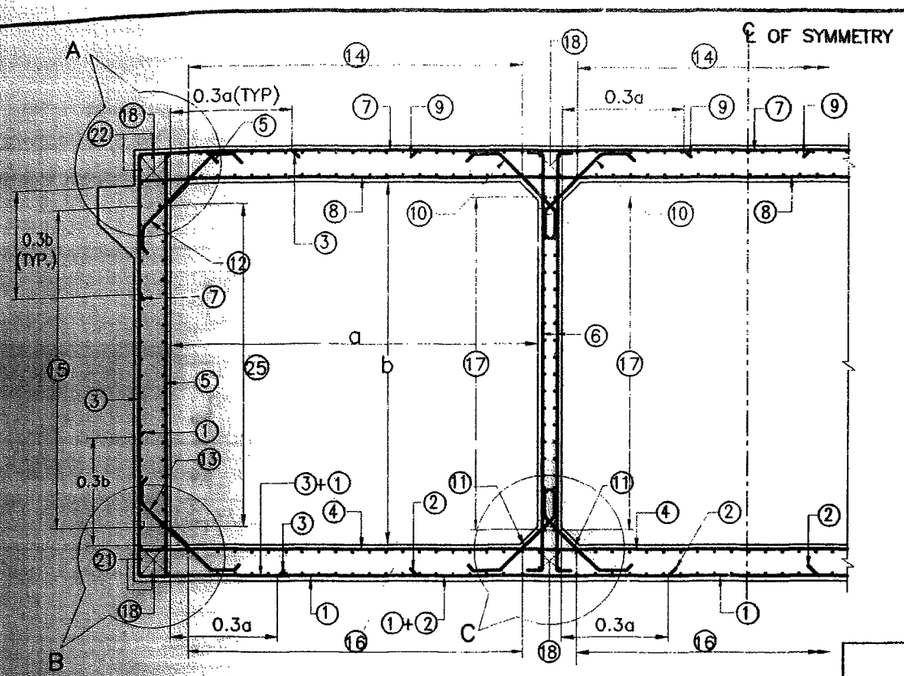
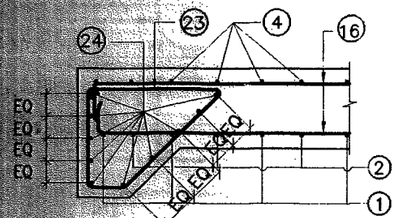
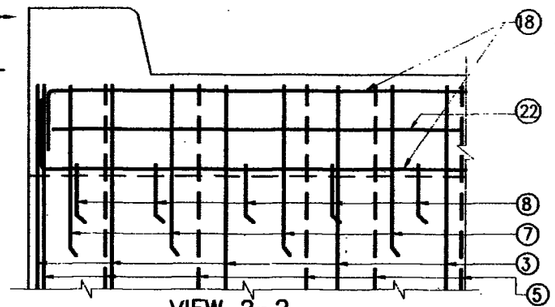
DRG.NO. SD/112 (SHEET 1 OF 2)



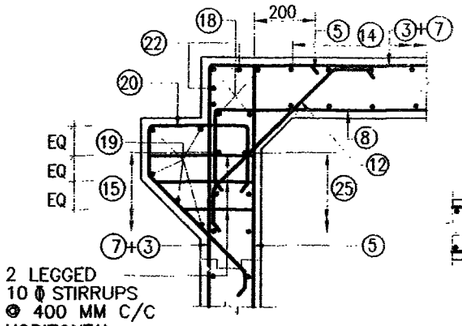
REINFORCEMENT DETAILS OF THREE CELL BOX CULVERT



SECTION 1–1

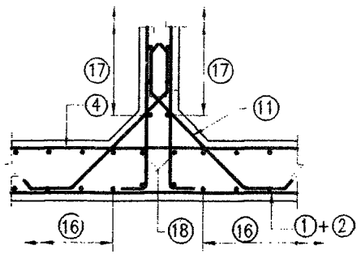


VIEW 2–2
(HAUNCH LINES NOT SHOWN)

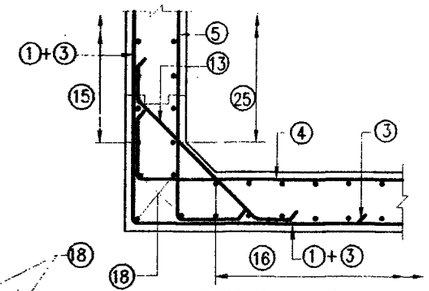


2 LEGGED
10 ϕ STIRRUPS
@ 400 MM C/C
HORIZONTAL
(NOT INCLUDED IN
BAR BENDING SCHEDULE)

DETAIL– A



DETAIL C



DETAIL – B

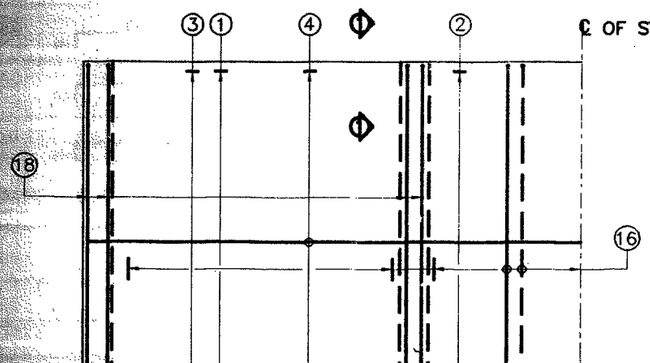
NOTES:

1. FOR GENERAL NOTES REFER DRG. NO. SD/101.
2. FOR GENERAL ARRANGEMENT REFER DRG. NO. SD/106.
3. FOR BAR BENDING SCHEDULE REFER DRAWING NO. SD/112 (SHEET 2 OF 2).
4. FOR LAP ZONES REFER DRAWING NO. SD/117 (SHEET 2 OF 2).

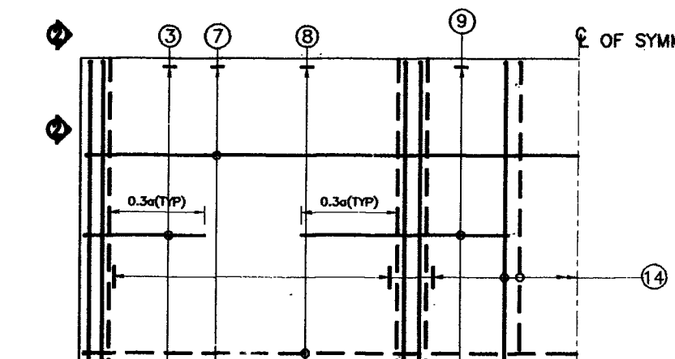
LEGEND :

——— : TOP FACE BARS/ OUTER FACE BARS

– – – – : BOTTOM FACE BARS/ INNER FACE BARS



BOTTOM SLAB R/F PLAN
(HAUNCH LINES & BAR MARK ⑤ ㉑ NOT SHOWN IN PLAN)



TOP SLAB R/F PLAN
(KERB, HAUNCH LINES & BAR MARK ⑤ ㉒ NOT SHOWN IN PLAN)

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI.

STANDARD DRAWINGS FOR BOX CELL STRUCTURES

TRIPLE CELL R.C.C BOX CULVERTS (WITHOUT EARTH CUSHION)

TYPICAL REINFORCEMENT DETAILS

DESIGNED BY	CHECKED BY	APPROVED FOR ISSUE BY	1999
(A.R.GHOSH) CES (I) LTD	(M.C.TANDON) TCPL	(C.C.BHATTACHARYA) C.E.(R) S&R MOST	DRG. NO. SD/112 (SHEET 1 OF 2)

Source: MoST Standard Drawings for Box Cell Culverts (2000) - older reference, verify with current IRC / MoRTH. Scan cleaned by helptheengineer.com

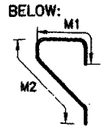
DRG.NO. SD/112 (SHEET 2 OF 2)

SCHEDULE OF REINFORCEMENT

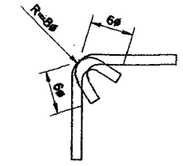
BAR MARK	SHAPE OF BARS (NOT TO SCALE) / BOX – CELL DESIGNATION Nc/ab/Ec	3/22/0 BAR DIA in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in metre	WEIGHT in kgs.	3/33/0 BAR DIA in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in metre	WEIGHT in kgs.
①		16	250	920	7240	9025	49	442.2	698.0	16	200	1350	10640	13285	61	810.4	1279.1
②		12	250	1500	–	1500	96	144.0	127.8	12	200	2200	–	2200	120	264.0	234.4
③		16	250	920	2640	4425	98	433.7	684.5	16	200	1320	3850	6435	122	785.1	1239.1
④		16	250	200	7240	7585	49	371.7	586.6	20	200	200	10640	10971	61	669.3	1650.5
⑤		16	250	260	2640	3105	98	304.3	480.3	16	200	260	3850	4315	122	526.4	830.9
⑥		20	250	320	2640	3211	196	629.4	1552.2	20	200	320	3850	4421	244	1078.8	2660.5
⑦		16	250	920	7240	9025	49	442.2	698.0	16	200	1300	10640	13185	61	804.3	1269.4
⑧		20	250	320	7240	7811	49	382.8	943.9	20	200	320	10640	11211	61	683.9	1686.6
⑨		16	250	1500	–	1500	98	147.0	232.0	16	200	2200	–	2200	122	268.4	423.6
⑩		10	250	200	918	1318	196	258.4	159.3	10	200	200	1173	1573	244	383.8	236.6
⑪		10	250	200	918	1318	196	258.4	159.3	10	200	200	1244	1643	244	401.0	247.2
⑫		10	250	200	1017	1417	98	138.9	85.6	10	200	200	1272	1672	122	204.0	125.7
⑬		10	250	200	1017	1417	98	138.9	85.6	10	200	200	1343	1742	122	212.6	131.1
⑭		10	250	235	11900	12336	48	592.1	365.1	10	200	275	11900	12416	90	1117.4	688.9
⑮		12	250	192	11900	12243	16	195.9	173.9	12	200	235	11900	12329	30	369.9	328.4
⑯		12	250	192	11900	12243	48	587.7	521.7	12	200	250	11900	12359	90	1112.3	987.5
⑰		12	250	192	11900	12243	32	391.8	347.8	10	200	200	11900	12266	60	735.9	453.7
⑱		12	–	200	11900	12259	32	392.3	348.3	12	–	200	11900	12259	32	392.3	348.3
⑲		12	–	11900	–	11900	10	119.0	105.7	12	–	11900	–	11900	10	119.0	105.7
⑳		12	250	1006	1268	2274	98	222.8	197.8	12	200	1006	1306	2312	122	282.0	250.4
㉑		10	–	160	11900	12186	4	48.7	30.1	10	–	160	11900	12186	4	48.7	30.1
㉒		10	–	160	11900	12186	4	48.7	30.1	10	–	160	11900	12186	4	48.7	30.1
㉓		12	150	1100	1556	4217	100	421.7	374.4	12	200	1100	1556	4217	110	463.9	411.9
㉔		12	–	192	7240	7583	20	151.7	134.6	12	–	192	10640	10983	20	219.7	195.0
㉕		10	250	185	11900	12236	16	195.8	120.7	10	250	235	11900	12336	24	296.1	182.5
TOTAL STEEL (Kgs)								9243								16027	
TOTAL CONCRETE (cum)								116								207	

NOTES:

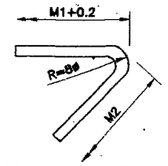
1. JOINT OR LAPPING OF BARS SHALL BE SUITABLY STAGGERED AS PER CLAUSE 304.6 OF IRC:21–1987.
2. FULL SCALE ELEVATION FOR THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING No. SD/112 (SHEET 1 OF 2).
4. QUANTITY OF CONCRETE DOES NOT INCLUDE GUARD STONES.
5. QUANTITY OF STEEL DOES NOT INCLUDE 5% EXTRA FOR WASTAGE AND LAPS.
6. BAR No.20 IS DETAILED AS BELOW:



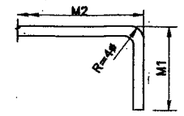
BENDING OF BARS



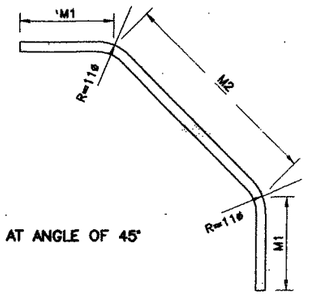
BEND WITH CLOSE HOOKS



BEND AT ANGLE OF 135°



BEND AT RIGHT ANGLE



BEND AT ANGLE OF 45°

LEGEND : ø SHOWS DIA. OF BAR

GOVERNMENT OF INDIA
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(ROADS WING) , NEW DELHI.

STANDARD DRAWINGS FOR BOX CELL STRUCTURES

TRIPLE CELL R.C.C BOX CULVERTS
2m x 2m TO 3m x3m
(WITHOUT EARTH CUSHION)
BAR BENDING SCHEDULE

DESIGNED BY	CHECKED BY	APPROVED FOR ISSUE BY	1999
(A.R.GHOSH) CES (I) LTD	(M.C.TANDON) TCPL	(C.C.BHATTACHARYA) C.E (R) S&R MOST	DRG. NO. SD/112 (SHEET 2 OF 2)

Source: MoST Standard Drawings for Box Cell Culverts (2000) - older reference, verify with current IRC / MoRTH. Scan cleaned by helptheengineer.com