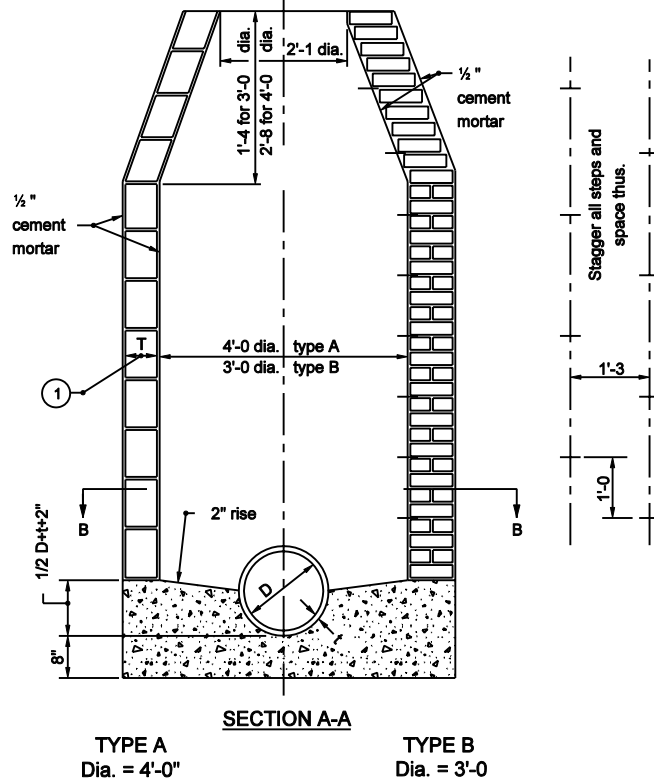


SECTION B-B



TYPE A  
Dia. = 4'-0"

TYPE B  
Dia. = 3'-0"

**NOTES**

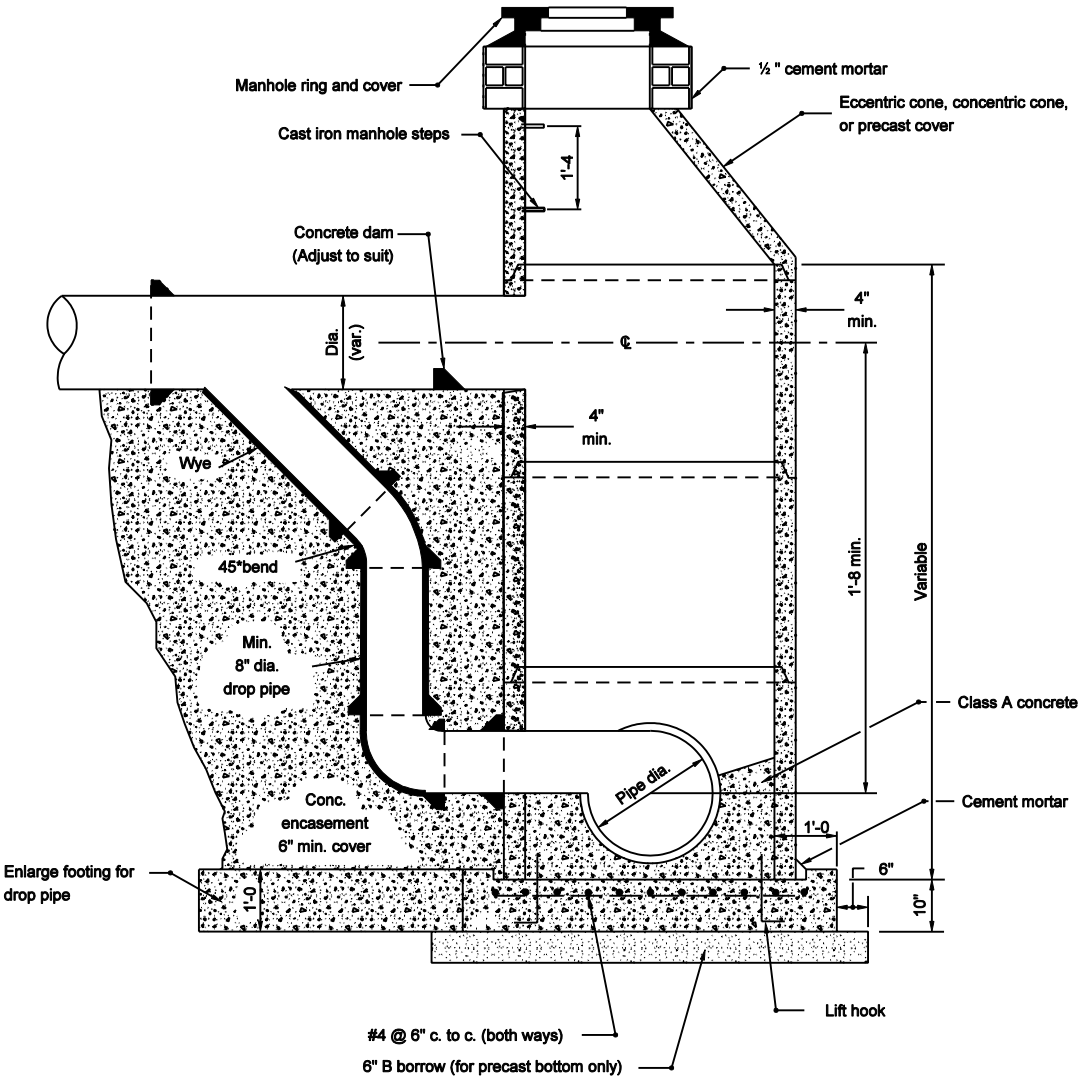
- ① T = 8" for brick structure  
T = 6" for segmental block structure

INDIANA DEPARTMENT OF TRANSPORTATION	
<b>MANHOLES TYPE A AND B</b>	
SEPTEMBER 2003	
STANDARD DRAWING NO. E 720-MHST-01	
	/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	



**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.

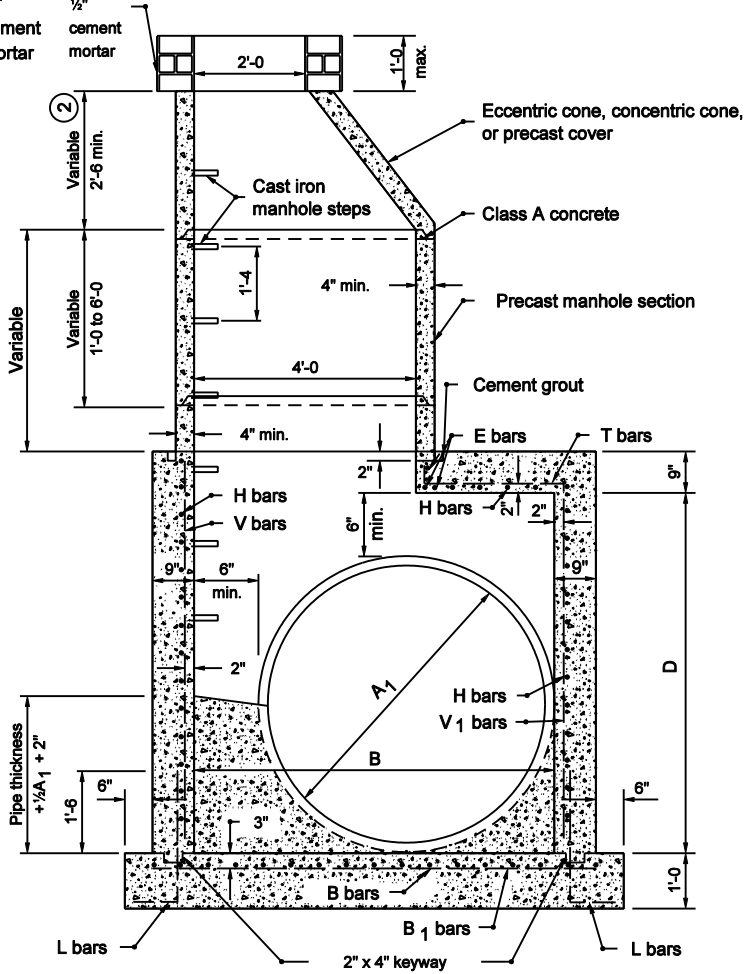


**SECTION**

INDIANA DEPARTMENT OF TRANSPORTATION	
<b>DROP MANHOLE TYPE C</b>	
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	

MANHOLE DIMENSIONS		
TYPE	A-1 PIPE SIZE DIA. (in)	B AND D
D	27 to 42	4'-9"
E	48 to 60	6'-6"
F	66 to 84	8'-10"
G	90 to 108	11'-2"

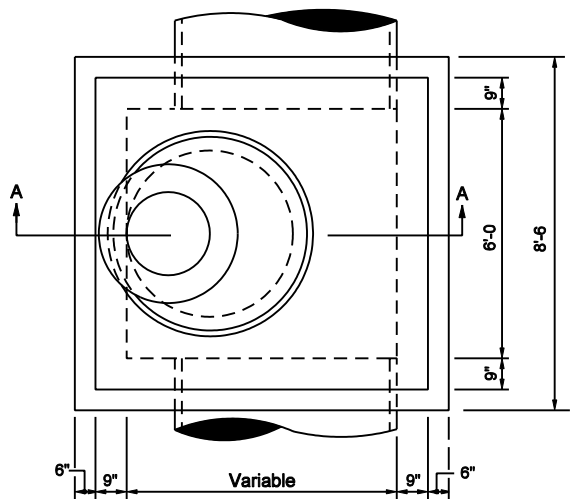
$\frac{1}{2}$ " cement mortar  
 $\frac{1}{2}$ " cement mortar  
 $\frac{1}{2}$ " cement mortar  
 $\frac{1}{2}$ " cement mortar  
 $\frac{1}{2}$ " cement mortar  
 $\frac{1}{2}$ " cement mortar



**SECTION A-A**

**NOTES**

- 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.
- For eccentric and concentric cone heights see Cone Heights Table on Standard Drawing 720-MHST-08.
- See Standard Drawing 720-MHST-10 for Reinforcing Steel for Manholes table.



**PLAN VIEW**

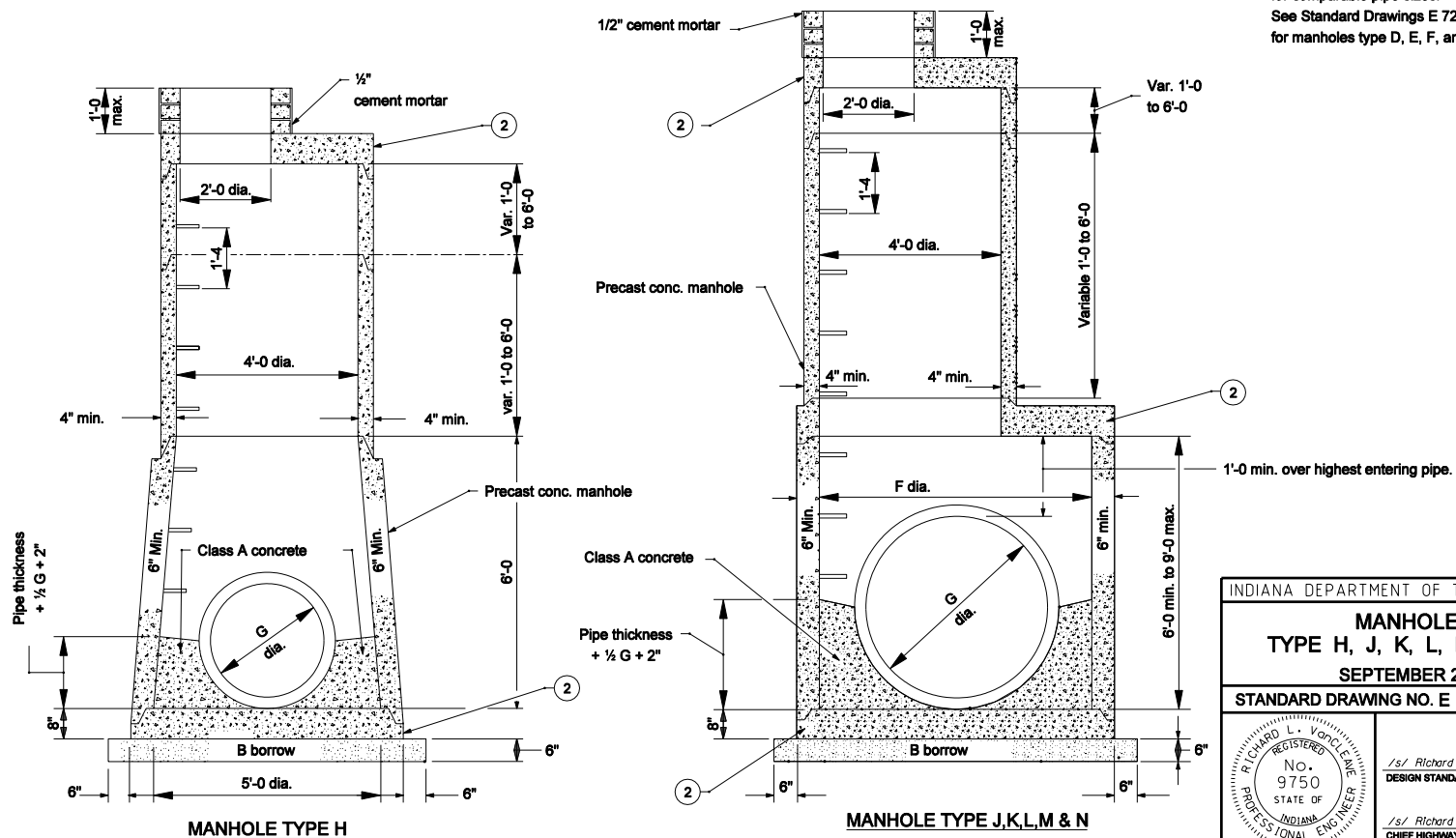
INDIANA DEPARTMENT OF TRANSPORTATION	
<b>MANHOLES TYPE D, E, F, AND G</b>	
SEPTEMBER 2003	
STANDARD DRAWING NO. E 720-MHST-04	
	<i>/s/ Richard L. VanCleave</i> 9-02-03 DESIGN STANDARDS ENGINEER DATE
	<i>/s/ Richard K. Smutzer</i> 9-02-03 CHIEF HIGHWAY ENGINEER DATE
DESIGN STANDARDS ENGINEER	

**MANHOLE PIPE SIZES**

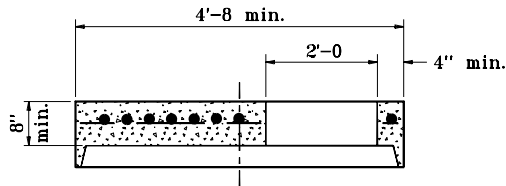
Type	G (in.)	F (ft. in.)	Maximum Pipe Size Rt. $\perp$ to Mainline (in.)	Maximum Pipe Size for Mainline (in.)
H	24 to 36	—	30	36
J	24 to 36	5'-0	30	36
K	36 to 48	6'-0	36	48
L	48 to 54	8'-0	48	54
M	54 to 72	8'-6	66	72
N	72 to 84	9'-0	72	84

**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..



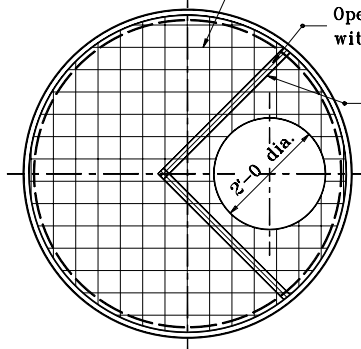
INDIANA DEPARTMENT OF TRANSPORTATION	
<b>MANHOLES TYPE H, J, K, L, M, AND N</b>	
SEPTEMBER 2006	
STANDARD DRAWING NO. E 720-MHST-05	
	/s/ Richard L. VanCleave      9-01-06 DESIGN STANDARDS ENGINEER      DATE
	/s/ Richard K. Smutzer      9-01-06 CHIEF HIGHWAY ENGINEER      DATE
DESIGN STANDARDS ENGINEER	



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

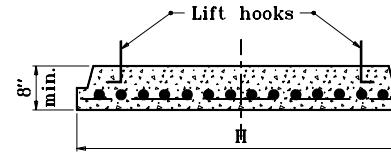
Opening additionally reinforced with equivalent of  $0.20 \text{ in}^2 / \text{ft} @ 90^\circ$

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

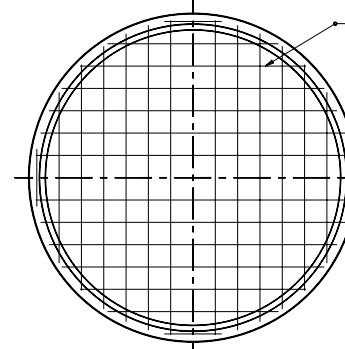


**DETAIL A**

**COVER CAP FOR PRECAST CONCRETE MANHOLE SECTION**



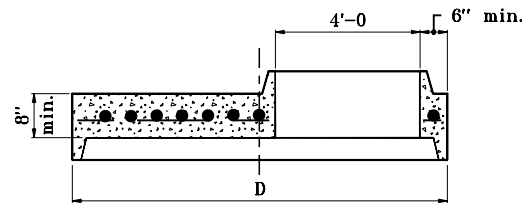
Min. steel area  $0.12 \text{ in}^2 / \text{ft}$  of width in both directions. Rebar or wire mesh equivalent.



**DETAIL C**

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

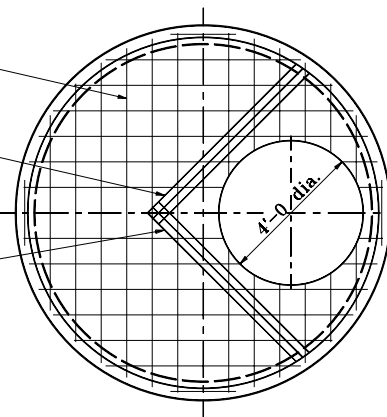
Section Dia.	H
5'-0	6'-0
6'-0	7'-2
8'-0	9'-6
8'-6	10'-0
9'-0	10'-8



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".



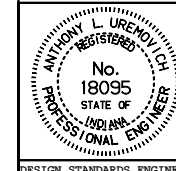
**DETAIL B**

**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  
**PRECAST CONCRETE MANHOLE SECTIONS**  
 APRIL 1995

STANDARD DRAWING NO. **E 720-MHST-06**



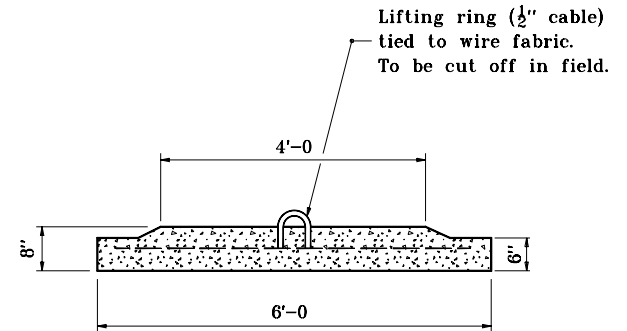
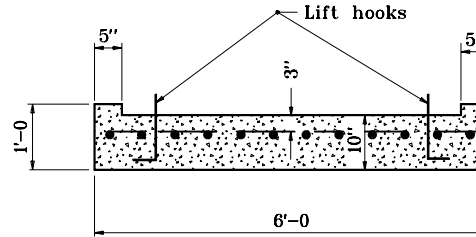
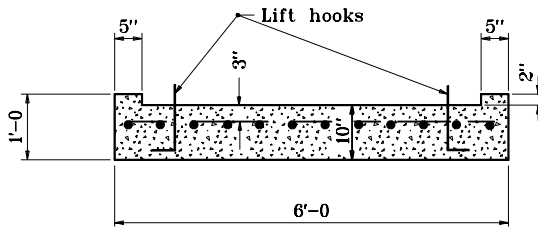
DETAILS PLACED IN THIS FORMAT 11-15-99

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

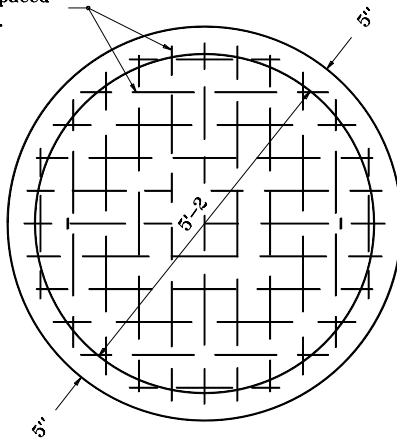
/s/ Firooz Zandi 11-15-99  
 CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

ORIGINALLY APPROVED 4-03-95

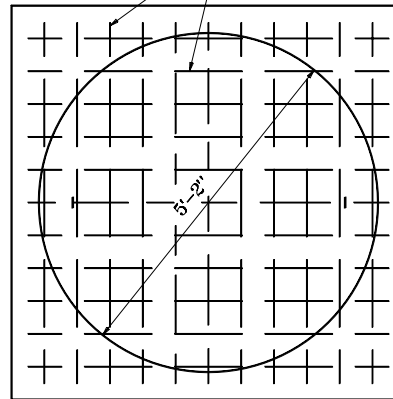


#4 bars spaced 6" c. to c.



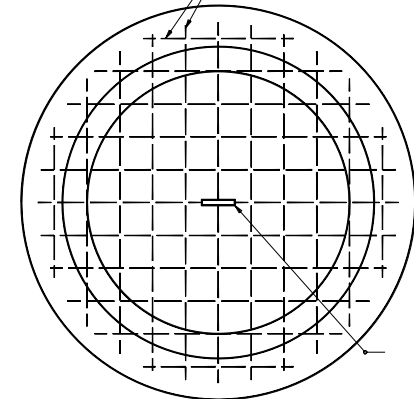
**ROUND**

#4 x 5'-6" spaced 6' c. to c.



**SQUARE**

Pipe mesh-welded wire fabric (W-12 min.)



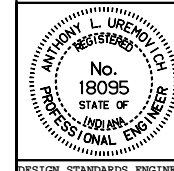
**ROUND ALTERNATE**

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

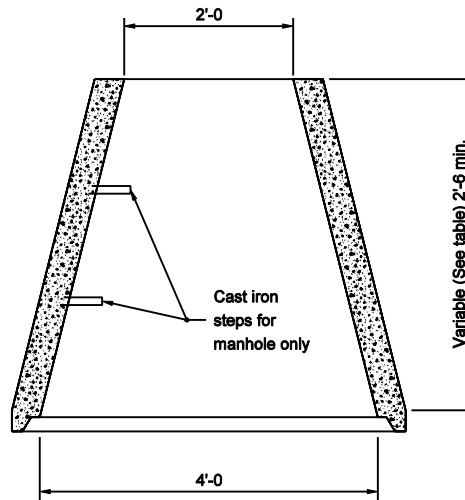
*/s/ Anthony L. Uremovich* 11-15-99  
DESIGN STANDARDS ENGINEER DATE

*/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"



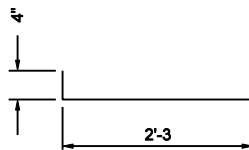
**CONCENTRIC CONE**

**NOTES**

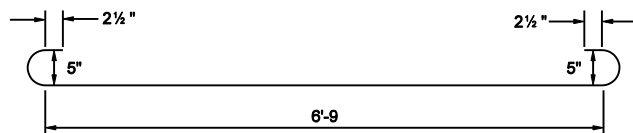
1. The concentric concrete section will not be permitted for manholes which are under the jurisdiction of the Indianapolis Sanitary District.



**L BARS**



**T BARS**



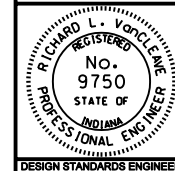
**H BARS**

INDIANA DEPARTMENT OF TRANSPORTATION

**MANHOLE BARS AND  
CONCENTRIC CONE**

SEPTEMBER 2003

STANDARD DRAWING NO. E 720-MHST-08

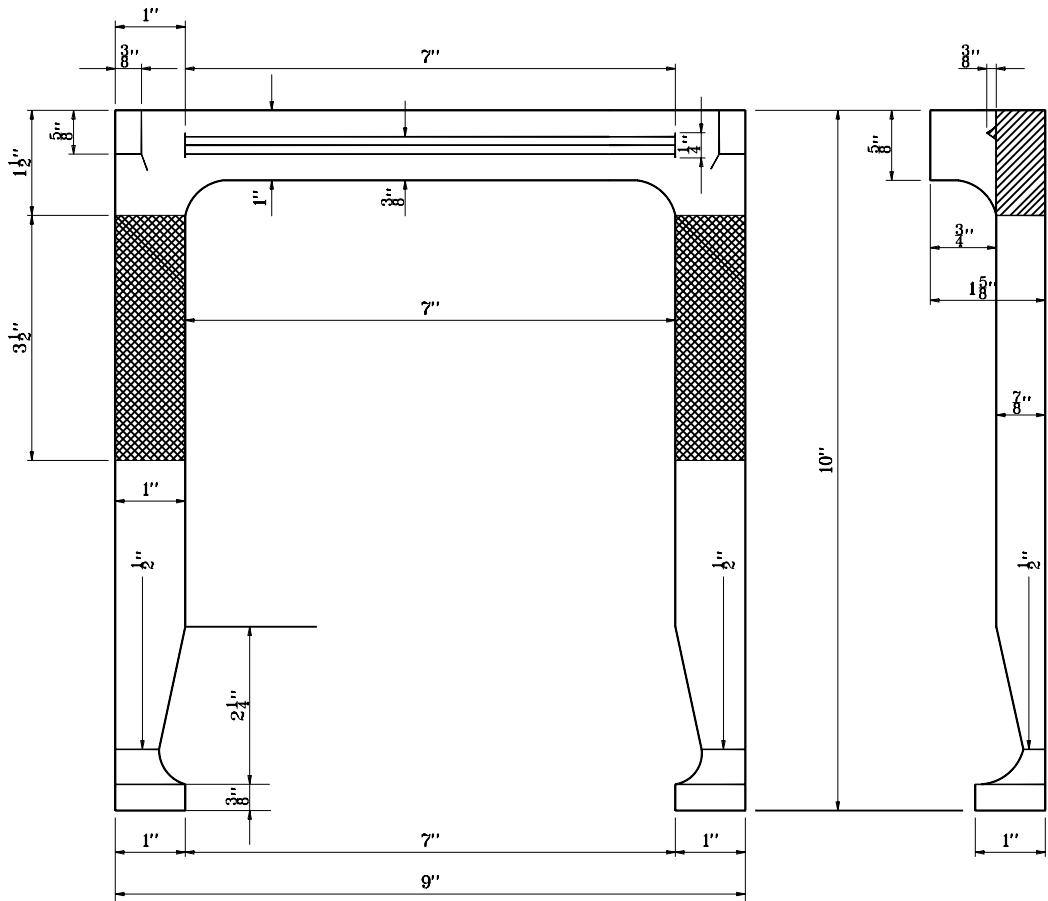


/s/ Richard L. VanCleave 9-02-03  
DESIGN STANDARDS ENGINEER DATE

/s/ Richard K. Smutzer 9-02-03  
CHIEF HIGHWAY ENGINEER DATE

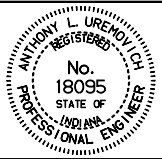
DESIGN STANDARDS ENGINEER





INDIANA DEPARTMENT OF TRANSPORTATION	
<b>MANHOLE STEP</b>	
APRIL 1995	
<b>STANDARD DRAWING NO. E 720-MHST-09</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

REINFORCING STEEL FOR MANHOLES																
Bars	Manhole Type D				Manhole Type E				Manhole Type F				Manhole Type G			
	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