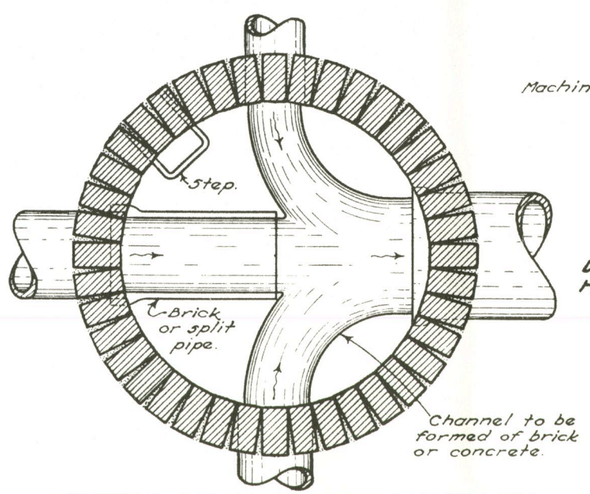



SECTION Y-Y

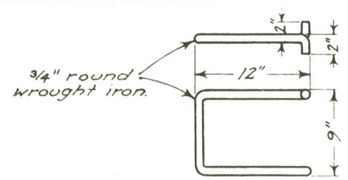
**DETAIL OF LIGHT MANHOLE FRAME & COVER**




SECTION C-C




SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS.




**DETAIL OF MANHOLE STEP**

## NOTES

**BEARING AREAS** of frame and cover shall be so fitted and finished as to provide a firm and even seat for all portions of the cover in the frame. No projections shall exist on bearing areas of either casting, and each cover shall seat in its frame without rocking. Frames and covers shall be fitted, matched and marked before delivery to the project.

**SETTING OF CASTING**:- The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

**CASTINGS**:- The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.

The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.

Castings shall be of cast iron in accordance with Material Details. The designs shall be essentially the same and equally as strong as those shown hereon, and shall be given one coat of asphaltum paint as per specifications. Weight approximately of light frame and cover 300 pounds, of heavy frame and cover 500 pounds.

**STEPS** shall be of good quality wrought iron in accordance with Material Details, free from cracks and shall be given one coat of asphaltum paint as per specifications.

**CONSTRUCTION**:- Manholes shall be built of brick laid in Portland cement mortar, every sixth course to be a stretcher course.

Bottom of manhole shall be Class "C" concrete.

Channel sections in the manhole shall be constructed of split pipe or brick except curved sections which may be built by forming a channel in the concrete.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

**STANDARD MANHOLE**

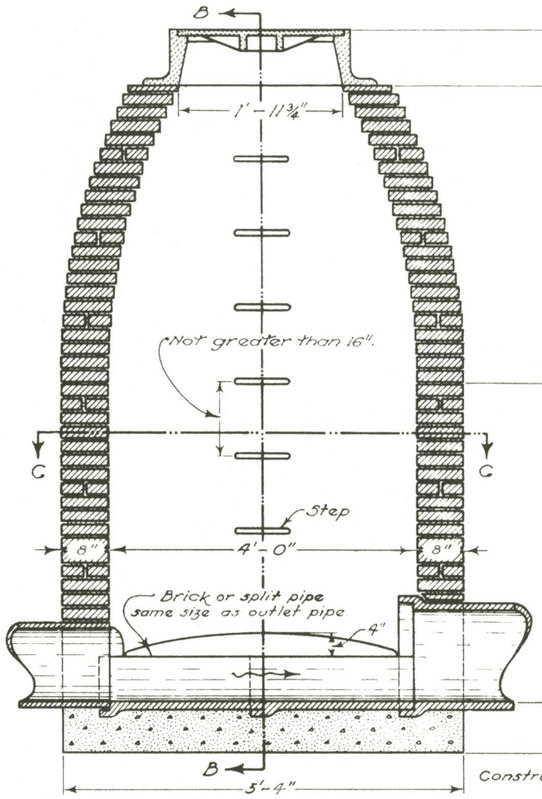
STANDARD CONSTRUCTION DRAWING

I-8 M.H. No. 1

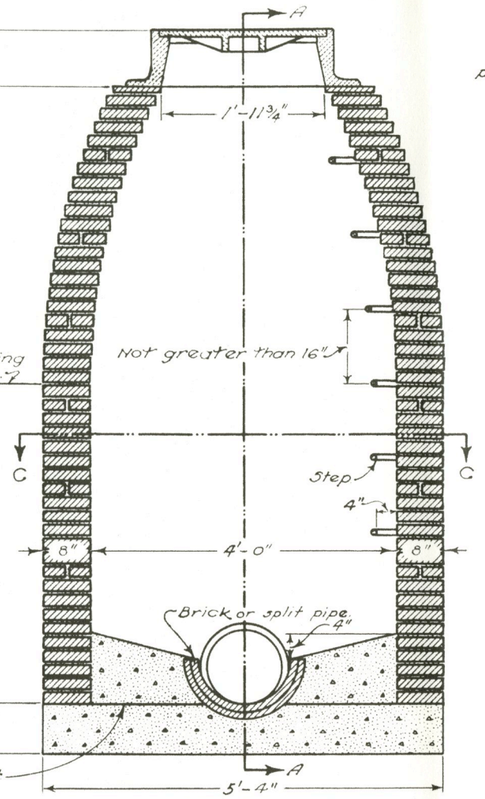
APPROVED K.L.R. CHIEF ENGINEER

DATE:
9-1933
4-1934
2-20-36
3-1-39
4-1-42
3-1-39
5-1-47
1-2-51

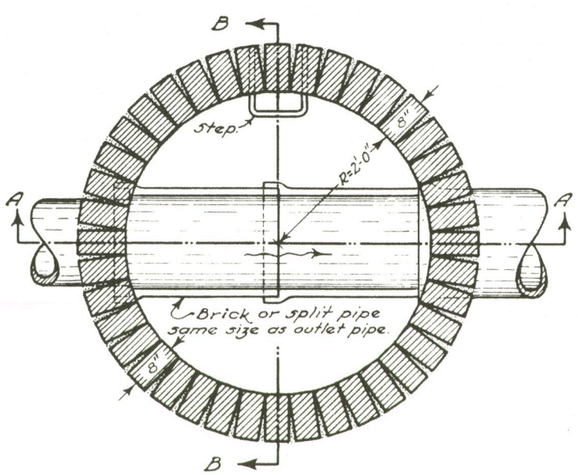
# STANDARD No. 1 MANHOLE



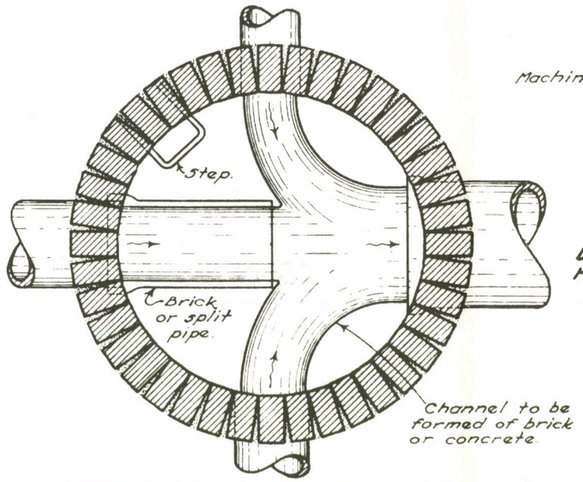

SECTION A-A



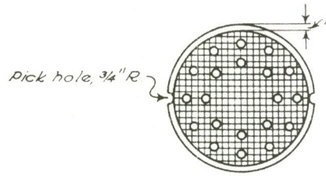

SECTION B-B



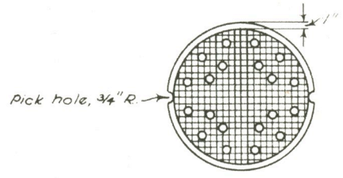

SECTION C-C



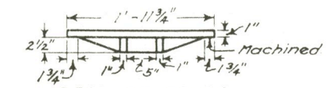

SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS.



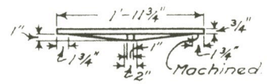

PLAN OF COVER



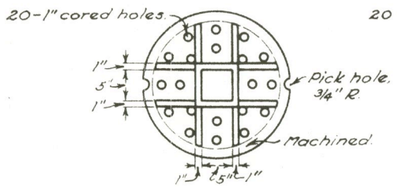

PLAN OF COVER



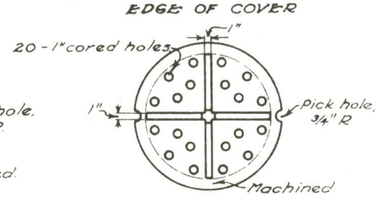

EDGE OF COVER



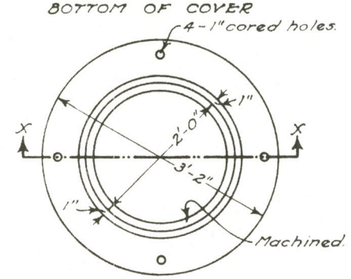

EDGE OF COVER



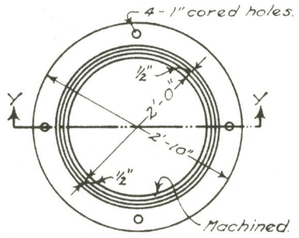

BOTTOM OF COVER



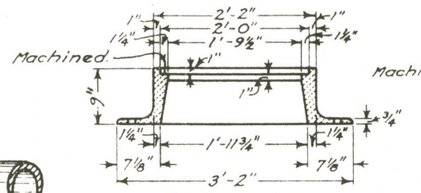

BOTTOM OF COVER




PLAN OF FRAME

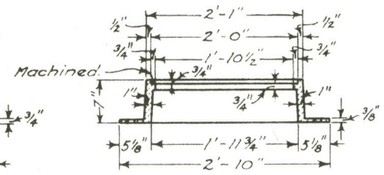



PLAN OF FRAME



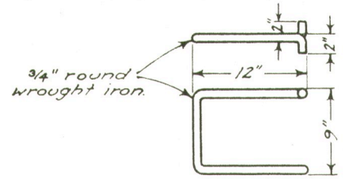

SECTION X-X

**DETAIL OF HEAVY MANHOLE FRAME & COVER**




SECTION Y-Y

**DETAIL OF LIGHT MANHOLE FRAME & COVER**




**DETAIL OF MANHOLE STEP**

## NOTES

GENERAL:— The design shown hereon is for brick construction. If precast solid concrete blocks, precast concrete rings, or cast in place concrete is used the design shall be modified to fit the dimensions of the material used except that the thickness of the wall shall not be less than 6 inches for precast solid concrete blocks or cast in place concrete construction.

BEARING AREAS of frame and cover shall be so fitted and finished as to provide a firm and even seat for all portions of the cover in the frame. No projections shall exist on bearing areas of either casting, and each cover shall seat in its frame without rocking. Frames and covers shall be fitted, matched and marked before delivery to the project.

SETTING OF CASTING:— The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

CASTINGS:— The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.

The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.

Castings shall be of cast iron in accordance with Material Details. The design shall be essentially the same and equally as strong as those shown hereon, and shall be given one coat of asphaltum paint as per specifications. Weight approximately of light frame and cover 300 pounds, of heavy frame and cover 500 pounds.

STEPS shall be of good quality wrought iron in accordance with Material Details, free from cracks and shall be given one coat of asphaltum paint as per specifications.

CONSTRUCTION:— Manholes shall be built of brick, precast solid concrete blocks, precast concrete rings, or cast in place concrete. When manholes are constructed of brick, every sixth course shall be a stretcher course.

Bottom of manhole shall be class C concrete.

Channel sections in the manhole shall be constructed of split pipe or brick except curved sections which may be built by forming a channel in the concrete.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

**STANDARD MANHOLE**

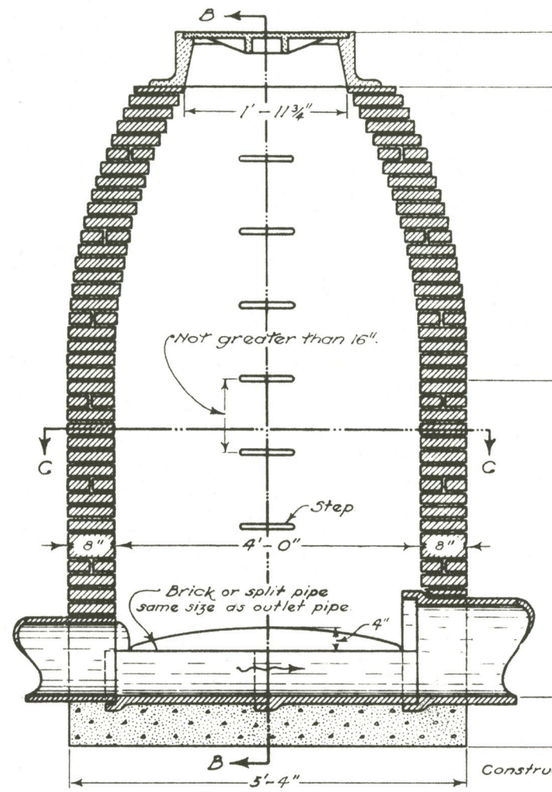
STANDARD CONSTRUCTION DRAWING

I-8 M.H.
No. 1

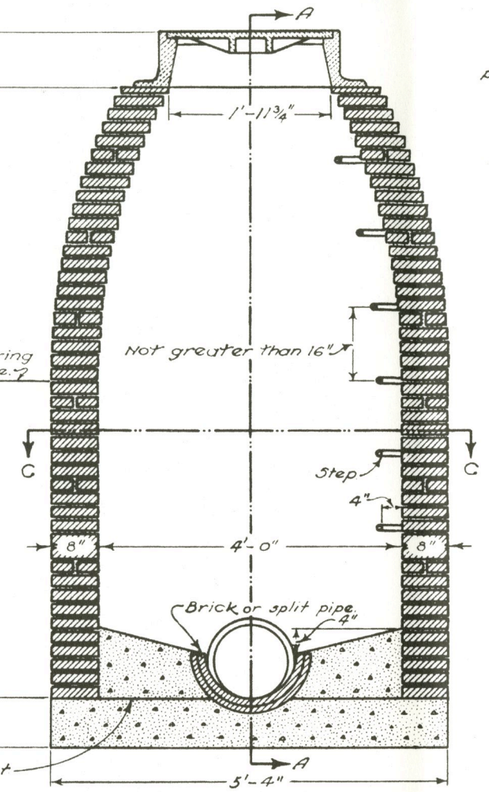
APPROVED [illegible] CHIEF ENGINEER.

DATE:
9-1933
4-1934
2-20-36
3-1-39
4-1-42
3-1-39
5-1-47
1-2-51
5-1-51

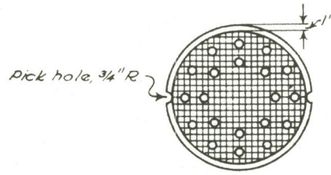
# STANDARD No. 1 MANHOLE



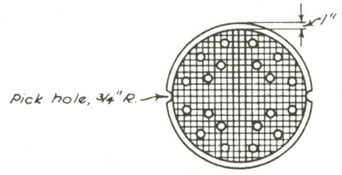

SECTION A-A



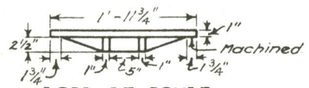

SECTION B-B



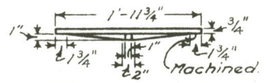

PLAN OF COVER



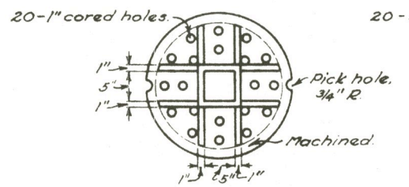

PLAN OF COVER



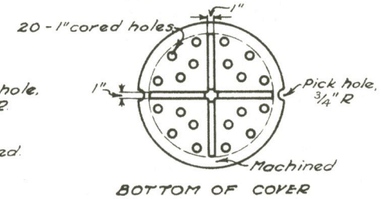

EDGE OF COVER



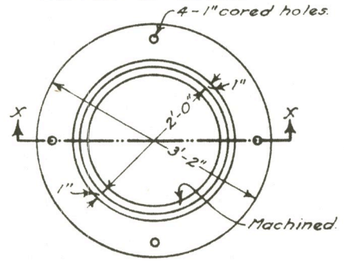

EDGE OF COVER



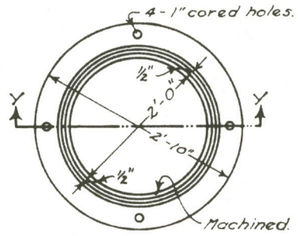

BOTTOM OF COVER



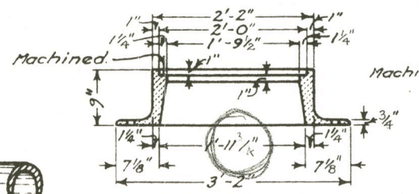

BOTTOM OF COVER



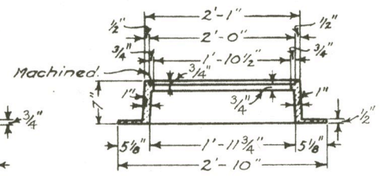

PLAN OF FRAME




PLAN OF FRAME



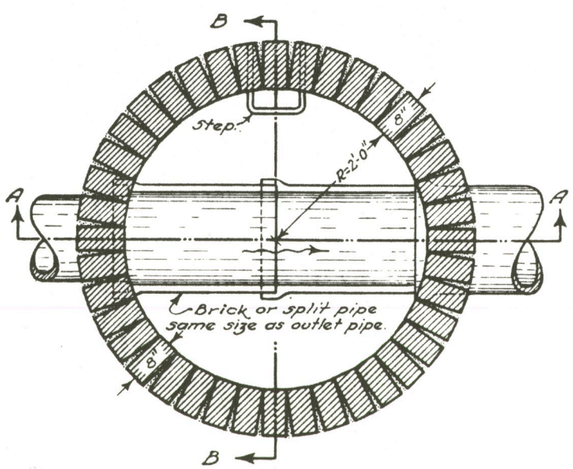

SECTION X-X



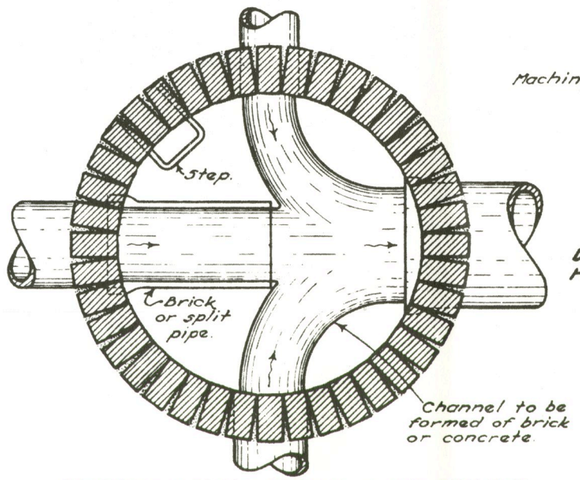

SECTION Y-Y

**DETAIL OF HEAVY MANHOLE FRAME & COVER**

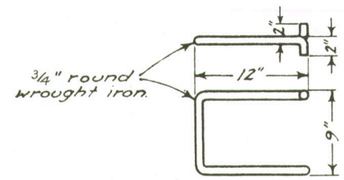
**DETAIL OF LIGHT MANHOLE FRAME & COVER**




SECTION C-C




SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS.




**DETAIL OF MANHOLE STEP**

## NOTES

**GENERAL:**— The design shown hereon is for brick construction. If precast solid concrete blocks, precast concrete rings, or cast in place concrete is used the design shall be modified to fit the dimensions of the material used except that the thickness of the wall shall not be less than 6 inches for precast solid concrete blocks or cast in place concrete construction.

**BEARING AREAS** of frame and cover shall be so fitted and finished as to provide a firm and even seat for all portions of the cover in the frame. No projections shall exist on bearing areas of either casting, and each cover shall seat in its frame without rocking. Frames and covers shall be fitted, matched and marked before delivery to the project.

**SETTING OF CASTING:**— The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

**CASTINGS:**— The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.

The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.

Castings shall be of cast iron in accordance with Material Details. The design shall be essentially the same and equally as strong as those shown hereon, and shall be given one coat of asphaltum paint as per specifications. Weight, minimum, of light frame and cover 275 pounds, of heavy frame and cover 475 pounds.

**STEPS** shall be of good quality wrought iron in accordance with Material Details, free from cracks and shall be given one coat of asphaltum paint as per specifications.

**CONSTRUCTION:**— Manholes shall be built of brick, precast solid concrete blocks, precast concrete rings, or cast in place concrete. When manholes are constructed of brick, every sixth course shall be a stretcher course.

Bottom of manhole shall be class C concrete.

Channel sections in the manhole shall be constructed of split pipe or brick except curved sections which may be built by forming a channel in the concrete.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

**STANDARD MANHOLE**

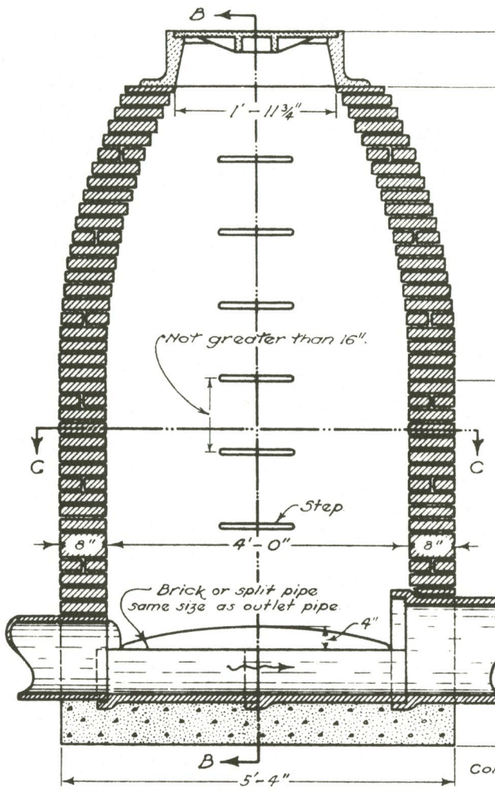
STANDARD CONSTRUCTION DRAWING

I-8 M.H.
No. 1

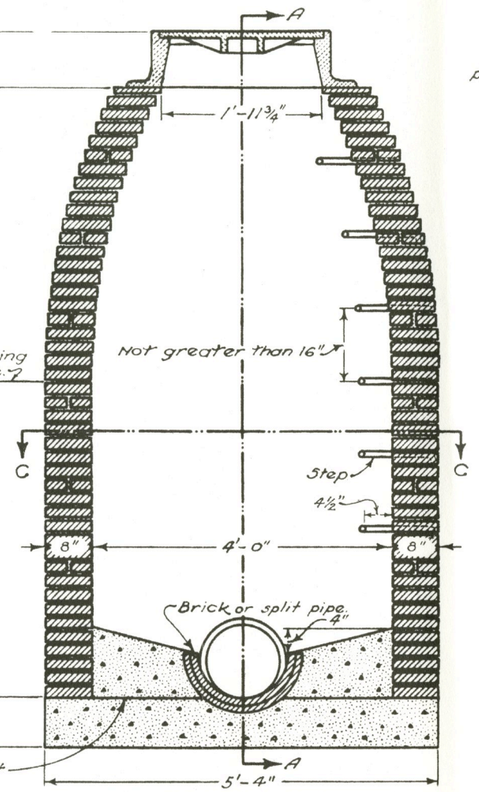
APPROVED V.L.R. CHIEF ENGINEER.

| DATE |
|---|
| 9-1933 |
| 4-1934 |
| 2-20-36 |
| 3-1-39 |
| 4-1-42 |
| 3-1-39 |
| 5-1-47 |
| 1-2-51 |
| 5-1-51 |
| 5-1-52 |

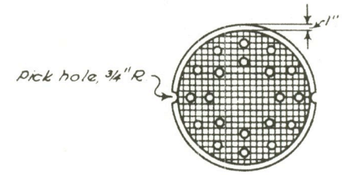
# STANDARD No. 1 MANHOLE



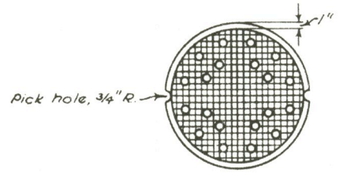

SECTION A-A



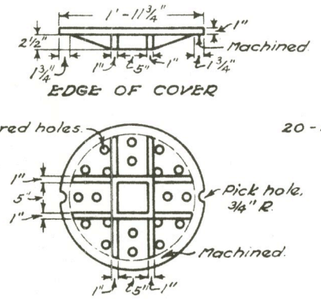

SECTION B-B



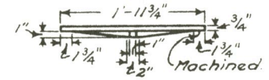

PLAN OF COVER




PLAN OF COVER



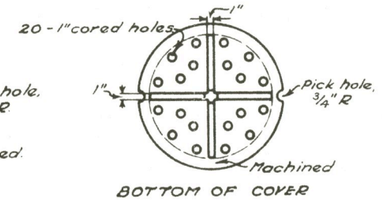

EDGE OF COVER



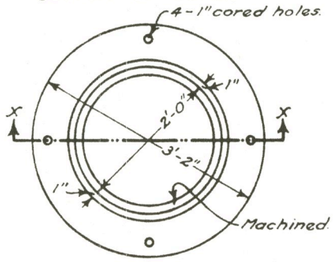

EDGE OF COVER



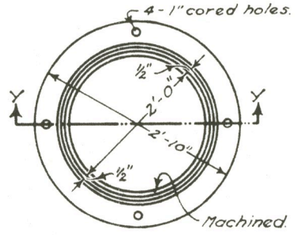

BOTTOM OF COVER



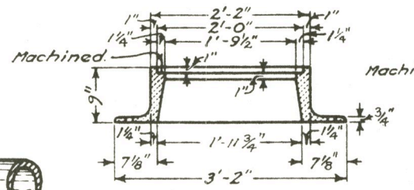

BOTTOM OF COVER




PLAN OF FRAME

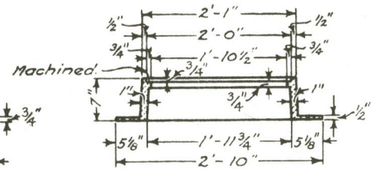



PLAN OF FRAME



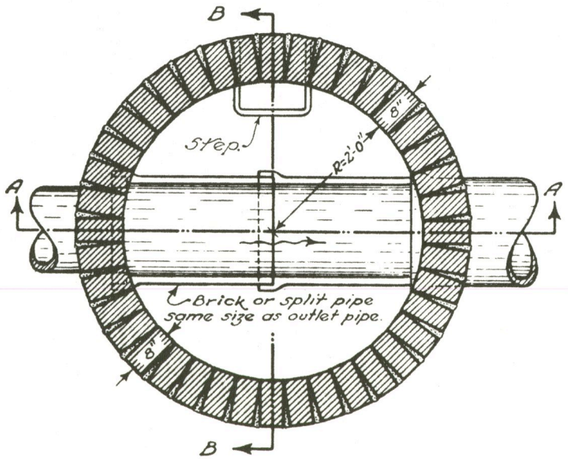

SECTION X-X

DETAIL OF HEAVY MANHOLE FRAME & COVER

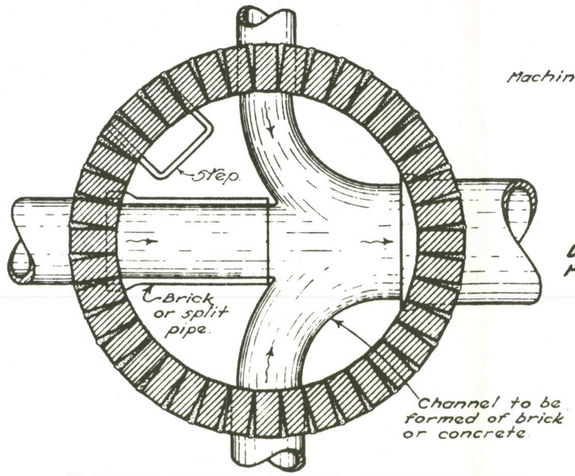



SECTION Y-Y

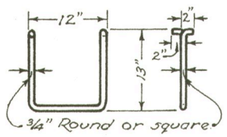
DETAIL OF LIGHT MANHOLE FRAME & COVER




SECTION C-C




SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS.




STEP DETAIL

## NOTES

GENERAL :- The design shown hereon is for brick construction. If precast solid concrete blocks, precast concrete rings, or cast in place concrete is used the design shall be modified to fit the dimensions of the material used except that the thickness of the wall shall not be less than 6 inches for precast solid concrete blocks or cast in place concrete construction.

BEARING AREAS of frame and cover shall be so fitted and finished as to provide a firm and even seat for all portions of the cover in the frame. No projections shall exist on bearing areas of either casting, and each cover shall seat in its frame without rocking. Frames and covers shall be fitted, matched and marked before delivery to the project.

SETTING OF CASTING :- The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

CASTINGS :- The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.

The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.

Castings shall meet the requirements of Item I-8. The design shall be essentially the same and equally as strong as those shown hereon, and shall be given one coat of paint as per specifications.

Minimum weight of light frame and cover 275 pounds; of heavy frame and cover 475 pounds.

STEPS shall be wrought iron or nodular iron meeting the requirements of Item I-8 and shall be given one coat of paint Sec. M-9.18 or Sec. M-9.19.

CONSTRUCTION :- Manholes shall be built of brick, precast solid concrete blocks, precast concrete rings, or cast in place concrete. When manholes are constructed of brick, every sixth course shall be a stretcher course.

Bottom of manhole shall be class "C" concrete.

Channel sections in the manhole shall be constructed of split pipe or brick except curved sections which may be built by forming a channel in the concrete.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

STANDARD MANHOLE

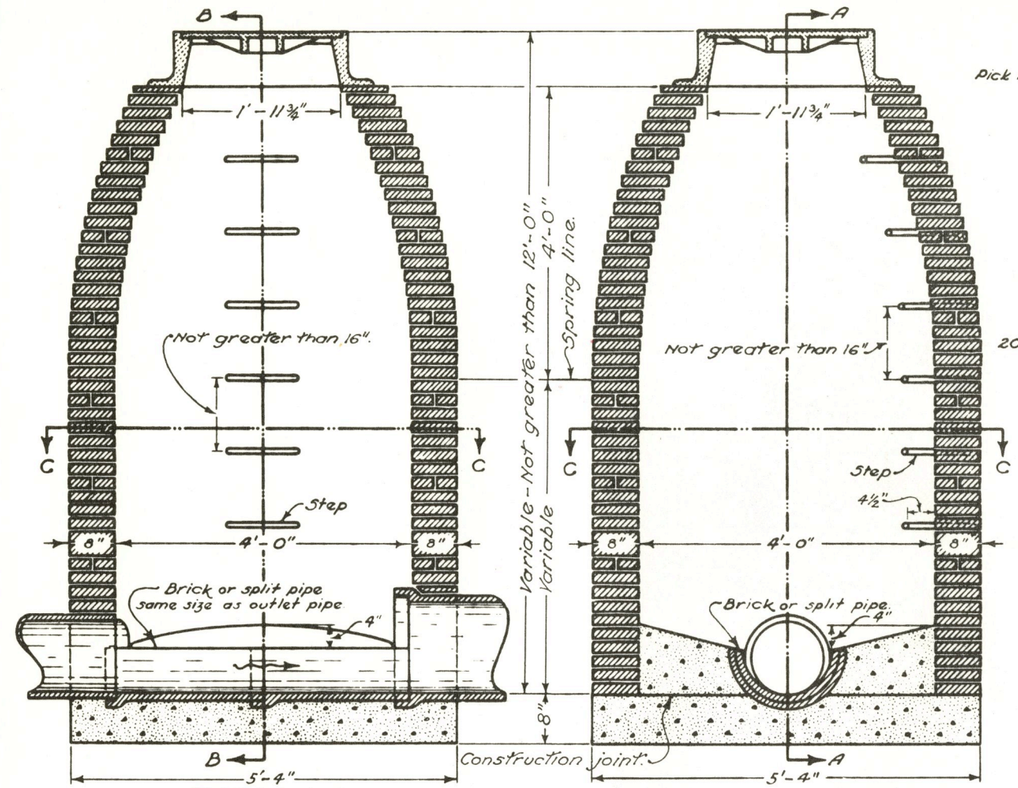
STANDARD CONSTRUCTION DRAWING

I-8 M.H. No. 1

APPROVED [signature] ENGR. L. & D.

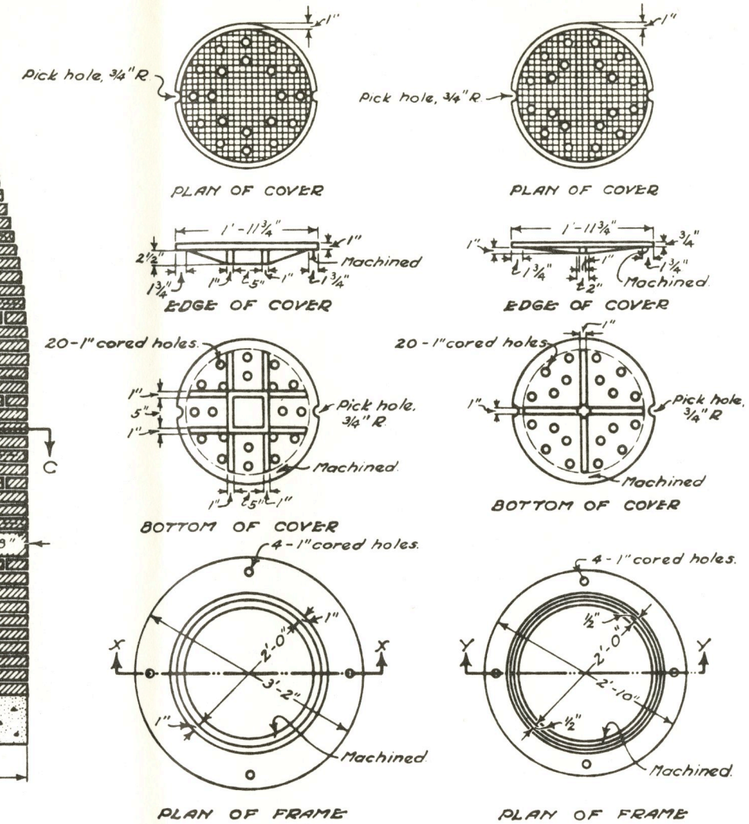
DATE:
9-1933
4-1934
2-20-36
3-1-39
4-1-42
3-1-39
5-1-47
1-2-51
5-1-51
5-1-52
1-26-59

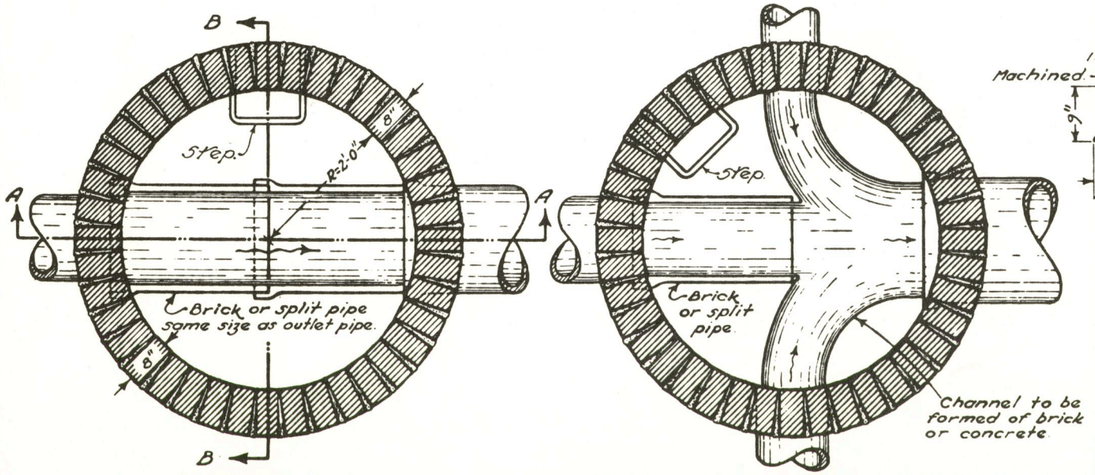
# STANDARD No. 1 MANHOLE




SECTION A-A

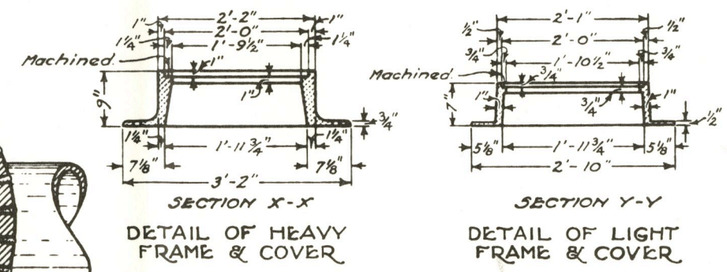
SECTION B-B




SECTION C-C

SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS.

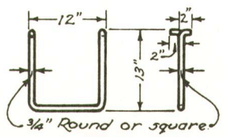



SECTION X-X

SECTION Y-Y

DETAIL OF HEAVY FRAME & COVER

DETAIL OF LIGHT FRAME & COVER




STEP DETAIL

## NOTES

**GENERAL:-** The design shown hereon is for brick construction. If precast solid concrete blocks, precast concrete rings, or cast in place concrete is used the design shall be modified to fit the dimensions of the material used except that the thickness of the wall shall not be less than 6 inches for precast solid concrete blocks or cast in place concrete construction.

**BEARING AREAS** of frame and cover shall be so fitted and finished as to provide a firm and even seat for all portions of the cover in the frame. No projections shall exist on bearing areas of either casting, and each cover shall seat in its frame without rocking. Frames and covers shall be fitted, matched and marked before delivery to the project.

**SETTING OF CASTING:-** The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement grade.

**CASTINGS:-** The heavy frame and cover shall be used whenever the manhole is placed within the limits of the pavement.

The light frame and cover may be used whenever the manhole is placed outside the limits of the pavement.

Castings shall meet the requirements of Item I-8. The design shall be essentially the same and equally as strong as those shown hereon.

Minimum weight of light frame and cover 275 pounds, of heavy frame and cover 475 pounds.

**STEPS** shall be wrought iron or nodular iron meeting the requirements of Item I-8.

**CONSTRUCTION:-** Manholes shall be built of brick, precast solid concrete blocks, precast concrete rings, or cast in place concrete. When manholes are constructed of brick, every sixth course shall be a stretcher course.

Bottom of manhole shall be class "C" concrete.

Channel sections in the manhole shall be constructed of split pipe or brick except curved sections which may be built by forming a channel in the concrete.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

DATE 2-1-63

**STANDARD MANHOLE**

STANDARD CONSTRUCTION DRAWING

I-8 M.H.
No. 1

APPROVED R. M. Ricketts ENGR. L. & D.