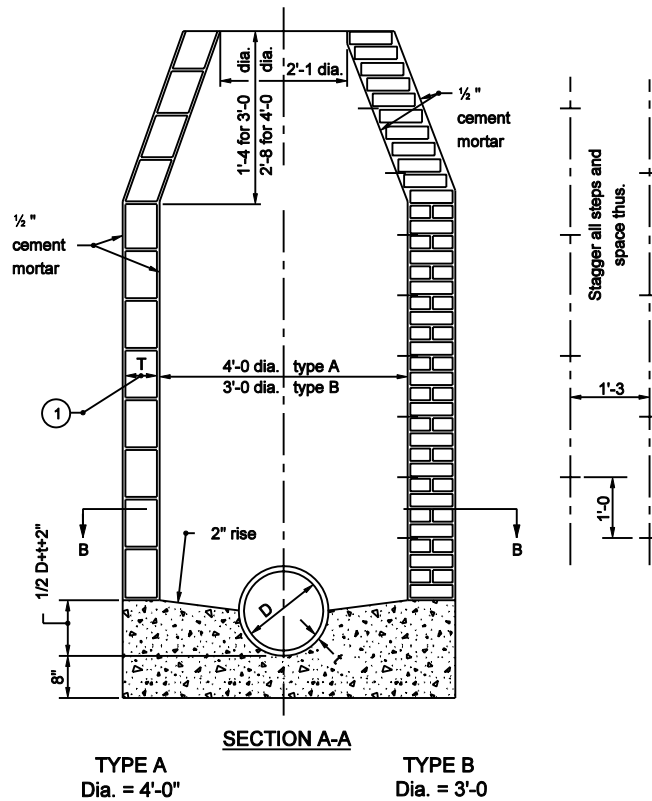


SECTION B-B



TYPE A  
Dia. = 4'-0"

TYPE B  
Dia. = 3'-0"

# NOTES

- ① T = 8" for brick structure  
T = 6" for segmental block structure

INDIANA DEPARTMENT OF TRANSPORTATION	
MANHOLES TYPE A AND B	
SEPTEMBER 2003	
STANDARD DRAWING NO. E 720-MHST-01	
	/s/ Richard L. VanCleave DESIGN STANDARDS ENGINEER
	9-02-03 DATE
	/s/ Richard K. Smutzer CHIEF HIGHWAY ENGINEER
	9-02-03 DATE
DESIGN STANDARDS ENGINEER	

## GENERAL NOTES

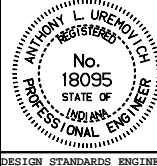
- 1

INDIANA DEPARTMENT OF TRANSPORTATION

**MANHOLE TYPE C**

**SEPTEMBER 1997**

STANDARD DRAWING NO. **E 720-MHST-02**



DETAILS PLACED IN THIS FORMAT 11-15-9

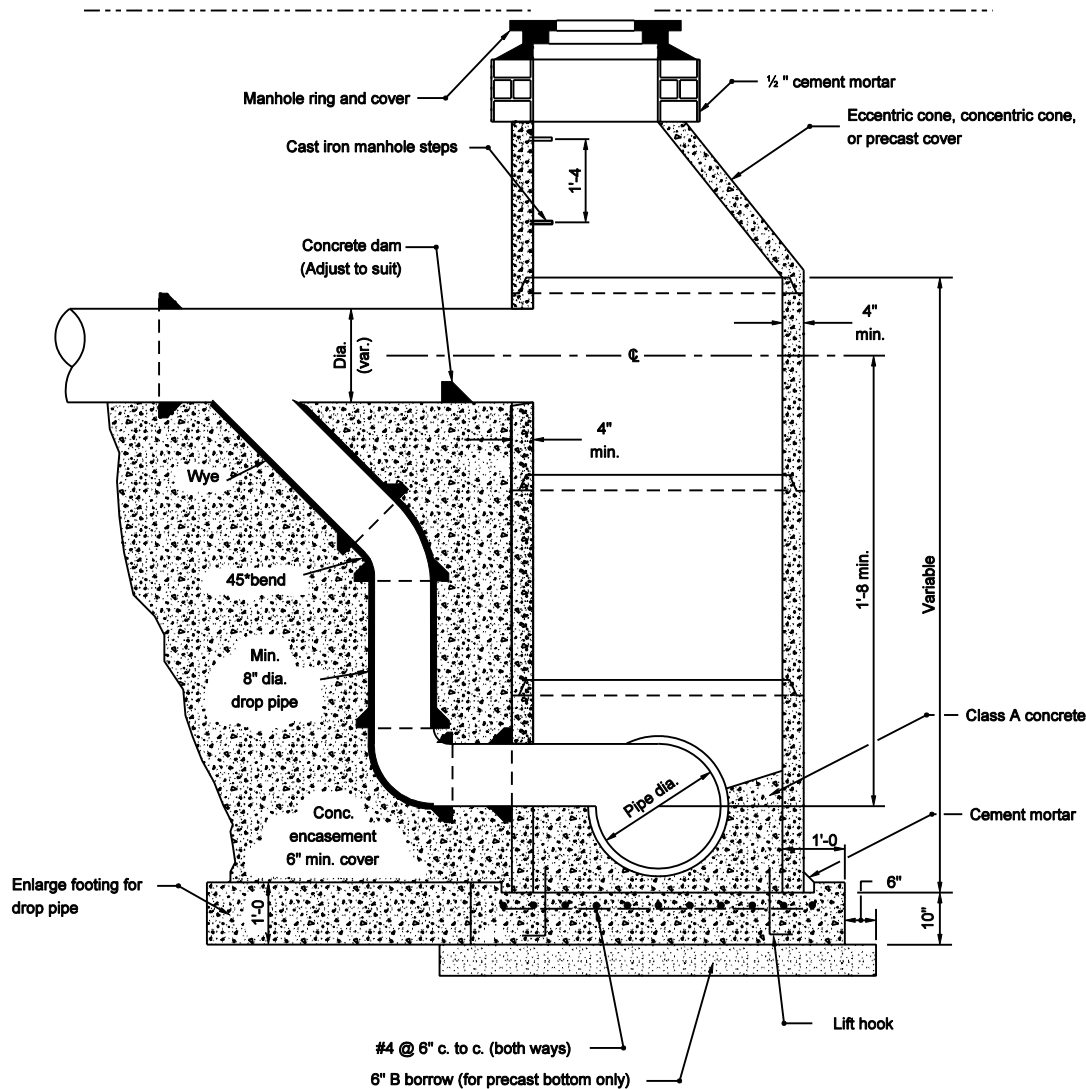
s/Anthony L. Uremovich 11-15-9  
DESIGN STANDARDS ENGINEER DATE

/s/ Firooz Zandi      11-15-9  
CHIEF HIGHWAY ENGINEER      DATE

ORIGINALLY APPROVED 9-02-9

# **NOTES**

- Drop pipe may be used with manhole type D, E, F, or G. Such manhole shall be referred to as drop manhole type D, E, F, or G.

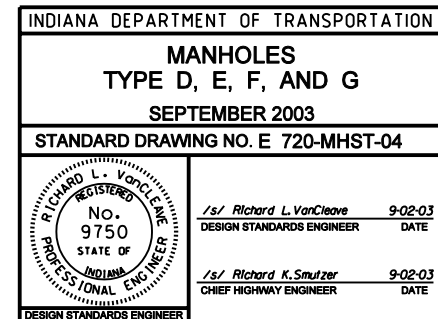


INDIANA DEPARTMENT OF TRANSPORTATION	
DROP MANHOLE TYPE C	
SEPTEMBER 2003	
STANDARD DRAWING NO. E 720-MHST-03	
	/s/ Richard L. VanCleave 9-02-03 DESIGN STANDARDS ENGINEER DATE
	/s/ Richard K. Smutzer 9-02-03 CHIEF HIGHWAY ENGINEER DATE
DESIGN STANDARDS ENGINEER	

1/2"	1/2"	1/2"
cement mortar	cement mortar	cement mortar
1/2"	1/2"	1/2"
cement mortar	cement mortar	cement mortar



1. Manhole type H, J, K, L, M, or N, may be substituted for manhole type C, D, E, or F for comparable pipe sizes. See Standard Drawing E 720-MHST-05 for manholes type H, J, K, L, M, and N details.
- ② 2. For eccentric and concentric cone heights see Cone Heights Table on Standard Drawing 720-MHST-08.
3. See Standard Drawing 720-MHST-10 for Reinforcing Steel for Manholes table.

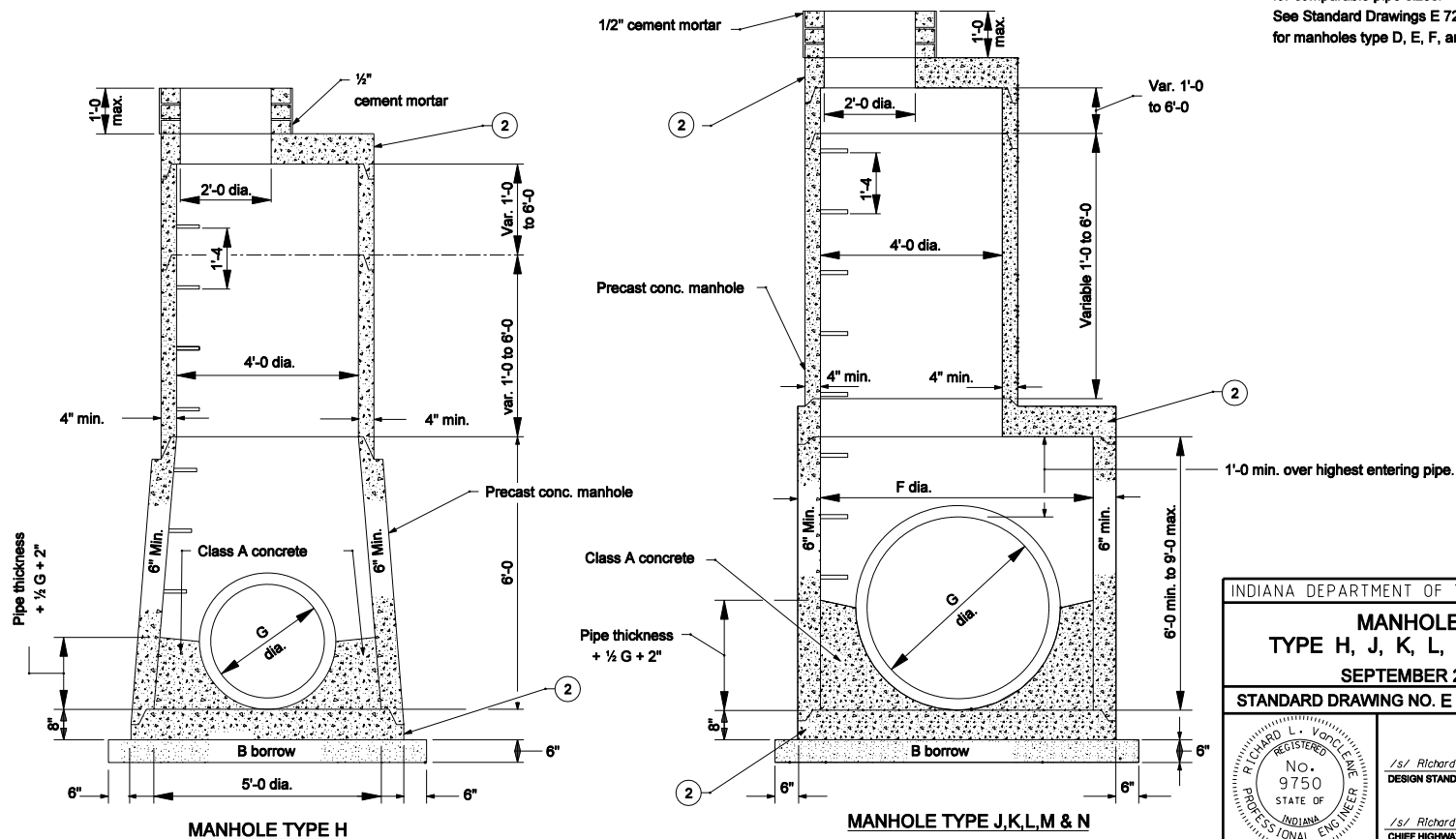


# MANHOLE PIPE SIZES

Type	G (in.)	F (ft. in.)	Maximum Pipe Size Rt. $\angle$ to Mainline (in.)	Maximum Pipe Size for Mainline (in.)
H	24 to 36		30	36
J	24 to 36	5'-0	30	36
K	36 to 48	6'-0	36	48
L	48 to 54	8'-0	48	54
M	54 to 72	8'-6	66	72
N	72 to 84	9'-0	72	84

## NOTES

- Drop pipe may be used with manholes Type H, J, K, L, M, or N. Such manhole shall be referred to as drop manholes type H, J, K, L, M, or N. For details of construction see Standard Drawing E 720-MHST-03.
- See Standard Drawing E 720-MHST-06 for Details A, B, and C.
- Manholes type C, D, E, or F. may be substituted for manholes type H, J, K, L, M, or N. for comparable pipe sizes. See Standard Drawings E 720-MHST-02 and -04 for manholes type D, E, F, and G details..

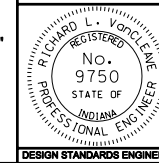


INDIANA DEPARTMENT OF TRANSPORTATION

## MANHOLES TYPE H, J, K, L, M, AND N

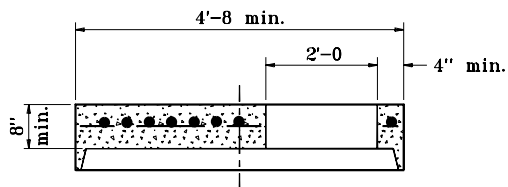
SEPTEMBER 2006

STANDARD DRAWING NO. E 720-MHST-05



/s/ Richard L. VanCleave 9-01-06  
DESIGN STANDARDS ENGINEER DATE

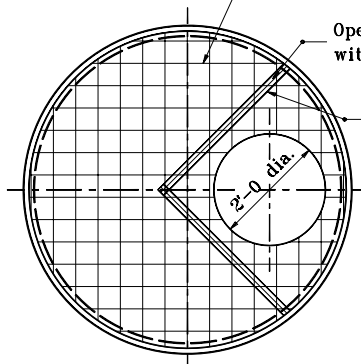
/s/ Richard K. Smutzer 9-01-06  
CHIEF HIGHWAY ENGINEER DATE



Min. steel area  $0.12 \text{ in}^2 / \text{ft}$  of width in both directions.

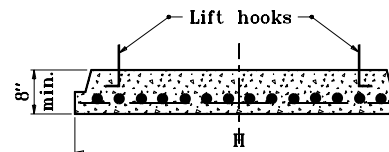
Opening additionally reinforced with equivalent of  $0.20 \text{ in}^2 / \text{ft} @ 90^\circ$

Straight rods, min length = dia. of opening plus 2".

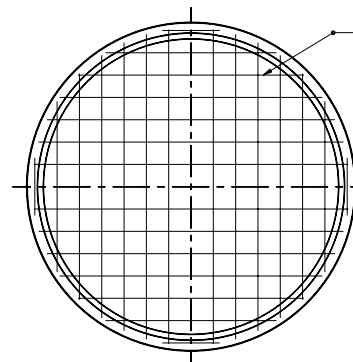


**DETAIL A**

**COVER CAP FOR PRECAST CONCRETE MANHOLE SECTION**



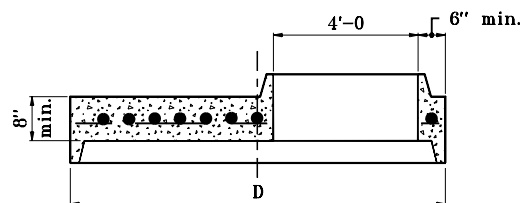
Min. steel area  $0.12 \text{ in}^2 / \text{ft}$  of width in both directions.  
Rebar or wire mesh equivalent.



**DETAIL C**

**BASE FOR PRECAST CONCRETE MANHOLE SECTIONS  
(5'-0 to 9'-0 DIA.)**

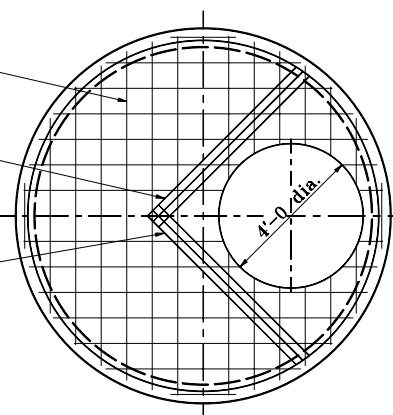
Section Dia.	H
5'-0	6'-0
6'-0	7'-2
8'-0	9'-6
8'-6	10'-0
9'-0	10'-8



Min. steel area  $0.12 \text{ in}^2 / \text{ft}$  of width in both directions.

Opening additionally reinforced with equivalent of  $0.20 \text{ in}^2 / \text{ft} @ 90^\circ$

Straight rods, min length = dia. of opening plus 2".

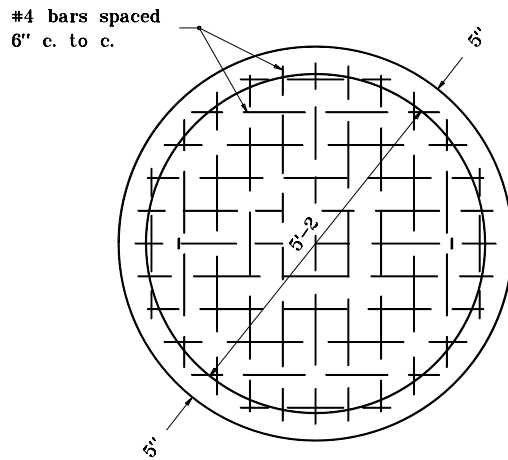
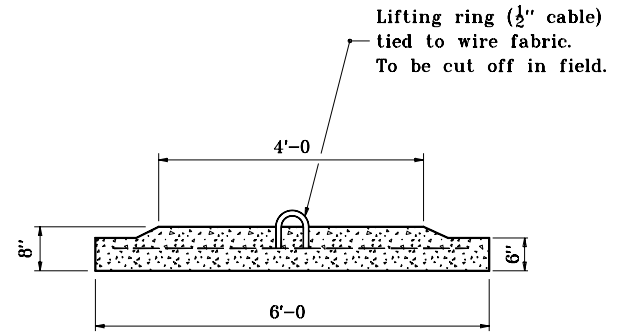
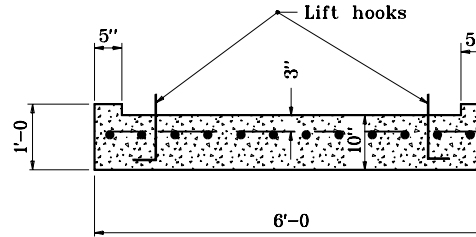
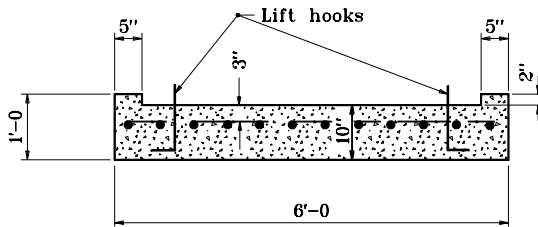


**DETAIL B**

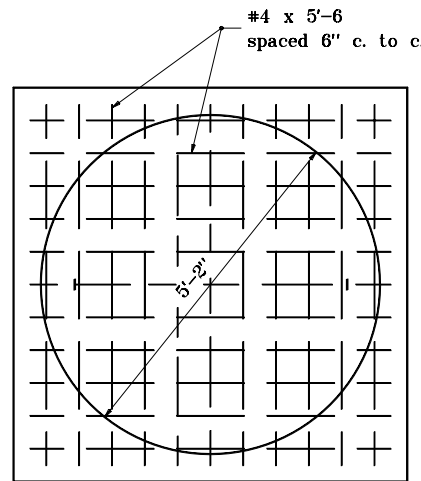
**REDUCER CAP FOR PRECAST MANHOLE SECTION (5'-0 to 9'-0 DIA.)**

Section Dia.	D
5'-0	6'-0
6'-0	7'-2
8'-0	9'-6
8'-6	10'-0
9'-0	10'-8

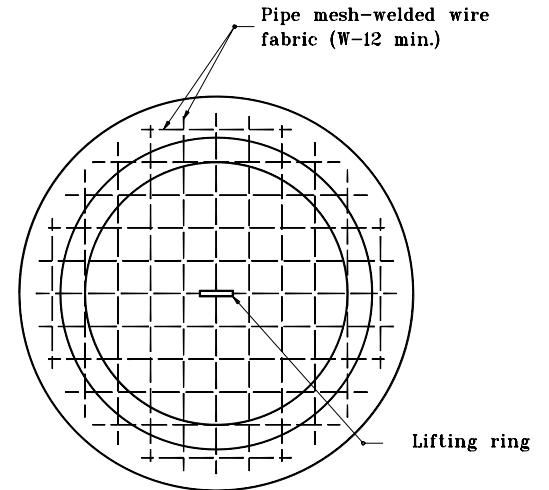
INDIANA DEPARTMENT OF TRANSPORTATION	
<b>PRECAST CONCRETE MANHOLE SECTIONS</b>	
APRIL 1995	
STANDARD DRAWING NO. <b>E 720-MHST-06</b>	
	DETAILS PLACED IN THIS FORMAT 11-15-99
	/s/ Anthony L. Uremovich 11-15-99 DESIGN STANDARDS ENGINEER DATE
	/s/ Firooz Zandi 11-15-99 CHIEF HIGHWAY ENGINEER DATE
	DESIGN STANDARDS ENGINEER ORIGINALLY APPROVED 4-03-95



**ROUND**



**SQUARE**

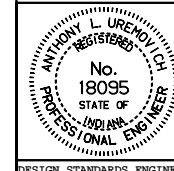


**ROUND ALTERNATE**

INDIANA DEPARTMENT OF TRANSPORTATION

**PRECAST MANHOLE  
BOTTOM SECTION  
SEPTEMBER 1997**

**STANDARD DRAWING NO. E 720-MHST-07**



DETAILS PLACED IN THIS FORMAT 11-15-99

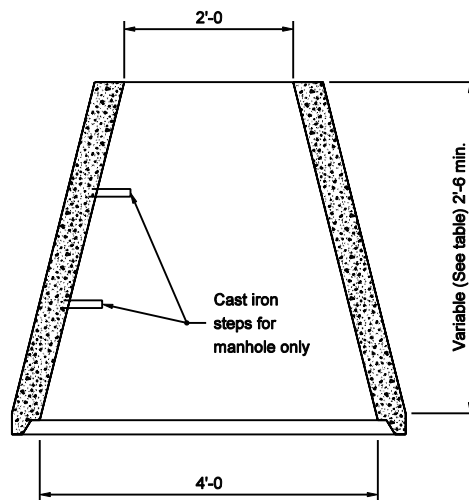
/s/ Anthony L. Uremovich 11-15-99  
DESIGN STANDARDS ENGINEER DATE

/s/ Firooz Zandi 11-15-99  
CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

ORIGINALLY APPROVED 9-01-97

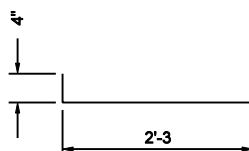
CONE HEIGHTS	
ECCENTRIC	CONCENTRIC
2'-6	2'-6
3'-0	3'-0
3'-2	3'-2
3'-6	4'-0



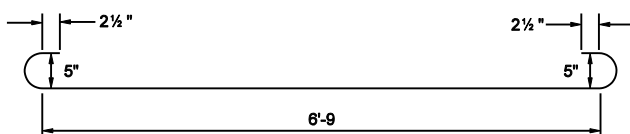
CONCENTRIC CONE



L BARS



T BARS



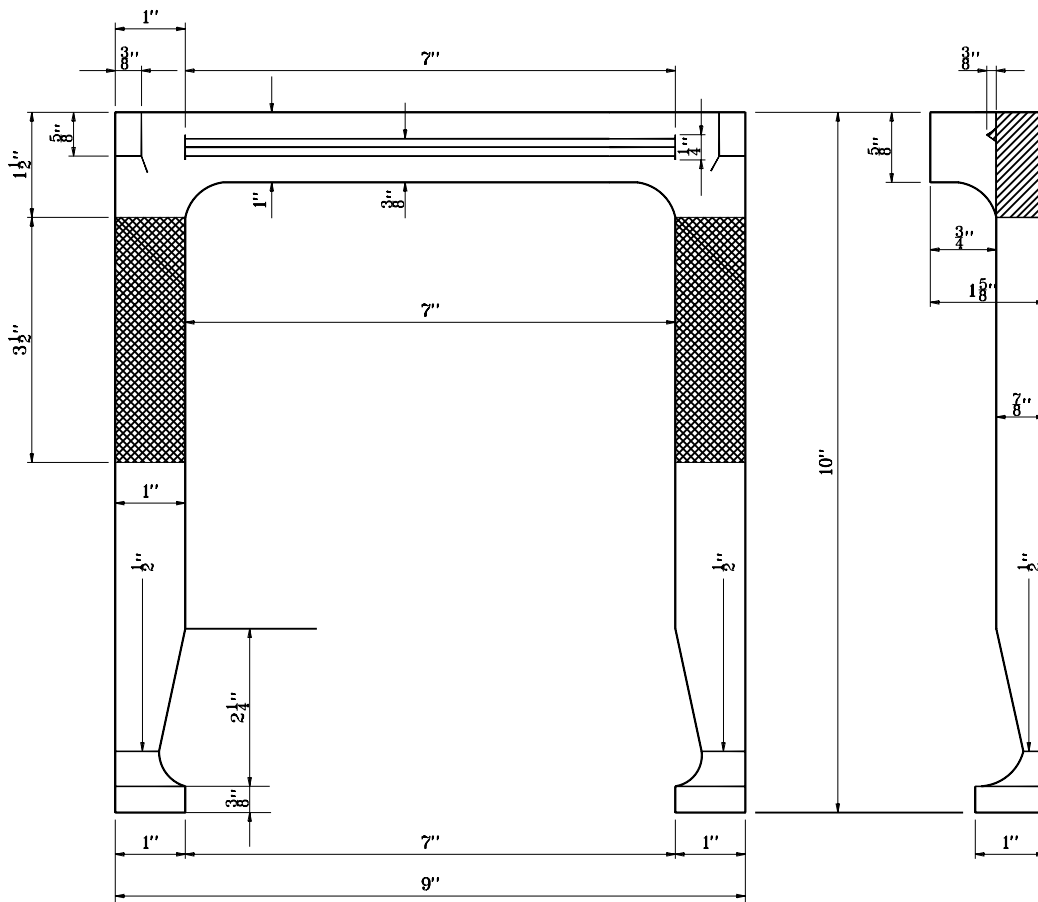
H BARS

# NOTES

1. The concentric concrete section will not be permitted for manholes which are under the jurisdiction of the Indianapolis Sanitary District.

INDIANA DEPARTMENT OF TRANSPORTATION	
MANHOLE BARS AND CONCENTRIC CONE	
SEPTEMBER 2003	
STANDARD DRAWING NO. E 720-MHST-08	
	/s/ Richard L. VanCleave DESIGN STANDARDS ENGINEER 9-02-03 DATE
	/s/ Richard K. Smutzer CHIEF HIGHWAY ENGINEER 9-02-03 DATE
DESIGN STANDARDS ENGINEER	





INDIANA DEPARTMENT OF TRANSPORTATION	
<b>MANHOLE STEP</b>	
APRIL 1995	
STANDARD DRAWING NO. <b>E 720-MHST-09</b>	
	DETAILS PLACED IN THIS FORMAT 11-15-99
	/s/ <i>Anthony L. Uremovich</i> 11-15-99 DESIGN STANDARDS ENGINEER DATE
	/s/ <i>Firooz Zandi</i> 11-15-99 CHIEF HIGHWAY ENGINEER DATE
	ORIGINALLY APPROVED 4-03-95

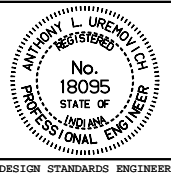
REINFORCING STEEL FOR MANHOLES																
	Manhole Type D				Manhole Type E				Manhole Type F				Manhole Type G			
Bars	Length	No.	Spa.	Size	Length	No.	Spa.	Size	Length	No.	Spa.	Size	Length	No.	Spa.	Size
B	8'-0	10	9"	#5	8'-0	12	9"	#5	8'-0	16	9"	#5	8'-0	19	9"	#5
B <sub>1</sub>	6'-9	12	9"	#5	8'-6	12	9"	#5	11'-0	12	9"	#5	13'-3	12	9"	#5
E	7'-3	3	2"	#5	7'-3	3	2"	#5	7'-3	3	2"	#5	7'-3	3	2"	#5
H	8'-6	22	6"	#5	8'-6	33	6"	#5	8'-6	41	6"	#5	8'-6	58	6"	#5
L	3'-0	16	12"	#5	3'-0	16	12"	#5	3'-0	16	12"	#5	3'-0	16	12"	#5
T	1'-3	16	6"	#5	3'-0	16	6"	#5	5'-3	16	6"	#5	7'-6	16	6"	#5
V	5'-0	16	6"	#5	6'-9	16	6"	#5	9'-0	16	6"	#5	11'-6	16	6"	#5
V <sub>1</sub>	4'-9	16	6"	#5	6'-6	16	6"	#5	8'-9	16	6"	#5	11'-3	16	6"	#5

INDIANA DEPARTMENT OF TRANSPORTATION

TABLE OF REINFORCING STEEL  
FOR MANHOLES

SEPTEMBER 1997

STANDARD DRAWING NO.E 720-MHST-10



DETAILS PLACED IN THIS FORMAT 11-15-99

/s/ Anthony L. Uremovich 11-15-99  
DESIGN STANDARDS ENGINEER DATE

/s/ Firooz Zandi 11-15-99  
CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

ORIGINALLY APPROVED 9-02-97