

FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	87 N-0061-01	1998	20	91

GENERAL NOTE

Precast risers, cones, flat top slabs, reducing flat slabs, floors, grade rings, and rings and covers shall be manufactured according to the most recent ASTM C-478M Specifications and special provisions with specific details as shown on this sheet. Cone section shall be the eccentric type.

All manhole construction shall be water tight. All joints shall be filled with mortar or plastic joint compound as specified in the Standard Specifications. No payment will be made for this work.

When so ordered by the Engineer the top of the manhole shall be sloped slightly to approximately fit the ground line or other conditions.

Grade rings shall be formed with tongue and groove or lugs and notches. Grade rings shall be set in mortar.

When field conditions require "H" to be adjusted additional grade rings may be used as directed by the Engineer.

Contractor shall determine pipe locations in the field prior to ordering manholes, to insure proper positioning of pipe openings.

All dimensions relative to reinforcing steel are to center of bars unless otherwise noted.

Floor of manhole shall be shaped as shown on Standard Drawing RD730 SI. No additions in concrete quantities shall be made for shaping floor of manholes.

Steps shall be installed in all storm sewer manholes when specified in the plans or when "H" is equal to or greater than 1.8 m. Steps shall comply with the requirements of the KDOT Standard Specification.

For notes and details on Cast Iron Manhole Covers and Rings see Standard Drawing RD730 SI.

Eccentric pipe reducers may be used for transition of manhole diameter when "H" is sufficiently large.

Type II manhole required when distance from top of sewer pipe is less than 1 m, for sewer pipes greater than 600 mm or to provide 100 mm min. wall between pipes.

Light type cast iron ring shall be set in flat top slab or grade ring as shown. This grade ring may be precast or cast in the field. Reinforcing for grade ring cast in the field shall be a #13 circular bar (min.).

Openings for sewer pipes to be constructed as follows:
Formed Openings: A 25 mm keyway shall be formed around the pipe opening.

Roughed In Openings: Reinforcing shall be left in place around the sewer pipe to reinforce the grout. Concrete shall be left rough to provide bond for grout.

3	12-15-97	Revised step spacing	R.J.S.	J.O.B.
2	1-27-97	Revised Rebar Designation	R.J.S.	J.O.B.
1	8-26-96	Reorganize details	R.J.S.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

PRECAST MANHOLES

RD731 SI

FHWA APPROVAL	2-2-98	APP'D, James O. Brewer
DESIGNED	DETAILED	QUANTITIES
DESIGN CK.	DETAIL CK.	QUAN. CK.

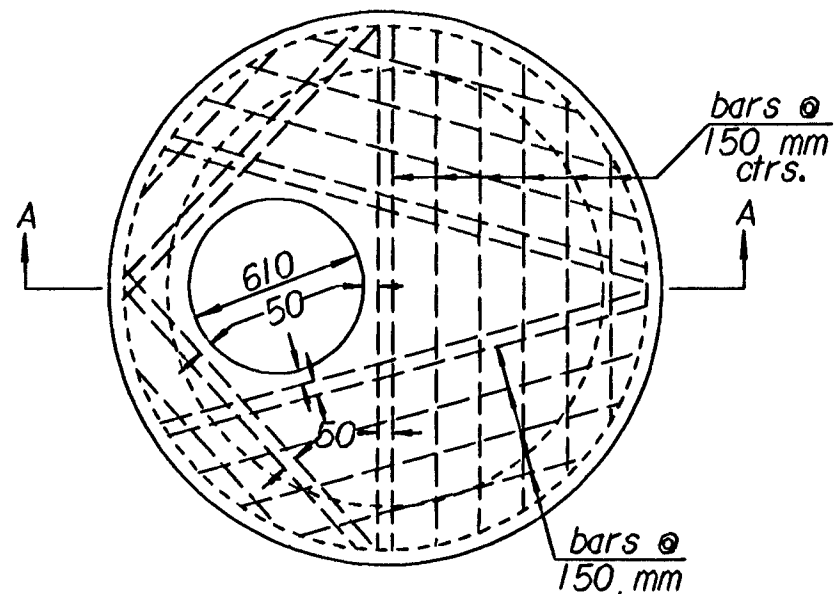
LEGEND (Concrete)



Precast

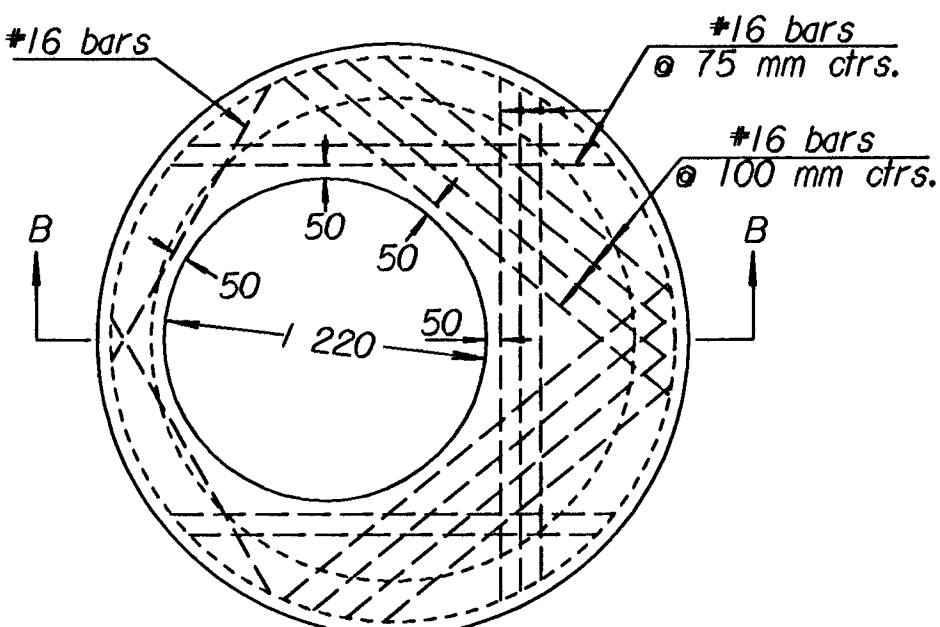


Cast In field

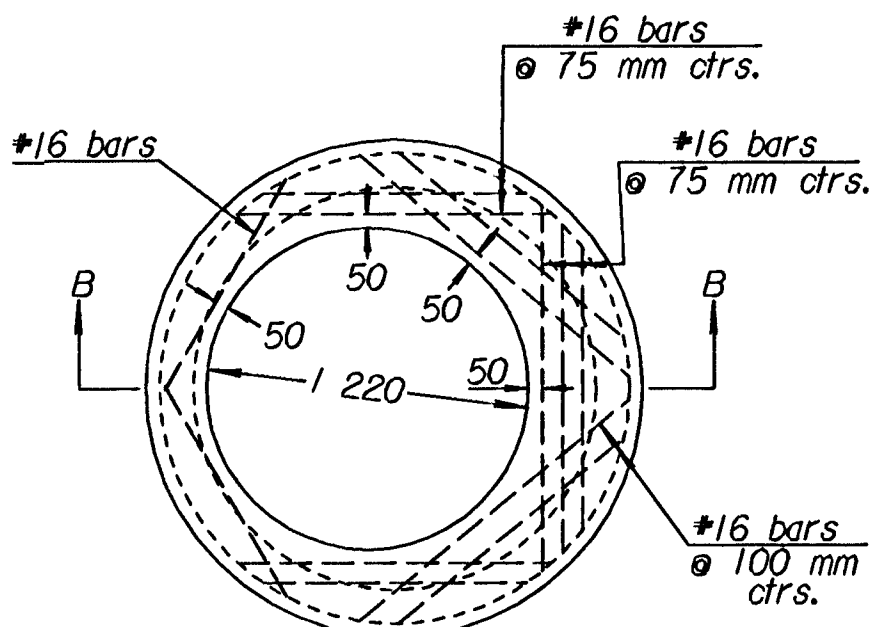


PLAN
TYPICAL REINFORCING FOR
FLAT TOP SLABS

Ø Steps shall be uniformly spaced. Spacing shall be 300 mm minimum and 420 mm maximum.

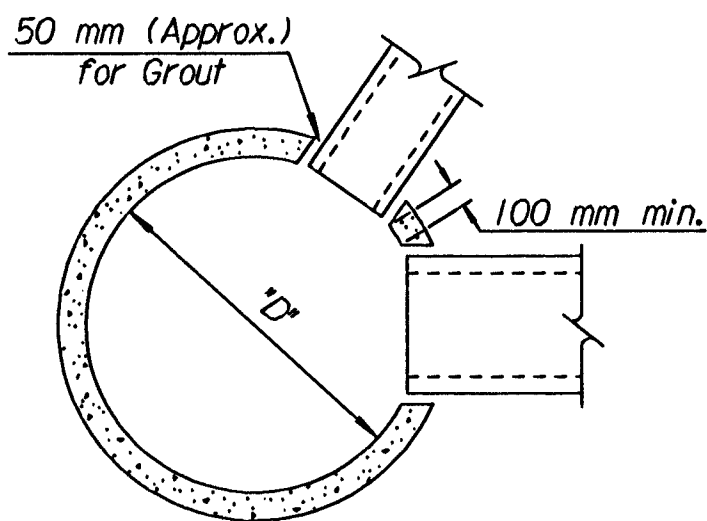


PLAN (D=1830 mm)



PLAN
TYPE II ALTERNATE (D=1525 mm)

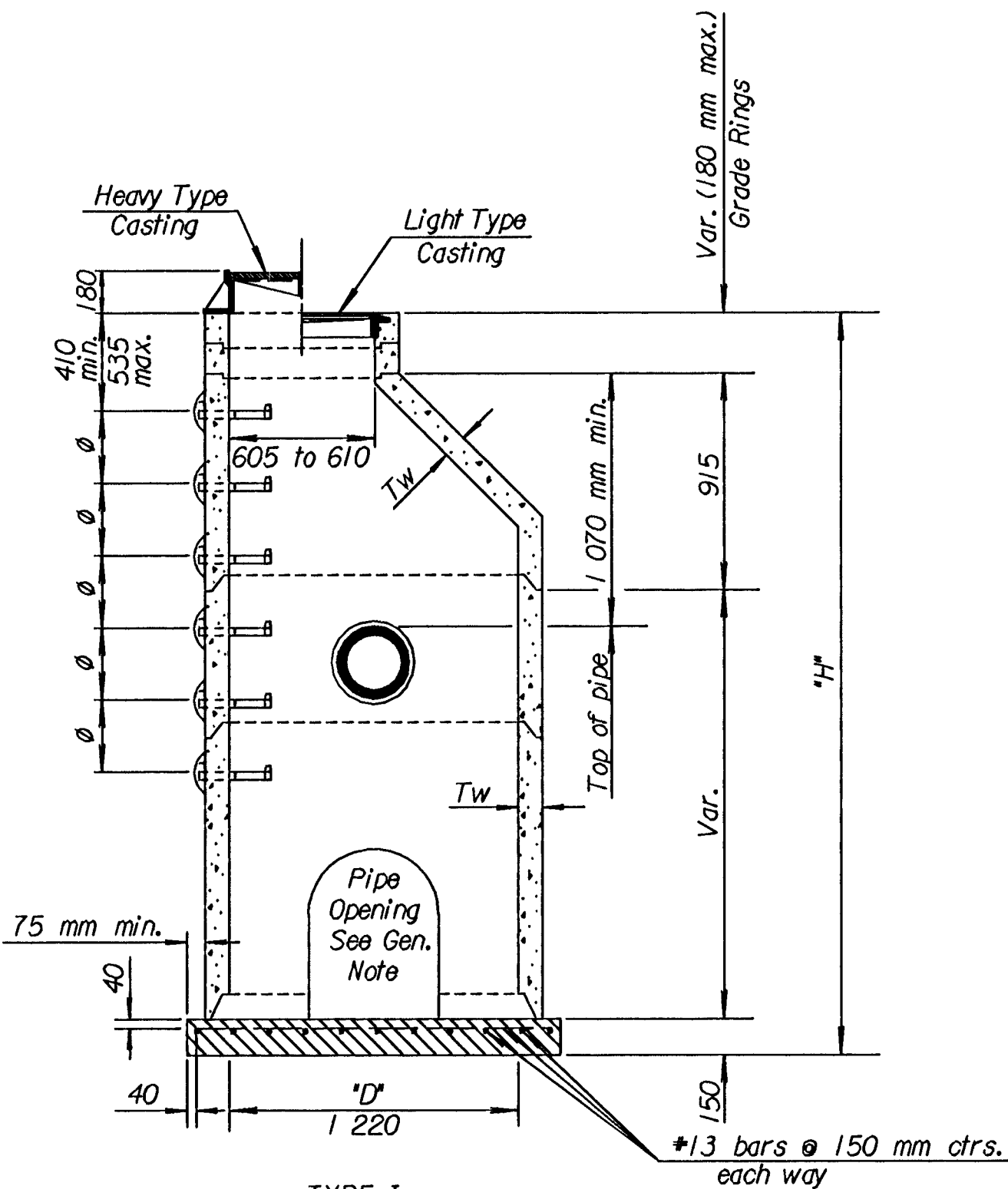
DIMENSIONS & REQUIREMENTS				
Type	"D"	Tw(min.)	Ø	
I or II	1 220	#100	610	
II	1 525	125	760	
II	1 830	150	1 220	



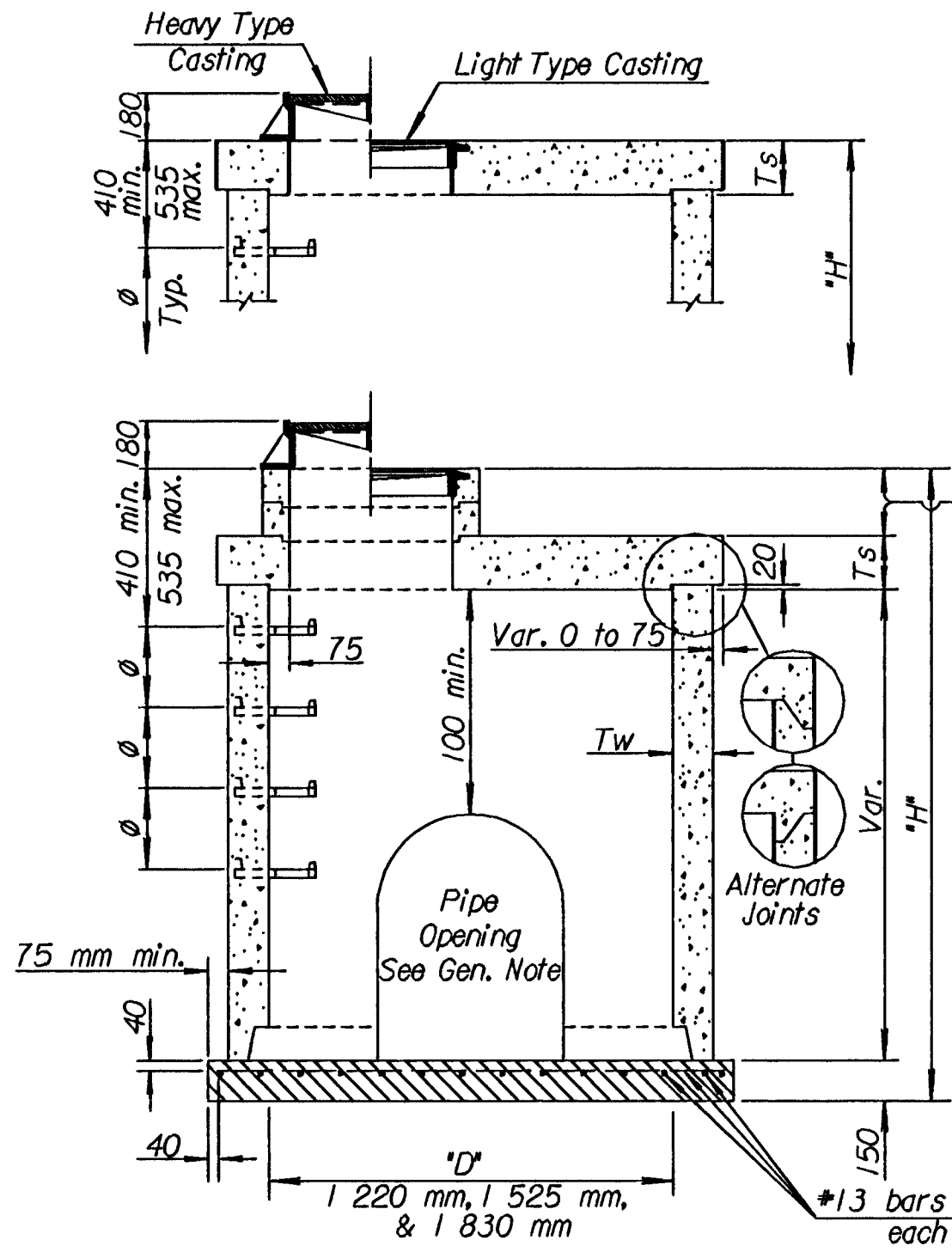
SKETCH SHOWING MIN.
WALL BETWEEN PIPES

125 mm Tw (min.) for portion of sanitary sewer manhole below 4.8 m.

♦ Maximum sewer pipe allowed for "D" shown. Increase "D" to provide 100 mm minimum wall between pipes. (see sketch)



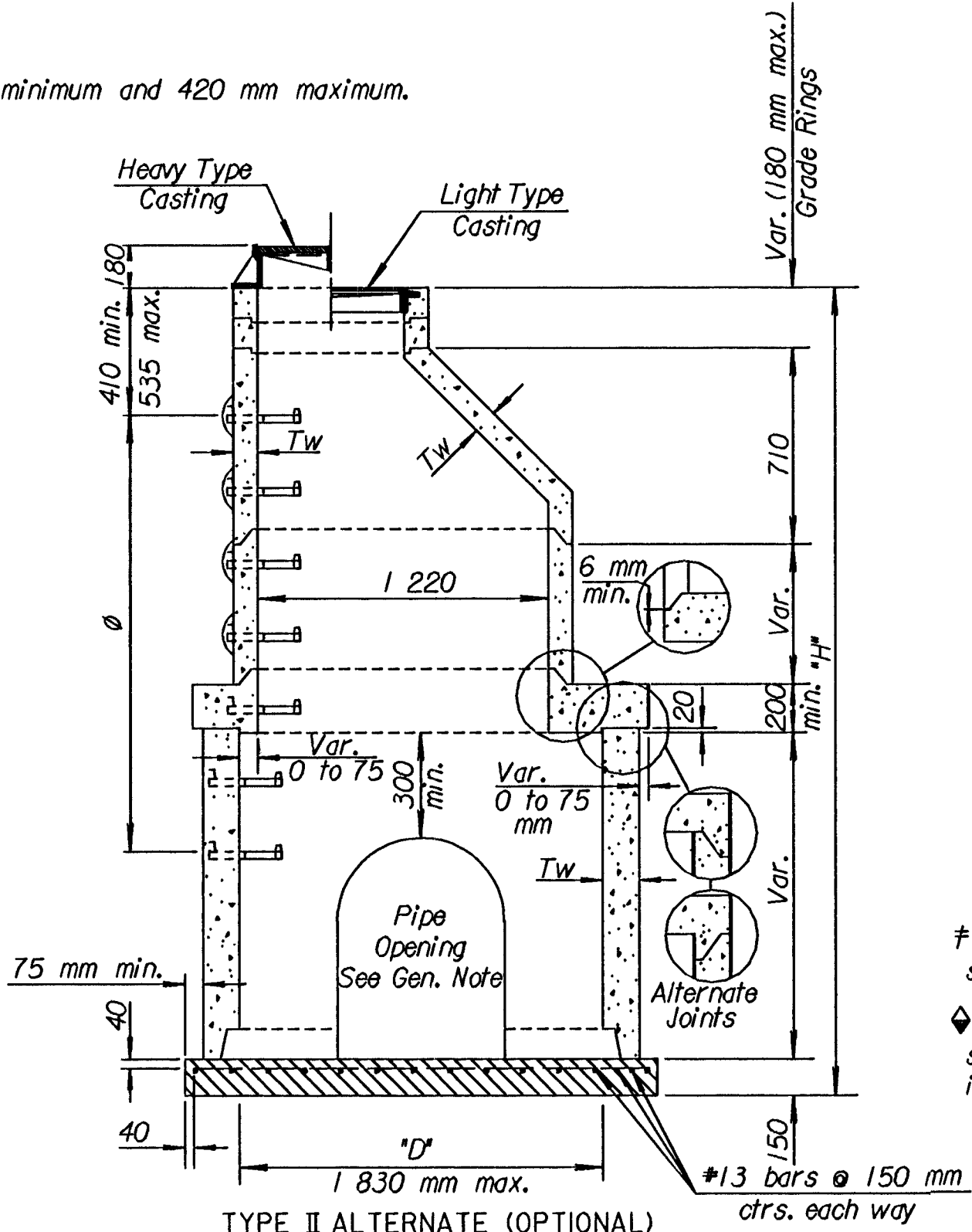
TYPE I
(SECTION)



TYPE II
(SECTION)

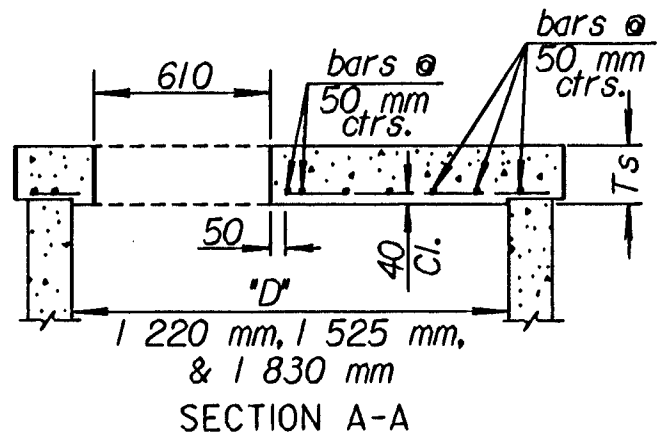
Var. 0 to 150 mm max. for Heavy Type Casting

Var. 150 mm min. to 230 mm max. for Light Type Casting

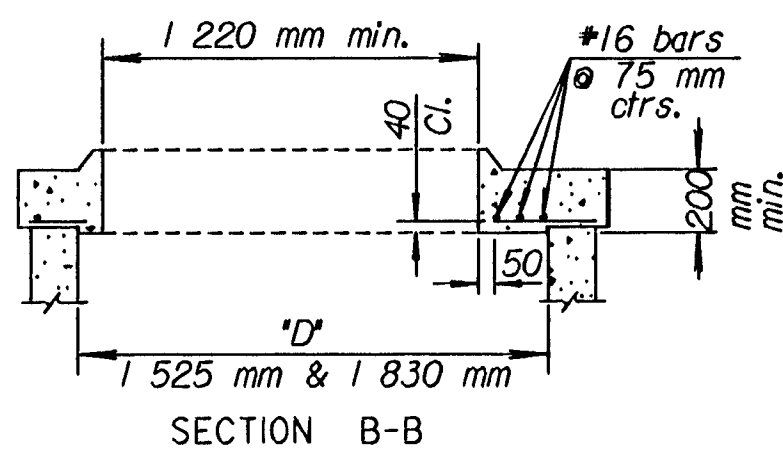


TYPE II ALTERNATE (OPTIONAL)
(SECTION)

May be used when "H" is sufficiently large.



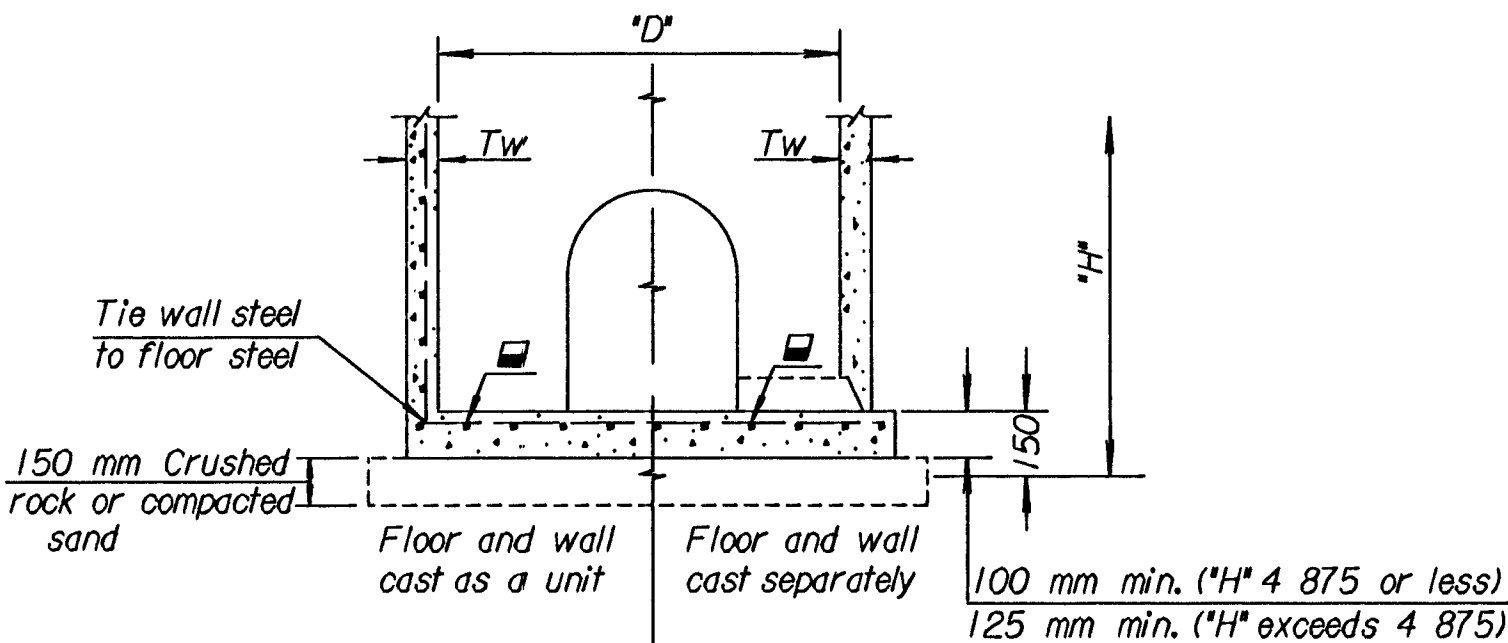
SECTION A-A



SECTION B-B

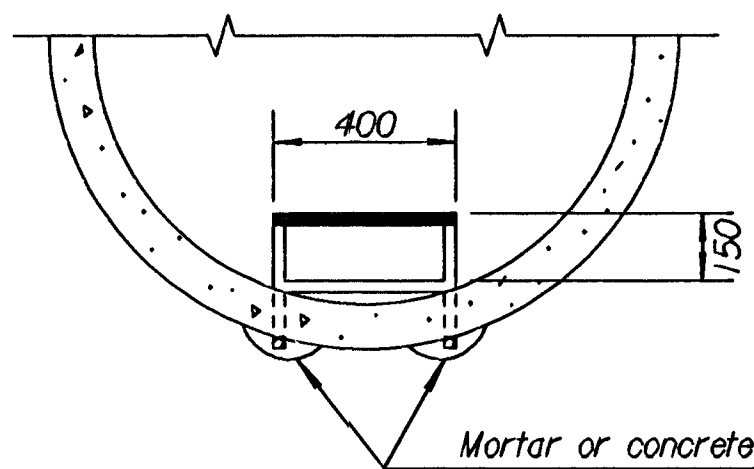
"D"	Ts(min.)	Bar size
1 220	150	#13
1 525	150	#13
1 830	200	#16

NOTE: Welded wire mesh of equivalent cross-sectional area may be substituted for bars # 150 mm ctrs. (4 layers max.). Bars # 50 mm ctrs. around opening shall be placed as shown.



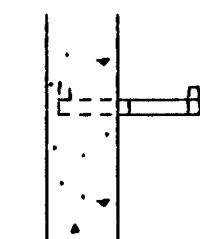
PRECAST FLOOR

■ Floor reinforcing shall be double the reinforcing required for wall or #13 bars # 150 mm ctrs. each way.

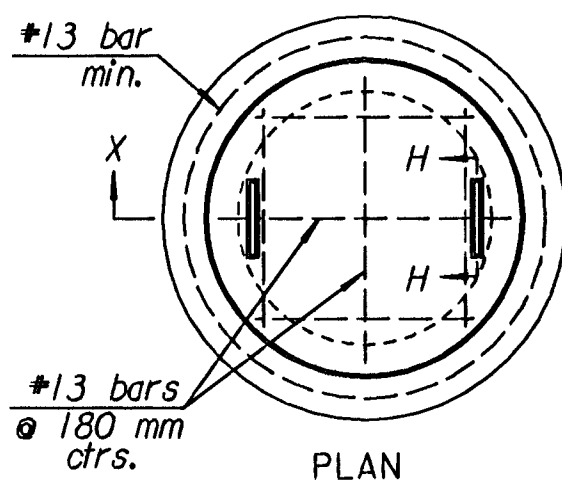


SECTION

STEP IN MANHOLE WALL



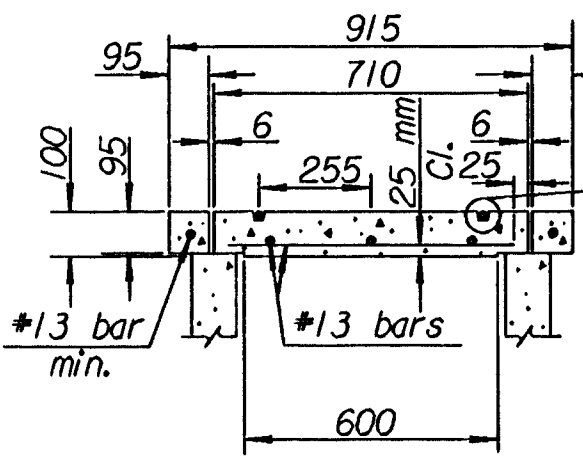
SIDE VIEW



PLAN

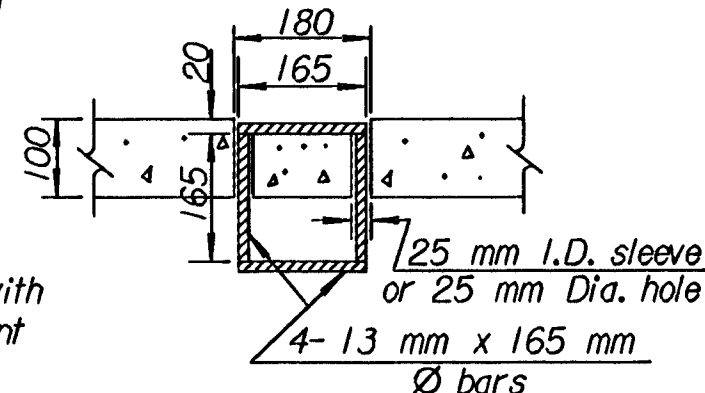
NOTE: Precast ring and cover may be substituted for light type cast iron ring and cover.

Handles shall be painted with two coats of zinc rich paint (commercial grade).

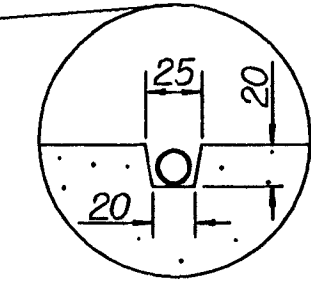


SECTION X-X

PRECAST RING AND COVER (LIGHT TYPE) (Optional)

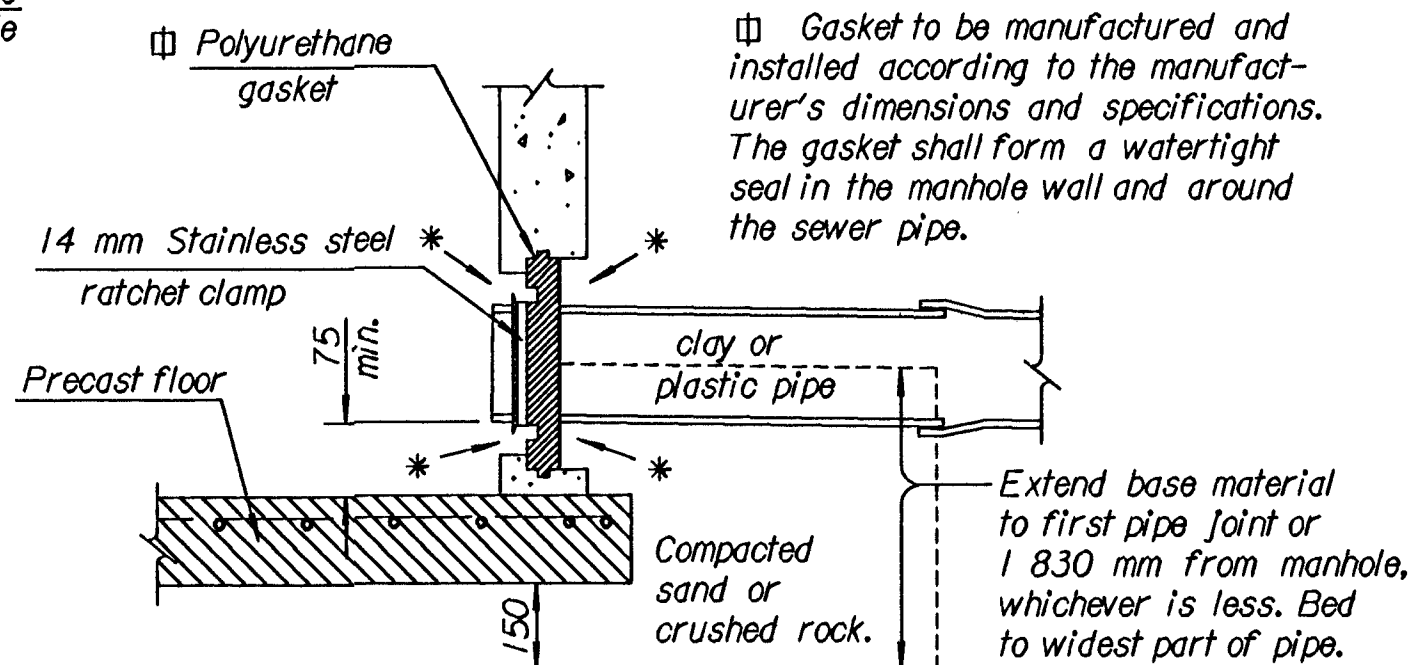


SECTION H-H
WELDED HANDLES
(2 required)



HANDLE
RECESS

* Fill opening in manhole wall, around Sewer Pipe, with grout or concrete. (to prevent pipe movement)



MANHOLE WITH POLYURETHANE GASKET (Optional)