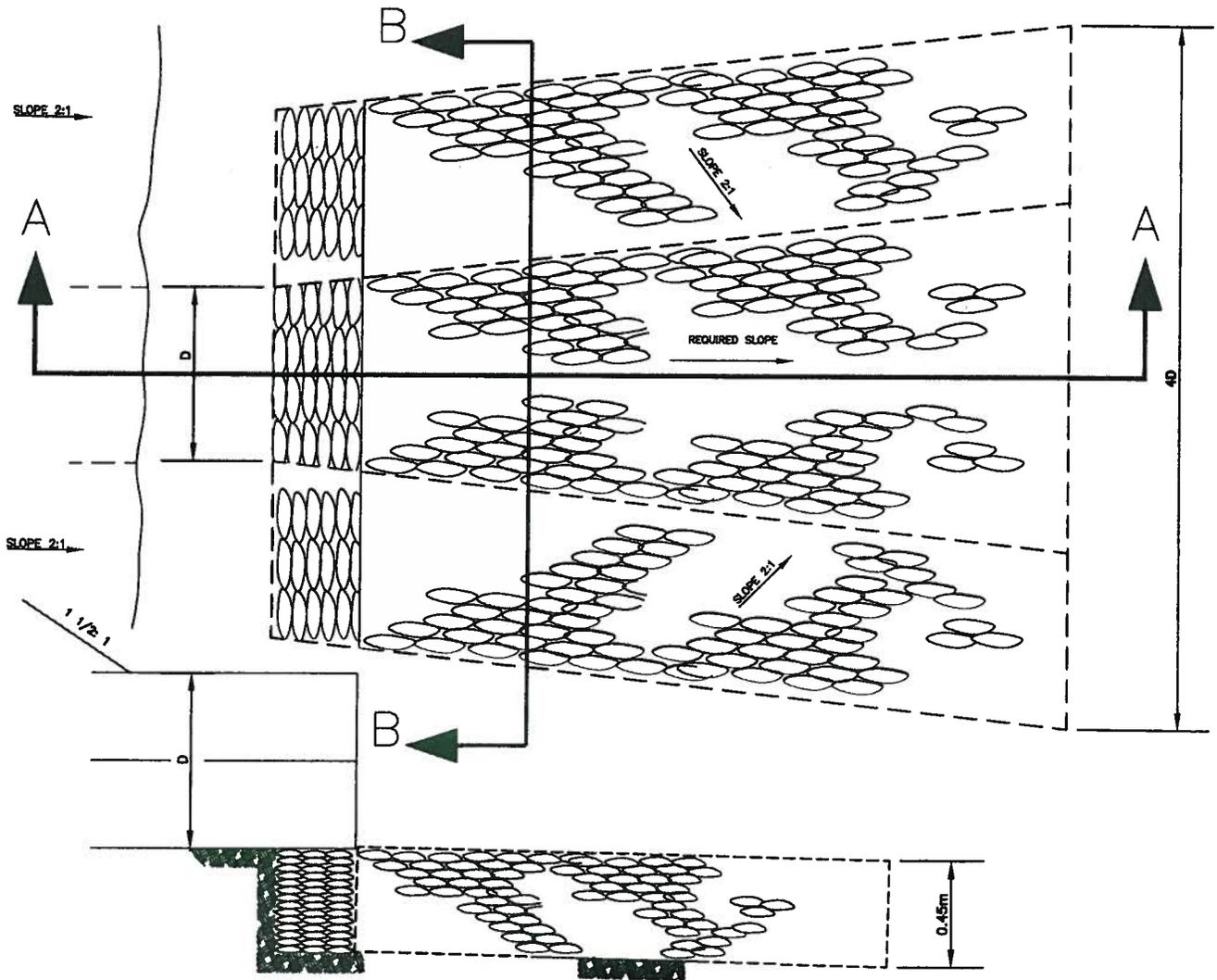
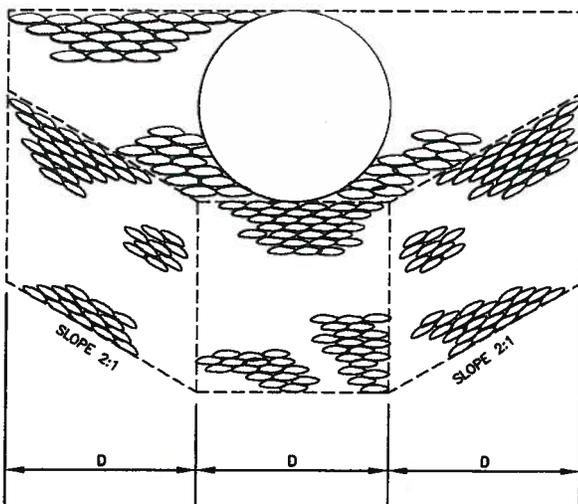


**APPENDIX H -  
SELECT MUNICIPAL MASTER SPECIFICATION STANDARD DRAWINGS**

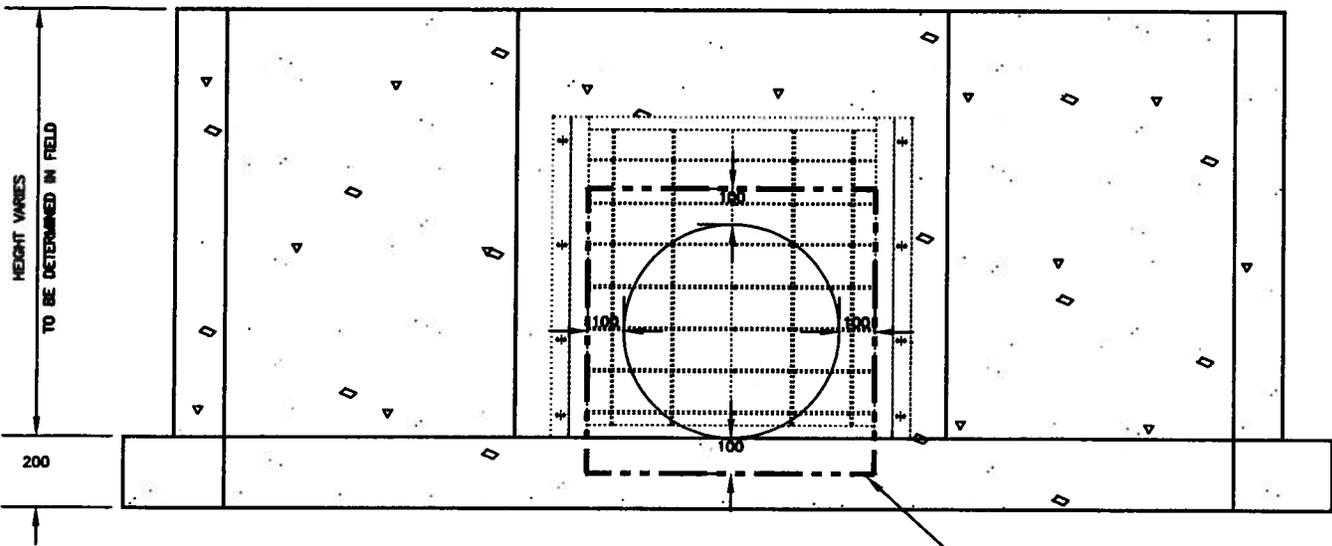


SECTION A - A

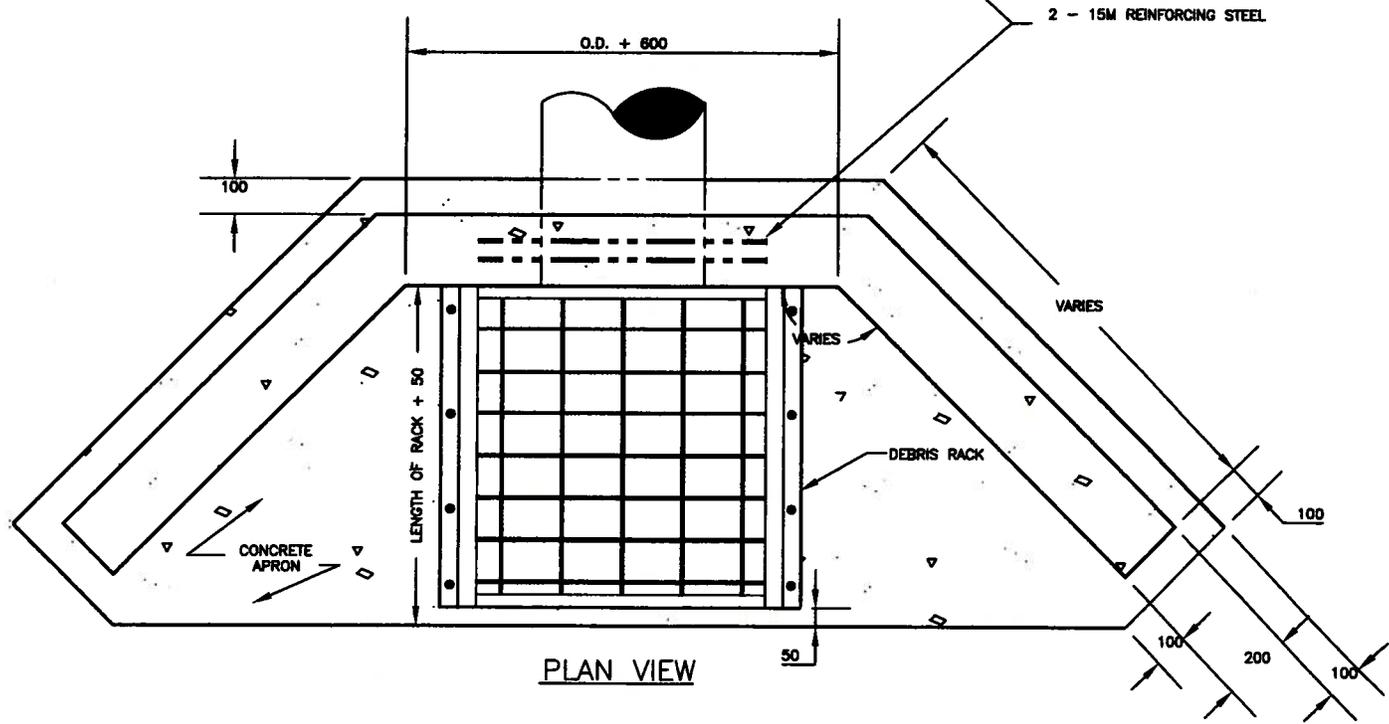


SECTION B - B

MUNICIPAL MASTER SPECIFICATIONS		
RIP RAP TREATMENT - STORM SEWER OUTLET		
DRAWING #	SPEC. REFERENCE	DATE:
0560	02434	MARCH 1992



ELEVATION

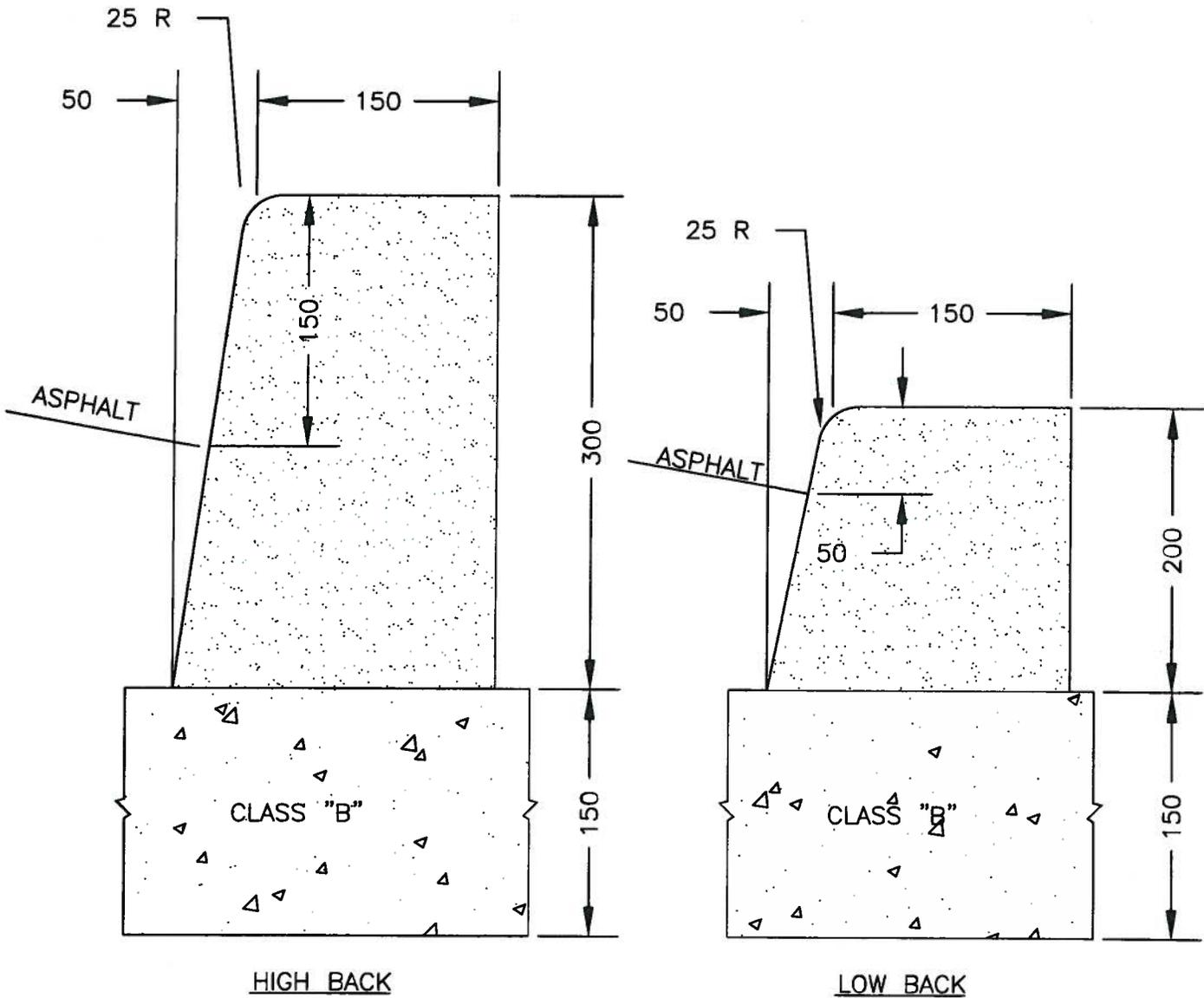


PLAN VIEW

NOTE:

1. HAND RAIL TO BE PLACED ON WALLS THAT ARE EQUAL TO OR GREATER THAN 1200mm HIGH. (See dwg 1180)
2. REINFORCING STEEL SHALL BE INSTALLED AROUND PIPES 600mm O.D. AND GREATER.
3. ALL EXPOSED CORNERS ON CONCRETE WORK SHALL BE CHAMFERED 25mm.
4. DEBRIS RACK TO BE INSTALLED AS PER DETAILS.

MUNICIPAL MASTER SPECIFICATIONS		
HEADWALL		
DRAWING #	SPEC. REFERENCE	DATE:
0580	02434	April 2002



## TYPICAL X-SECTION

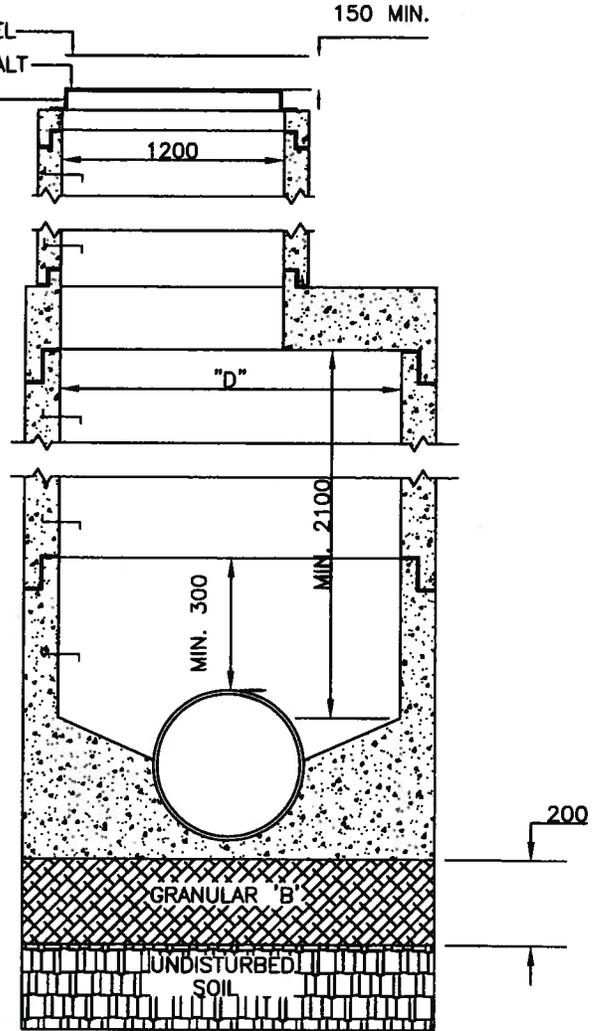
**NOTE:**

1. CONCRETE TO BE 32 MPa. TO MEET CSA A23.1, CLASS C-2 EXPOSURE.

MUNICIPAL MASTER SPECIFICATIONS		
CURB		
DRAWING #	SPEC. REFERENCE	DATE:
0600	02528	APRIL 2001

"D"	1500mm I.D.	1800mm I.D.
MAX. PIPE O.D. STRAIGHT THRU TO 45° DEFLECT.	1050mm O.D.	1200mm O.D.
MAX. PIPE O.D. 90° DEFLECTION	750mm O.D.	900mm O.D.

FINISHED GRADE GRAVEL  
 FINISHED GRADE ASPHALT  
 FRAME & COVER



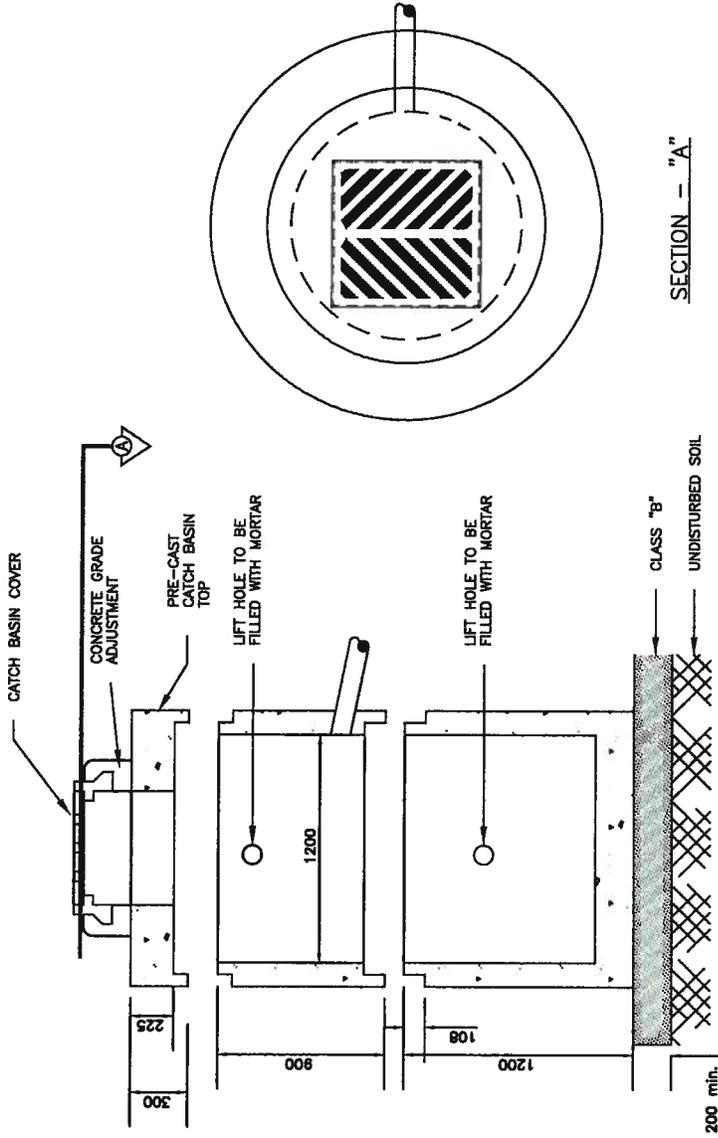
TYPICAL X-SECTION

NOTES:

1. ALL CONCRETE TO BE 30 MPa.
2. GASKETS ARE TO BE USED FOR ALL PIPE ENTRANCES AND PLACED IN BASE SECTION AT FACTORY.
3. BENCHING TO BE PREFORMED AT FACTORY OR ON SITE AND TO CONFORM TO CAST IN PLACE BENCHING REQUIREMENTS.
4. MSU DAYMOND ALUMINIUM CLIMBING STEPS (OR APPROVED EQUAL) TO BE PLACED AT 300mm CENTERS. STEP HOLES ARE TO BE ONLY PARTIALLY THROUGH MANHOLE WALL.
5. LIFT HOLES ARE TO BE ONLY PARTIALLY THROUGH MANHOLE FROM OUTSIDE. HOLES TO BE GROUT FILLED BEFORE BACKFILLING.
6. NO PRECAST MANHOLE TO BE PLACED IN THE EXCAVATION PRIOR TO INSPECTION BY PROJECT ENGINEER OR SITE REPRESENTATIVE.
7. MINIMUM DROP ACROSS MANHOLE TO BE 50mm FOR STRAIGHT THROUGH TO 45° DEFLECTION.
8. MINIMUM DROP ACROSS MANHOLE TO BE 150mm FOR DEFLECTION GREATER THAN 45° AND UP TO 90°.

PRECAST MANHOLE – TYPE 1500, 1800

MUNICIPAL MASTER SPECIFICATIONS		
PRECAST MANHOLE – TYPE 1500, 1800		
DRAWING #	SPEC. REFERENCE	DATE:
0765	02601	APRIL 2000

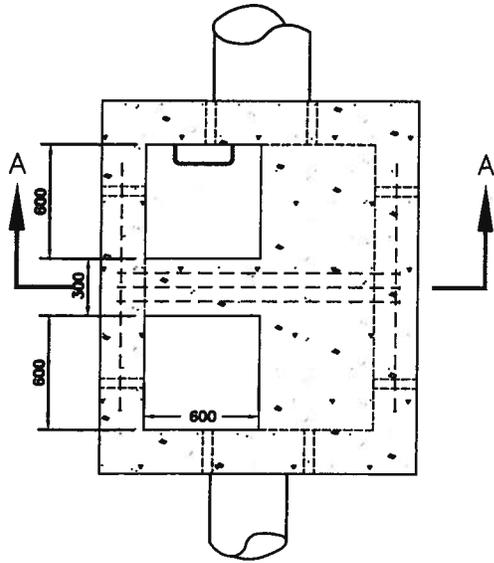


SECTION - "A"

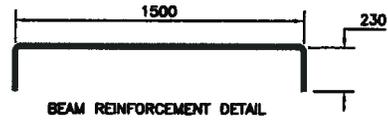
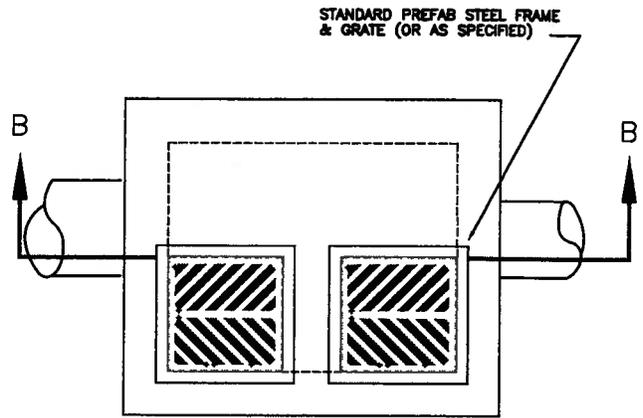
NOTES:

1. OUTLET PIPE TO BE FORMED BY PRE-CAST COLLAR, GASKET TO BE PLACED AROUND PIPE.
2. CATCH BASIN GRATING SHALL BE DEPRESSED 30mm BELOW GUTTER GRADE.
3. MINIMUM SUMP DEPTH 1200.

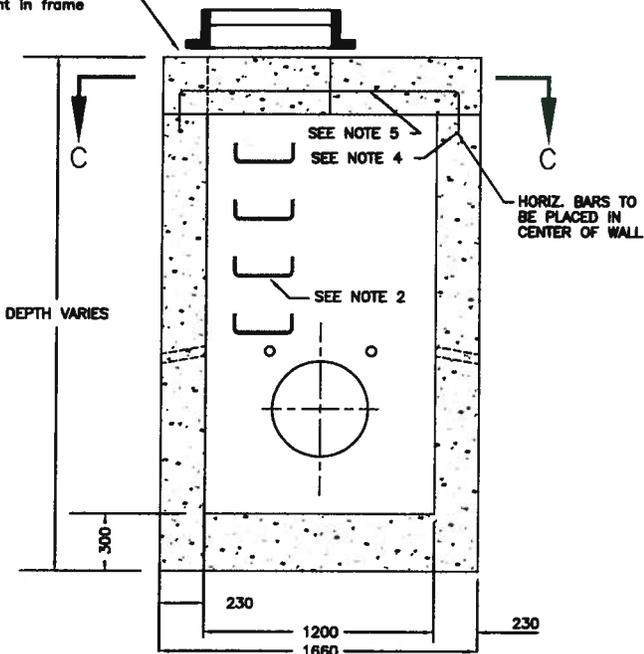
MUNICIPAL MASTER SPECIFICATIONS		
PRE-CAST SINGLE CATCH BASIN		
DRAWING #	SPEC. REFERENCE	DATE:
0870	02601	MARCH 1993



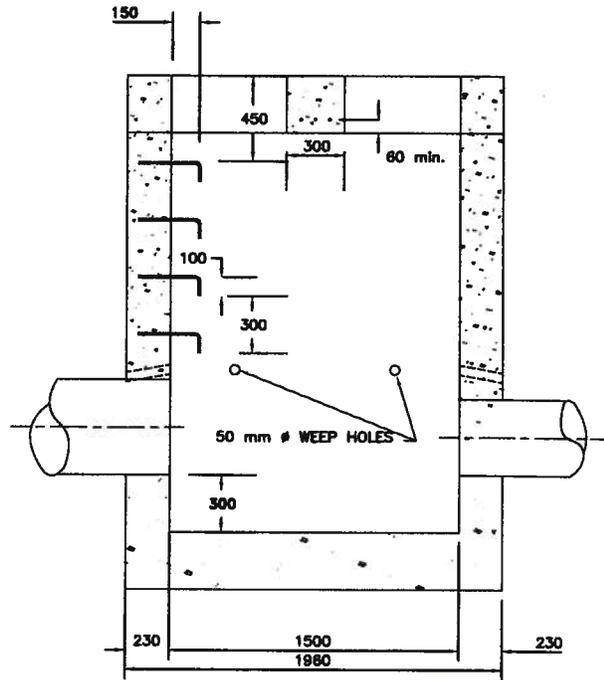
SECTION "C-C"



20mm clearance for adjustment in frame



SECTION "A-A"



SECTION "B-B"

**NOTES:**

1. POROUS BACKFILL TO BE PLACED TO A MIN. OF 300 mm ON ALL SIDES.
2. LADDER RUNGS TO BE 20M HI-BOND BARS, GALVANIZED OR EQUIVLENT.
3. STRENGTH OF CONCRETE: MIN. OF 30 MPa AT 28 DAYS.
4. TIES - 15M HI-BOND BARS, 105mm LONG
5. 3 - 15M HI-BOND BARS BENT, SEE DETAIL.
6. 100mm  $\phi$  TILE IN POROUS GROUND ONLY, SLOPE BOTTOM AS INDICATED WHEN TILE IS USED.

MUNICIPAL MASTER SPECIFICATIONS		
TWIN INLET CATCH BASIN		
DRAWING #	SPEC. REFERENCE	DATE:
0900	02601	MARCH 1993



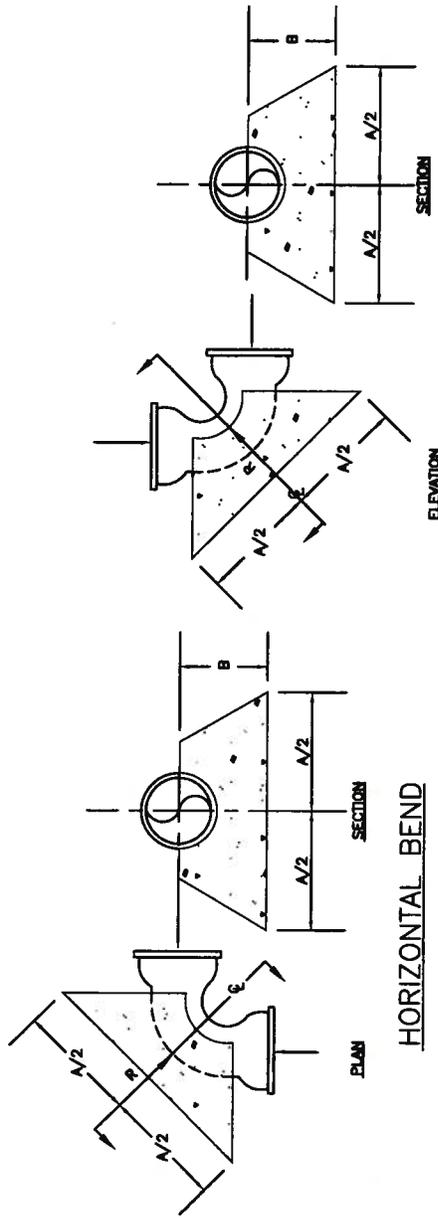
NOMINAL DIAMETER (mm)	BENDS --- HORIZONTAL & VERTICAL --- UP												TEE & DEAD END								
	90°				45°				22 1/2°				11 1/4°				R	AREA	A	B	CONC
	R	AREA	A	B	R	CONC	A	B	R	CONC	A	B	R	CONC	A	B					
100	1.74	0.14	375	300	0.94	.04	300	300	0.37	.04	300	300	0.24	.04	300	300	0.10	375	450	0.04	
150	3.81	0.30	525	300	1.95	.04	450	300	1.00	.04	300	300	0.50	.04	300	300	0.21	450	450	0.04	
200	6.21	0.51	750	450	3.36	.19	525	450	1.71	.04	375	450	0.86	.04	300	450	0.36	600	450	0.08	
250	9.21	0.75	900	450	5.03	.19	675	450	2.81	.08	450	450	1.29	.04	375	450	0.54	750	450	0.19	
300	13.24	1.09	1100	450	7.12	.36	750	450	3.65	.19	525	450	1.84	.04	375	450	0.76	900	525	0.19	

**ABBREVIATIONS**

- R - REACTION IN 1000kg
- b - MINIMUM BEARING AREA AT SOIL TO CONCRETE FACE IN m<sup>2</sup>
- CONC - VOLUME OF CONCRETE IN m<sup>3</sup>
- A & B - DIMENSION OF CONCRETE IN mm UNLESS OTHERWISE NOTED

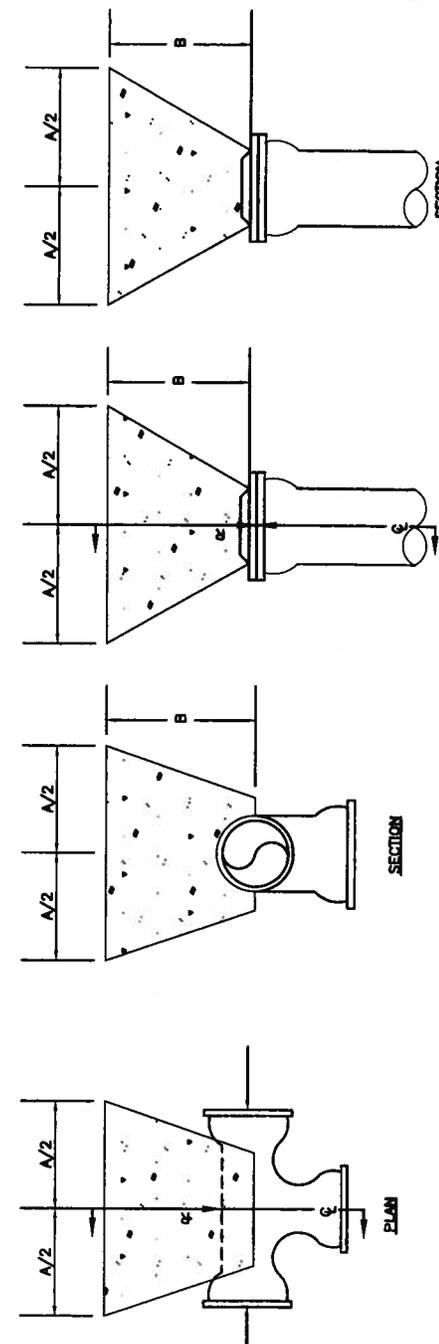
**NOTES:**

1. CONCRETE - 25MPa 28 DAY STRENGTH
2. BLOCKS SHALL BE POURED DIRECTLY AGAINST UNDISTURBED SOIL AS INDICATED
3. DESIGN DATA - STATIC PRESSURE 1000 KPa MINIMUM BEARING CAPACITY OF SOIL 120 KPa.



**HORIZONTAL BEND**

**VERTICAL BEND UP**



**TEE**

**DEAD END**

MUNICIPAL MASTER SPECIFICATIONS	
WATERMAIN THRUST BLOCKS A	
DRAWING #	SPEC. REFERENCE
1140	02713 02724 03300
DATE:	MARCH 1992