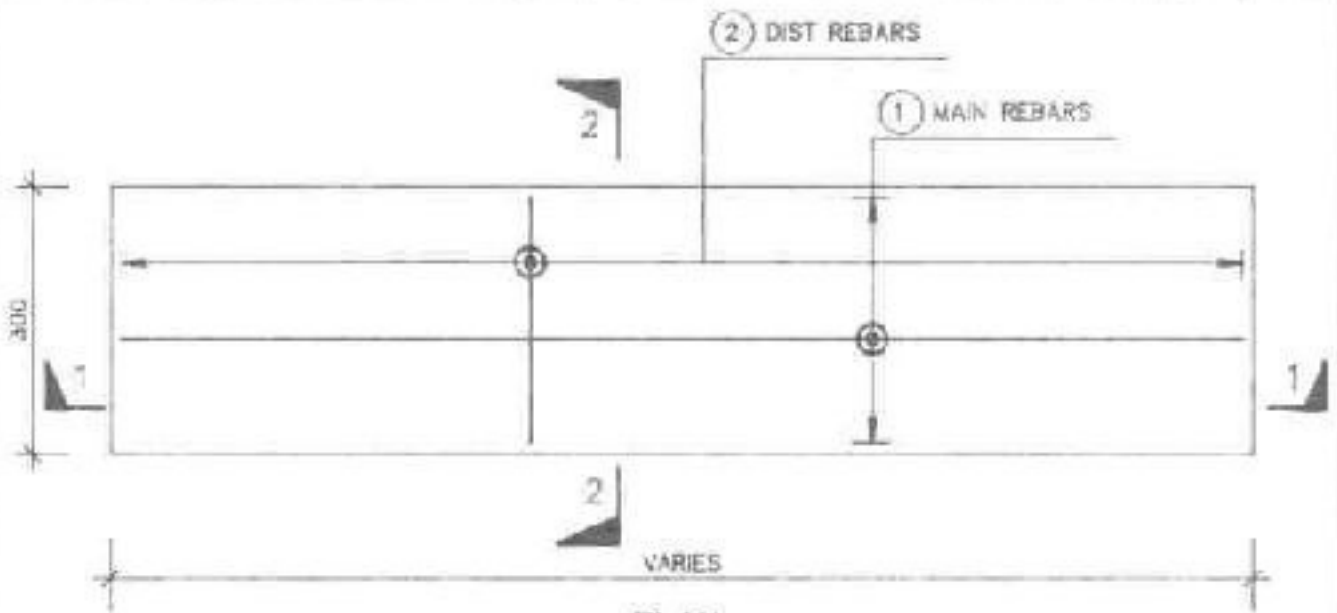


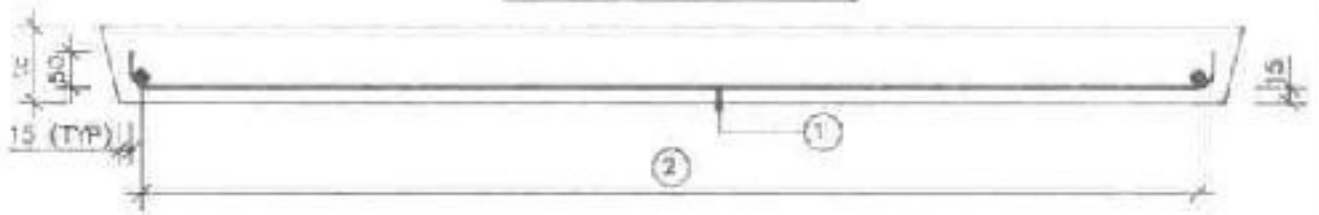
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF JHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

CIVIL ENGINEERING

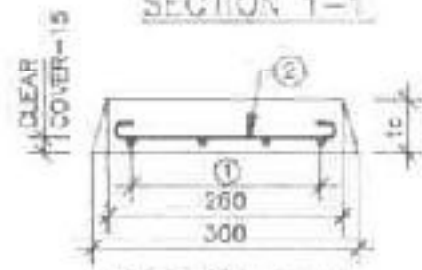
NO	DATE	REVISION	DRN	CHD	APPD
0	05.08.83	ISSUED AS STANDARD			



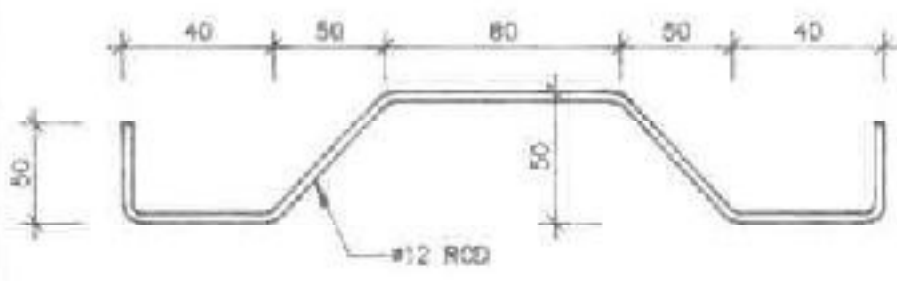
PLAN
(STANDARD PRECAST COVER)



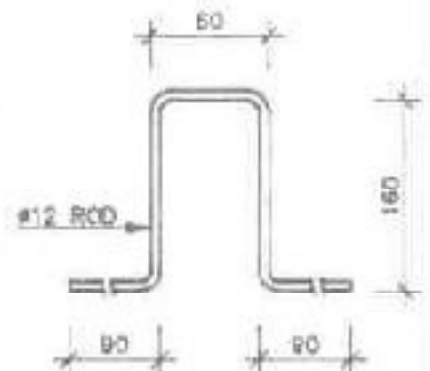
SECTION 1-1



SECTION 2-2



HOOK TYPE 'A'
(REF. SHT. 2)



HOOK TYPE 'B'
(REF. SHT. 2)

FILE NAME : 448S3 SHT. 3 OF 17



PROJECT ENGINEERING
BHEL HYDERABAD

CABLE TRENCH

DRAWING NO. REV
4-38144-00046 00

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.83	ISSUED AS STANDARD			

TABLE - 1
DETAIL OF STANDARD PRECAST COVERS

SING. TYPE	WORKING DIMENSIONS			DESIGN LOAD ON EACH COVER		FOR ONE UNIT OF WIDTH 300mm						
	CLEAR WIDTH OF TRENCH (mm)	b ₁ (mm)	TOTAL THICKNESS OF COVER (mm)	TOTAL UDL (kga)	EQUIV. CONCENTR. LOAD AT CENTRE OF SPAN (kga)	REINFORCEMENT DETAILS AS/ IS: 1786		APPROX. QUANTITIES		SELF WEIGHT (kgs)		
						BAR MKSD (1)	BAR MKSD (2)	CONCRETE M ³	REIN. (kgs)			
1 PC-1	300	50	450	80	M-20	≤ 2000	≤ 1000	3-8 #	3-8 #	0.010	0.94	24
2 PC-2	500	50	600	80	M-20	≤ 2000	≤ 1000	3-8 #	3-8 #	0.014	1.16	36
3 PC-3A	750	50	850	80	M-20	≤ 1500	≤ 750	3-8 #	4-8 #	0.020	1.62	51
4 PC-3B				80	M-20	> 1500 ≤ 2000	> 750 ≤ 1000	4-8 #	4-8 #	0.020	1.96	51
5 PC-4A	1000	50	1100	80	M-20	≤ 1500	≤ 750	4-8 #	5-8 #	0.028	2.57	66
6 PC-4B				100	M-20	> 1500 ≤ 2000	> 750 ≤ 1000	4-8 #	5-8 #	0.033	2.57	83
7 PC-5A	1250	50	1350	100	M-20	≤ 1500	≤ 750	4-8 #	5-8 #	0.040	2.98	101
8 PC-5B				100	M-20	> 1500 ≤ 2000	> 750 ≤ 1000	4-10 #	5-8 #	0.040	4.22	101
9 PC-6A	1500	75	1650	100	M-20	≤ 1500	≤ 750	3-10 #	6-8 #	0.050	3.96	124
10 PC-6B				110	M-20	> 1500 ≤ 2000	> 750 ≤ 1000	4-10 #	6-8 #	0.054	4.88	136
11 PC-7A	2000	75	2150	110	M-20	≤ 1500	≤ 750	4-10 #	7-8 #	0.071	6.36	177
12 PC-7B				120	M-20	> 1500 ≤ 2000	> 750 ≤ 1000	4-12 #	7-8 #	0.077	8.67	194

NOTES :

- FOR LOCATION OF BARS MKSD. 1 AND 2 REFER SHT. 3 OF 17.
- ALL PRECAST COVERS SHALL BE MARKED (T) ON THE TOP FOR PROPER PLACEMENT.
- THE QUANTITIES GIVEN ON THIS TABLE ARE FOR ESTIMATION PURPOSE ONLY.
- DESIGN S FOR EITHER TOTAL UDL OR EQV. POINT LOAD.



PROJECT ENGINEERING
BHEL HYDERABAD

CABLE TRENCH

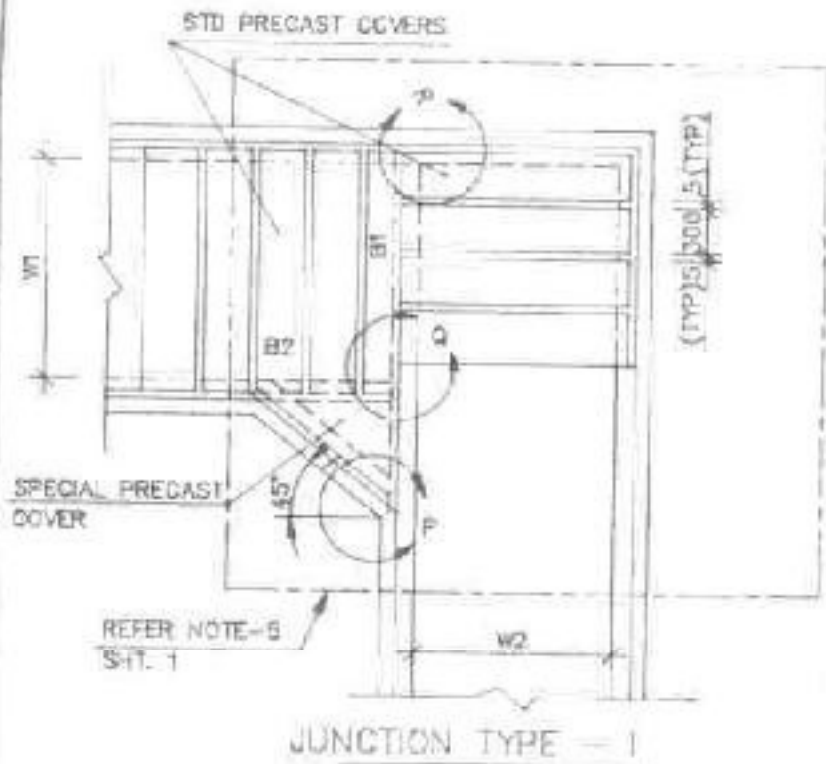
FILE NAME : 446S4 SHT. 4 OF 17

DRAWING NO.	REV
4-38144-00046	00

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

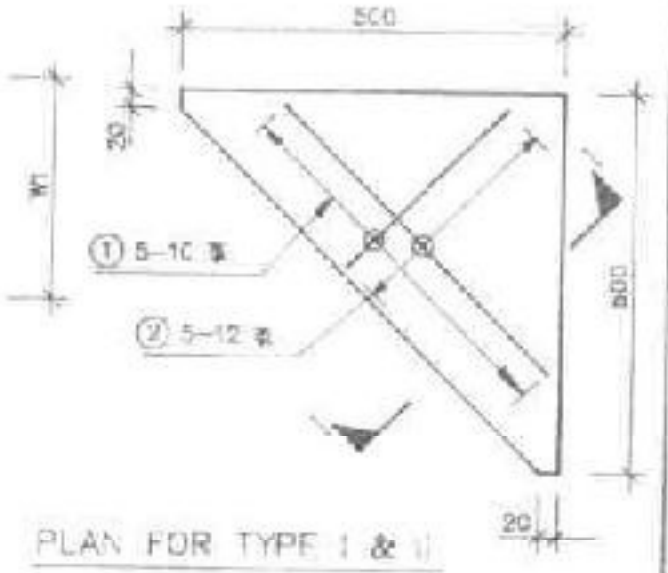
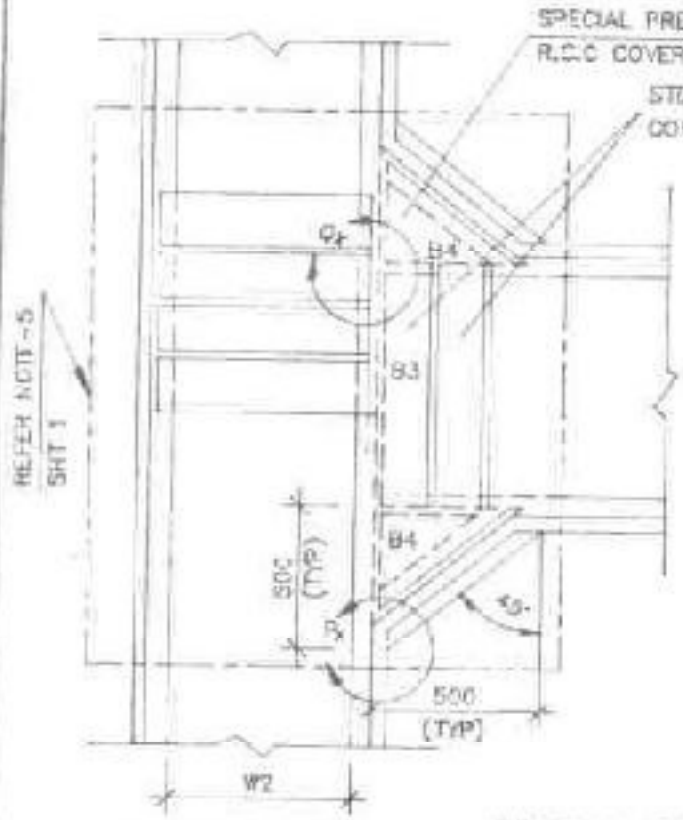
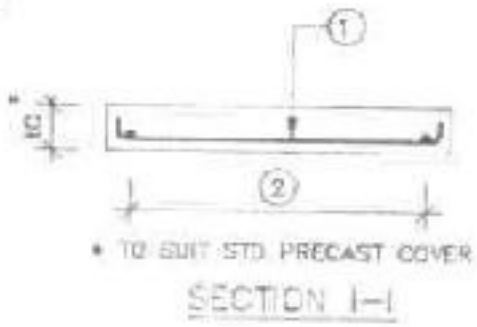
CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.83	ISSUED AS STANDARD			



NOTES :

1. FOR DETAILS P.Q. & R REFER SHT 6 OF 17
2. FOR DETAIL OF BEAMS B1 TO B4 REFER TABLE 2



SPECIAL PRECAST COVERS

FILE NAME : 44855 SHT. 5 OF 17



PROJECT ENGINEERING
BHEL HYDERABAD

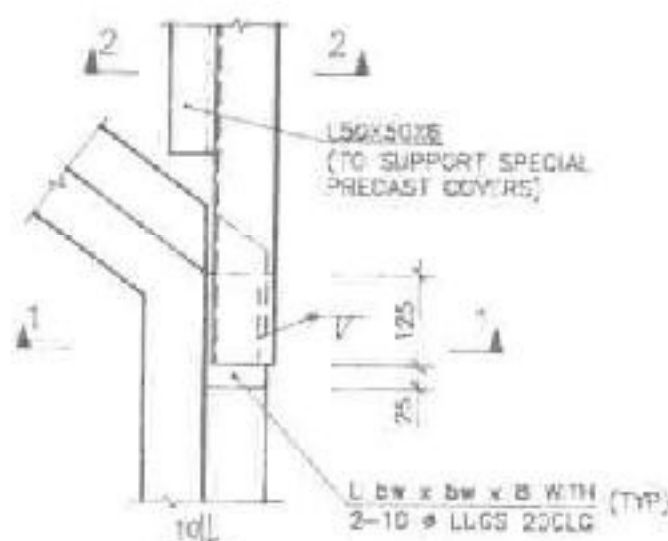
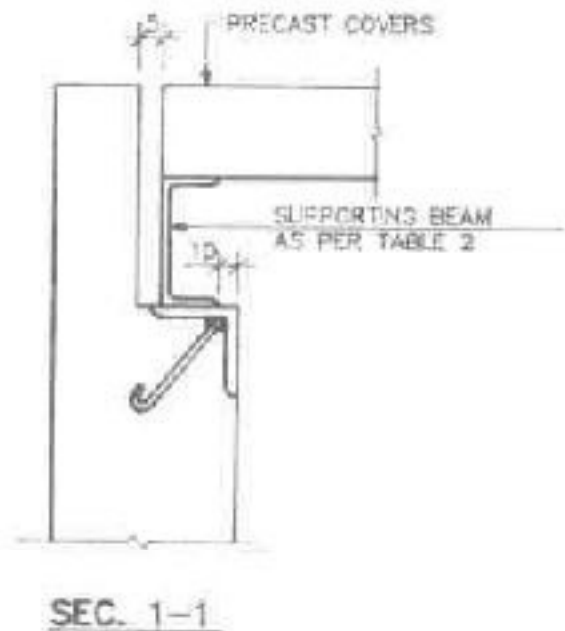
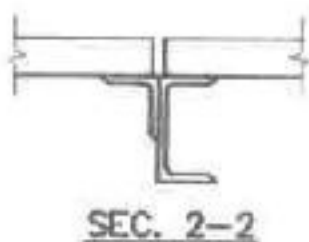
CABLE TRENCH

DRAWING NO.	REV
4-38144-00046	00

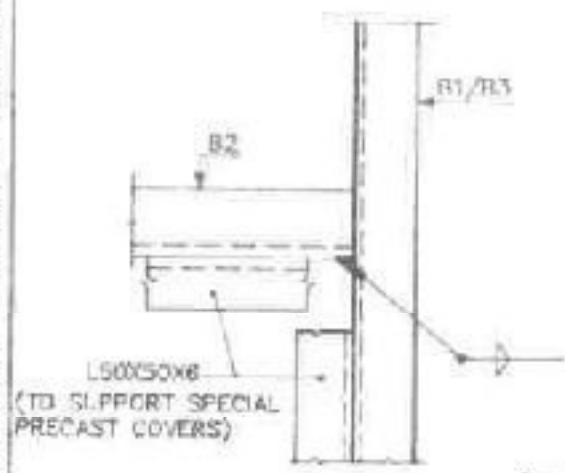
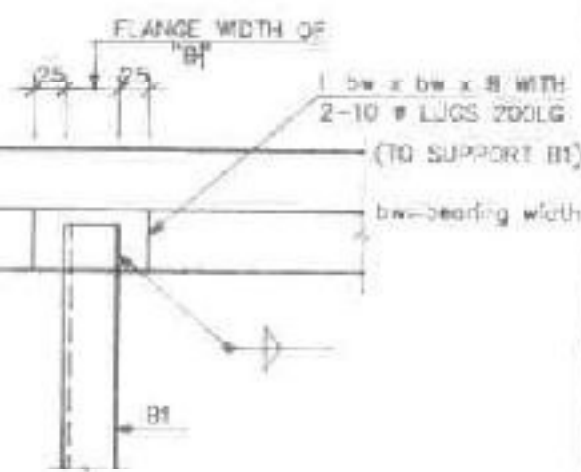
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
 IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETERMINANT TO THE INTEREST OF THE COMPANY

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.06.99	ISSUED AS STANDARD			



DETAIL 'Px' - MIRROR IMAGE



DETAIL 'Qx' - MIRROR IMAGE

(FOR LOCATION OF DET. P, Q & R REF. SHEET 5)
SUPPORTING MEMBERS

FILE NAME : 44656 SHEET 6 OF 17



**PROJECT ENGINEERING
 BHEL HYDERABAD**

CABLE TRENCH

DRAWING NO.	REV
4-38144-00048	00

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.06.83	ISSUED AS STANDARD			

DETAIL OF SUPPORTING MEMBERS AT JUNCTIONS

TABLE - 2

S NO	WIDTH OF MAIN TRENCH (M)	JUNCTION TYPE - 1				JUNCTION TYPE - 1				REMARKS	
		SUPPORTING MEMBER B1		SUPPORTING MEMBER B2		SUPPORTING MEMBER B3		SUPPORTING MEMBER B4			
		SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH		
1.	300	MC 100	1020	MC 100	825	MC 100	1650	MC 100	625	625	
2.	500	MC 100	1220	MC 100	825	MC 125	1850	MC 100	625	625	
3.	750	MC 100	1470	MC 100	825	MC 125	2100	MC 100	625	625	
4.	1000	MC 100	1720	MC 100	825	MC 125	2350	MC 100	625	625	
5.	1250	MC 100	1970	MC 100	825	MC 150	2600	MC 100	625	625	
6.	1500	MC 125	2270	MC 100	825	MC 150	2800	MC 100	625	625	
7.	2000	MC 125	2270	MC 100	825	MC 200	3400	MC 100	625	625	

NOTE : THE SUPPORTING MEMBERS ARE DESIGNED FOR COVER WT. PLUS A POINT LOAD OF 1000 kg. AT MID SPAN.

FILE NAME : 448S7 SH-T. 7 OF 17



PROJECT ENGINEERING
BHEL HYDERABAD

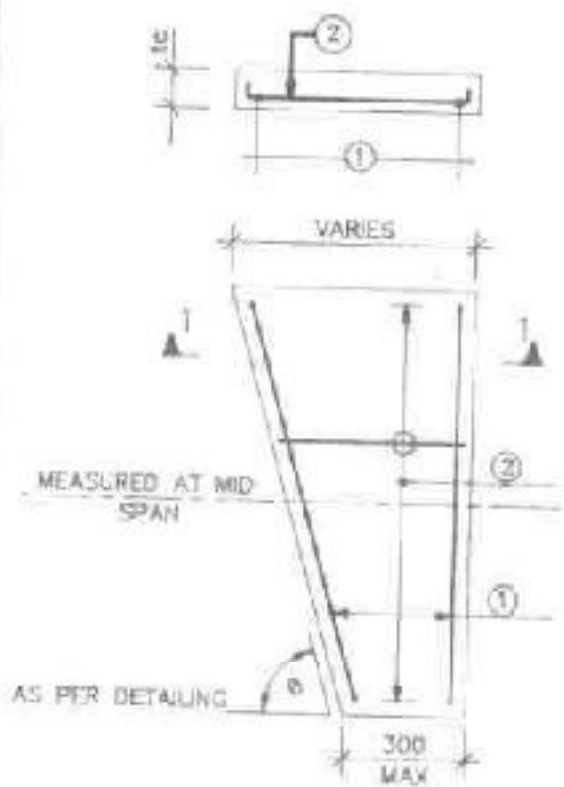
CABLE TRENCH

DRAWING NO.	REV
4-38144-00048	00

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.93	ISSUED AS STANDARD			

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



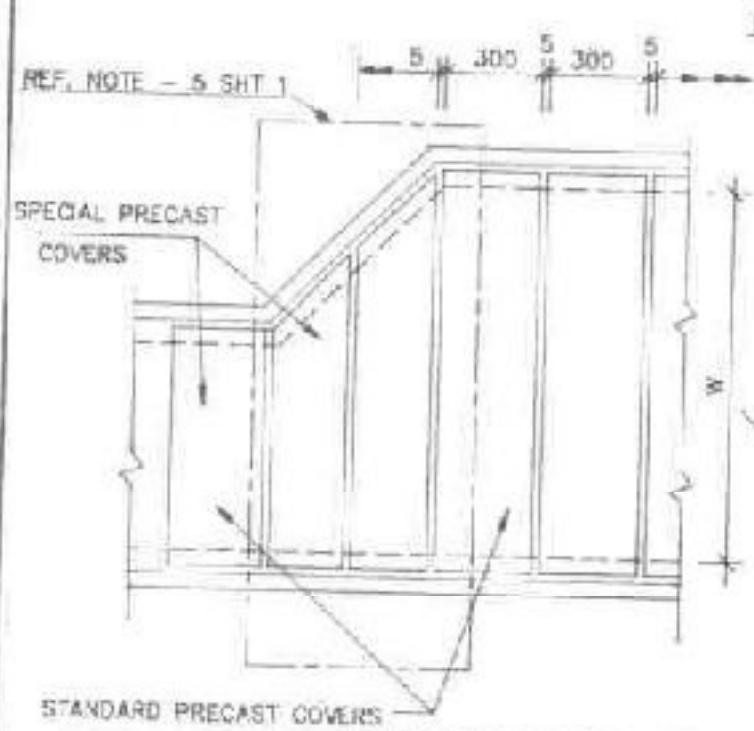
PLAN OF SPECIAL COVER
(FOR TYPE-III & IV)

TABLE - 3

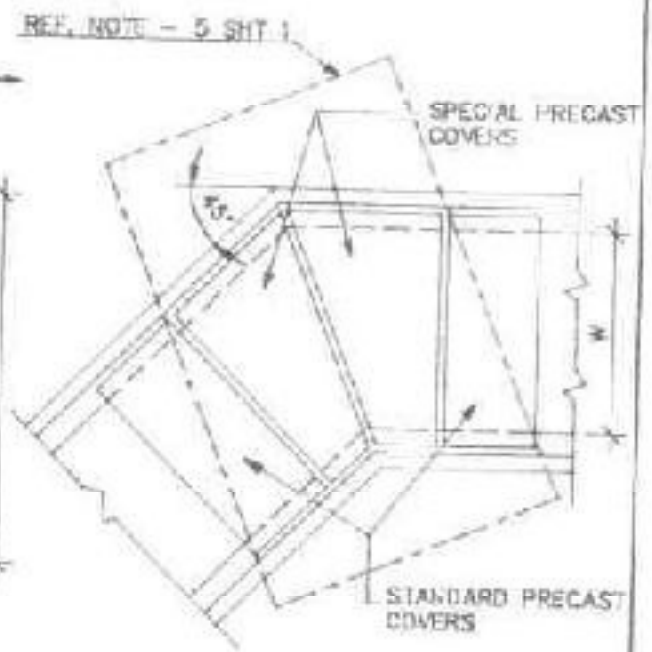
SPAN W(mm)	BAR MARK ①	BAR MARK ②	REMARKS
300	8 Φ 100 c/c	3-8 Φ	
500	8 Φ 100 c/c	3-8 Φ	
750	8 Φ 100 c/c	4-8 Φ	
1000	8 Φ 75 c/c	5-8 Φ	
1250	10 Φ 75 c/c	5-8 Φ	
1500	10 Φ 75 c/c	6-8 Φ	
2000	12 Φ 75 c/c	7-8 Φ	

NOTE :

FOR THICKNESS t_c - REFER TABLE - 1



JUNCTION TYPE - III



JUNCTION TYPE - IV

FILE NAME : 44608 | S-T. B 04 17



PROJECT ENGINEERING
BHEL HYDERABAD

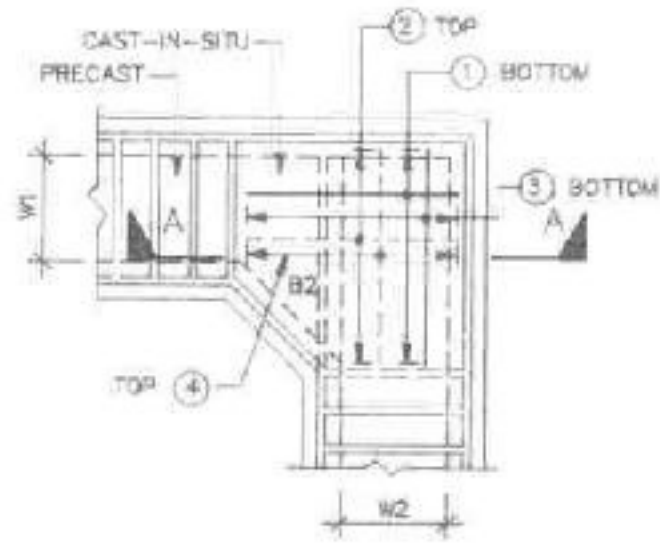
CABLE TRENCH

DRAWING NO.	REV
4-36144-00046	00

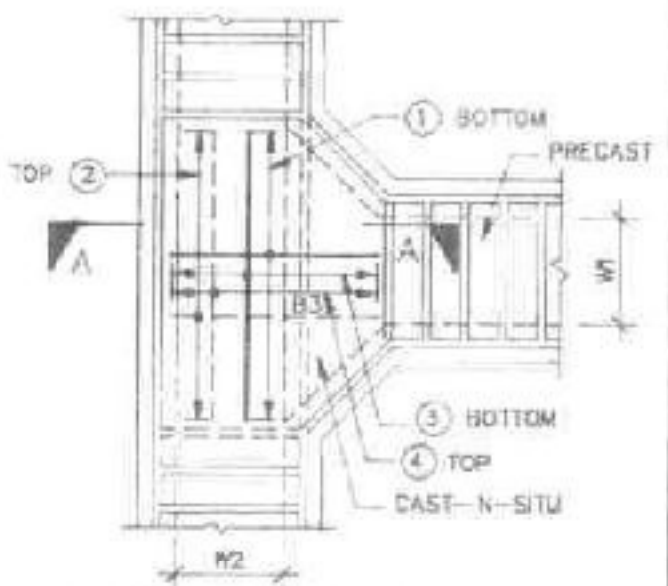
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF JHARAT HEAVY ELECTRICALS LIMITED IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

CIVIL ENGINEERING

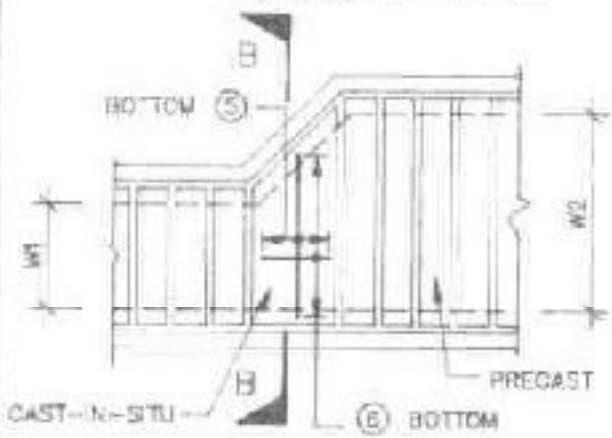
NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.93	ISSUED AS STANDARD			



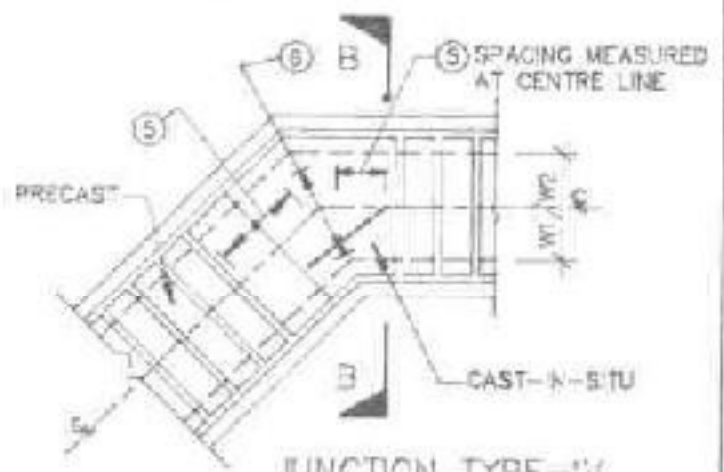
JUNCTION TYPE-I



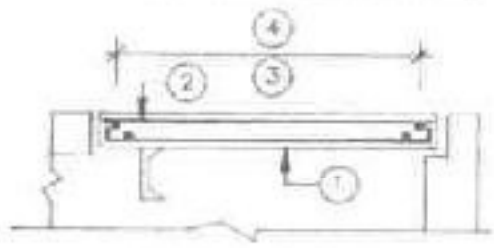
JUNCTION TYPE-II



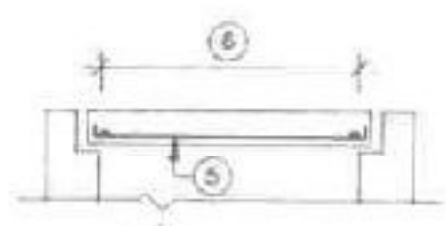
JUNCTION TYPE-III



JUNCTION TYPE-IV



SECTION A-A



SECTION B-B

DETAILS OF CAST-IN-SITU COVERS

FILE NAME : 44659 SH. 9 OF 17



PROJECT ENGINEERING
BHEL HYDERABAD

CABLE TRENCH

DRAWING NO.	REV
4-38144-00048	00

23

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.89	ISSUED AS STANDARD			


TABLE - 4

S.No	W2 (mm)	tc (mm)	REINFORCEMENT DETAIL FOR CAST-IN-SITU COVERS						REMARKS
			JUNCTION TYPE I & II				JUNCTION TYPE III & IV		
			BAR MARK ①	BAR MARK ②	BAR MARK ③	BAR MARK ④	BAR MARK ⑤	BAR MARK ⑥	
1	300	80	8 ϕ 120c/c	—	8 ϕ 150c/c	—	8 ϕ 150c/c	8 ϕ 200c/c	
2	500	90	8 ϕ 120c/c	—	8 ϕ 150c/c	—	8 ϕ 150c/c	8 ϕ 200c/c	
3	750	80	8 ϕ 120c/c	8 ϕ 200c/c	8 ϕ 200c/c	8 ϕ 200c/c	8 ϕ 150c/c	8 ϕ 200c/c	
4	1000	100	8 ϕ 120c/c	8 ϕ 200c/c	8 ϕ 300c/c	8 ϕ 300c/c	8 ϕ 150c/c	8 ϕ 300c/c	
5	*250	100	10 ϕ 120c/c	8 ϕ 200c/c	8 ϕ 300c/c	8 ϕ 300c/c	10 ϕ 150c/c	8 ϕ 300c/c	
6	1500	110	10 ϕ 120c/c	8 ϕ 200c/c	8 ϕ 300c/c	8 ϕ 300c/c	10 ϕ 150c/c	8 ϕ 300c/c	
7	2000	120	12 ϕ 120c/c	8 ϕ 200c/c	8 ϕ 300c/c	8 ϕ 300c/c	12 ϕ 150c/c	8 ϕ 300c/c	

NOTES :

1. THE CAST-IN-SITU COVERS ARE DESIGNED FOR TOTAL UDL OF 2000 kg OR AN EQUIVALENT POINT LOAD OF 1000 kg ACTING AT MID SPAN.
2. FOR CONNECTION DETAIL AND SIZES OF B1 & B3 REFER SHT. 6 & 7.
3. REINFORCEMENT BARS SHALL BE AS PER IS:1785
4. GRADE OF CONG. SHALL BE M-20 AS PER IS:456.
5. FOR LOCATION OF BAR MARKS ① TO ⑥ REF. SHT. 9 OF 17.

FILE NAME : 446910 / SHT. 10 OF 17

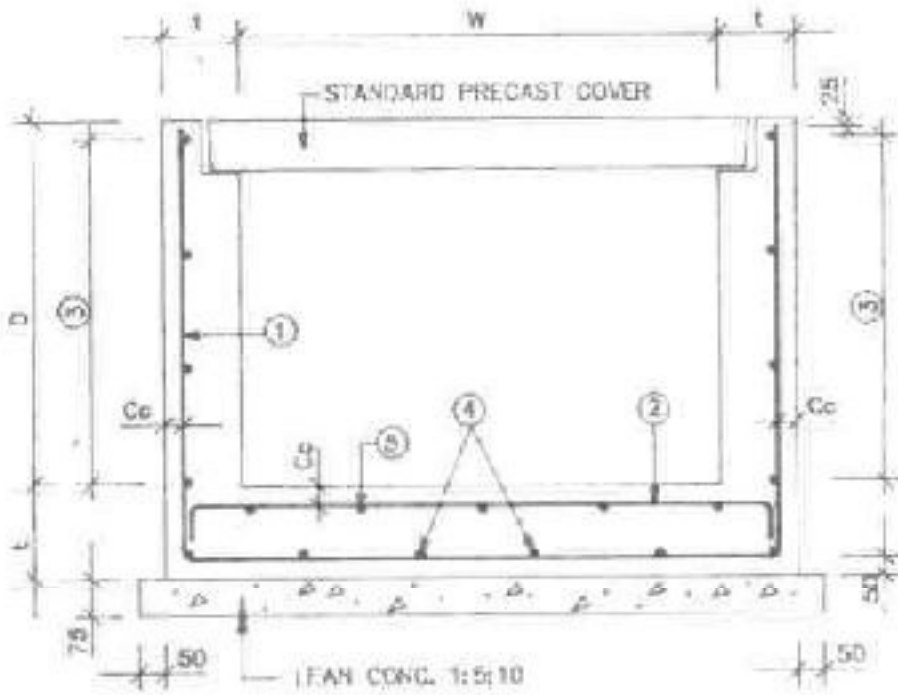
	PROJECT ENGINEERING BHEL HYDERABAD	CABLE TRENCH	DRAWING NO.	REV
			4-38144-00046	00

23

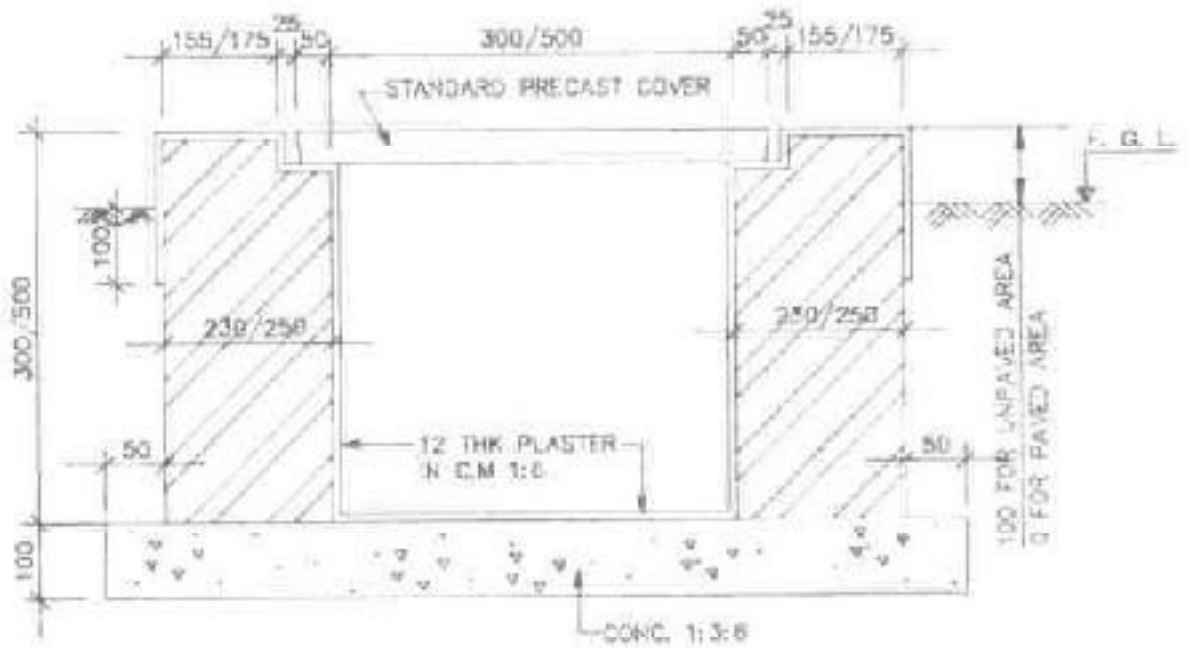
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.95	ISSUED AS STANDARD			



CABLE TRENCH SECTION WITH RCC



CABLE TRENCH SECTION WITH BRICK MASONRY

(N.C.M. 1:2)

FILE NAME : 448911 SHT. 11 OF 12



**PROJECT ENGINEERING
BHEL HYDERABAD**

CABLE TRENCH

DRAWING NO. REV

4-38144-00046 00

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.93	ISSUED AS STANDARD			

TABLE - 5 **DETAIL OF CABLE TRENCH REINFORCEMENT**
CASE A : WATER TABLE UPTO 300mm BELOW F.F.L

S.NO	WORKING DIMENSIONS			CLEAR COVER (mm)	REINFORCEMENT DETAIL (AS PER IS : 1786)						QUANTITIES FOR 1 M. LENGTH (APPROXIMATE)		
	DEPTH (mm)	WIDTH (mm)	THICKNESS (mm)		BAR MARK (REF. SHT. 11 OF 17)						LEAN CONCR. M-15 M ³	CONC. REBARS kg/s	SHUTTING M ²
					1	2	3	4	5				
1		2000	200	25	10 ϕ 200 c/c	10 ϕ 175 c/c	8 ϕ 200 c/c	8 ϕ 300 c/c	8 ϕ 300 c/c	0.19	1.02	43.0	5.4
2	1500	1500	200	25	10 ϕ 200 c/c	10 ϕ 300 c/c	8 ϕ 200 c/c	*	*	0.15	0.98	35.0	6.4
3		1250	200	25	10 ϕ 200 c/c	8 ϕ 200 c/c	8 ϕ 200 c/c	*	*	0.13	0.93	33.0	6.4
4		1000	200	25	10 ϕ 200 c/c	8 ϕ 200 c/c	8 ϕ 200 c/c	*	*	0.11	0.88	30.0	6.4
5		2000	150	25	10 ϕ 150 c/c	12 ϕ 150 c/c	8 ϕ 250 c/c	*	*	0.10	0.72	52.0	5.3
6	1250	1500	150	25	10 ϕ 150 c/c	12 ϕ 150 c/c	8 ϕ 150 c/c	*	*	0.14	0.85	45.0	5.3
7		1250	150	25	10 ϕ 150 c/c	10 ϕ 150 c/c	8 ϕ 250 c/c	*	*	0.12	0.81	38.0	5.3
8		1000	150	25	10 ϕ 150 c/c	10 ϕ 200 c/c	8 ϕ 250 c/c	*	*	0.11	0.57	34.0	5.3
9		2000	150	25	10 ϕ 200 c/c	10 ϕ 150 c/c	8 ϕ 250 c/c	*	*	0.18	0.85	43.0	4.3
10	1000	1500	125	25	10 ϕ 200 c/c	17 ϕ 150 c/c	8 ϕ 300 c/c	*	*	0.14	0.47	35.0	4.25
11		1250	100	25	10 ϕ 150 c/c	8 ϕ 150 c/c	8 ϕ 300 c/c	*	*	0.12	0.35	30.0	4.2
12		1000	100	25	10 ϕ 150 c/c	8 ϕ 200 c/c	8 ϕ 300 c/c	*	*	0.10	0.32	27.0	4.2
13	750	750	100	25	8 ϕ 200 c/c	8 ϕ 150 c/c	8 ϕ 300 c/c	*	*	0.08	0.25	18.0	3.2
14	500	500											
15	300	300											
16	300	300											

IN BRICK MASONRY WHEREVER SPECIFIED

NOTES :

- R.C.C CABLE TRENCHES ARE DESIGNED FOR A SURCHARGE LOAD OF 1 T/M²
- THE QUANTITIES GIVEN ON THIS TABLE ARE FOR ESTIMATION PURPOSE ONLY
- PREFERABLY THE DEPTH OF CABLE TRENCH SHALL NOT BE MORE THAN THE WIDTH

FILE NAME : 446512 SH. 12 OF 17



PROJECT ENGINEERING
BHEL HYDERABAD

CABLE TRENCH

DRAWING NO.	REV
4-38144-00046	00

(5)

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DEDUCTIBLE TO THE INTEREST OF THE COMPANY

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.93	ISSUED AS STANDARD			

TABLE - 6
CASE B : WATER TABLE BELOW TRENCH BOTTOM
DETAIL OF CABLE TRENCH REINFORCEMENT

S.NO	WORKING DIMENSIONS			CLEAR COVER (c) (mm)	REINFORCEMENT DETAIL (AS PER IS : 1786)					QUANTITIES FOR 1 M LENGTH (APPROXIMATE)			
	DEPTH (D) (mm)	WIDTH (W) (mm)	THICKNESS (T) (mm)		BAR MARK (REF. SHT. 1) OF 17)					LEAN CONC. (1:1.5:10) (M ³)	CONC. REINFORCEMENT (kg)		
					1	2	3	4	5				
1		2000	150	25	12 Φ 200 c/c	12 Φ 175 c/c	8 Φ 250 c/c	8 Φ 300 c/c	8 Φ 300 c/c	0.18	0.80	56.0	6.3
2	1500	1500	150	25	12 Φ 200 c/c	10 Φ 175 c/c	8 Φ 250 c/c	*	*	0.143	0.72	44.0	6.3
3		1250	150	25	12 Φ 200 c/c	8 Φ 175 c/c	8 Φ 250 c/c	*	*	0.124	0.68	46.0	6.3
4		1000	150	25	12 Φ 200 c/c	8 Φ 260 c/c	8 Φ 250 c/c	*	*	0.105	0.65	36.0	6.3
5		2000	150	25	10 Φ 170 c/c	12 Φ 130 c/c	8 Φ 250 c/c	*	*	0.180	0.72	49.0	5.3
6	1250	1500	125	25	10 Φ 150 c/c	12 Φ 150 c/c	8 Φ 300 c/c	*	*	0.139	0.50	43.0	5.25
7		1250	125	25	10 Φ 180 c/c	10 Φ 150 c/c	8 Φ 300 c/c	*	*	0.12	0.50	37.0	5.25
8		1000	125	25	10 Φ 150 c/c	10 Φ 150 c/c	8 Φ 300 c/c	*	*	0.101	0.47	32.0	5.25
9		2000	150	25	10 Φ 200 c/c	12 Φ 150 c/c	8 Φ 250 c/c	*	*	0.180	0.65	48.0	4.3
10	1000	1500	125	25	10 Φ 200 c/c	12 Φ 150 c/c	8 Φ 300 c/c	*	*	0.139	0.47	36.0	4.25
11		1250	100	25	10 Φ 150 c/c	8 Φ 150 c/c	8 Φ 300 c/c	*	*	0.116	0.36	29.0	4.2
12		1000	100	25	10 Φ 150 c/c	8 Φ 200 c/c	8 Φ 300 c/c	*	*	0.098	0.32	25.0	4.2
13	750	750	100	25	8 Φ 200 c/c	10 Φ 150 c/c	8 Φ 300 c/c	*	*	0.079	0.25	18.0	3.2
14	500	500											
15	300	300											
16	300	300											

IN BRICK MASONRY WHEREVER SPECIFIED

NOTES :

- R.C.C CABLE TRENCHES ARE DESIGNED FOR A SURCHARGE LOAD OF 1 T/M²
- THE QUANTITIES GIVEN ON THIS TABLE ARE FOR ESTIMATION PURPOSE ONLY
- PREFERABLY THE DEPTH OF CABLE TRENCH SHALL NOT BE MORE THAN THE WIDTH

FILE NAME : 448913 | SHT. 13 OF 17



PROJECT ENGINEERING
BHEL HYDERABAD

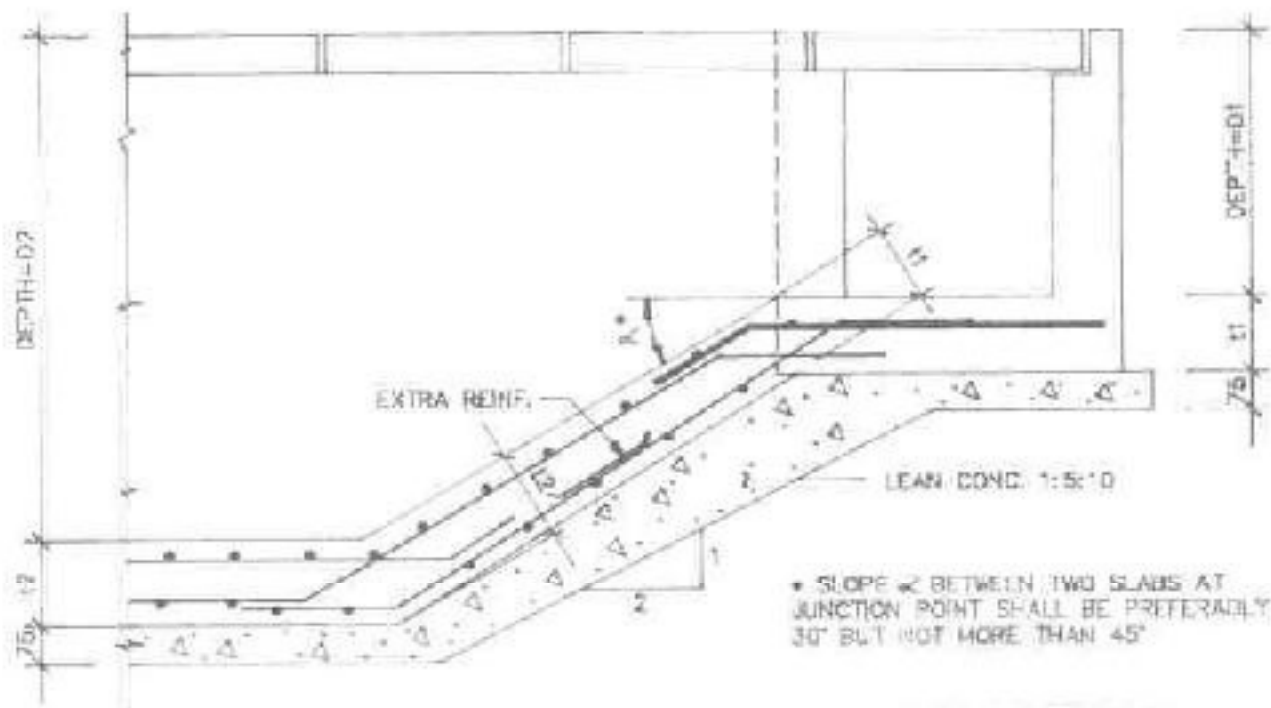
CABLE TRENCH

DRAWING NO. RRV
4-38144-00043 00

(2)

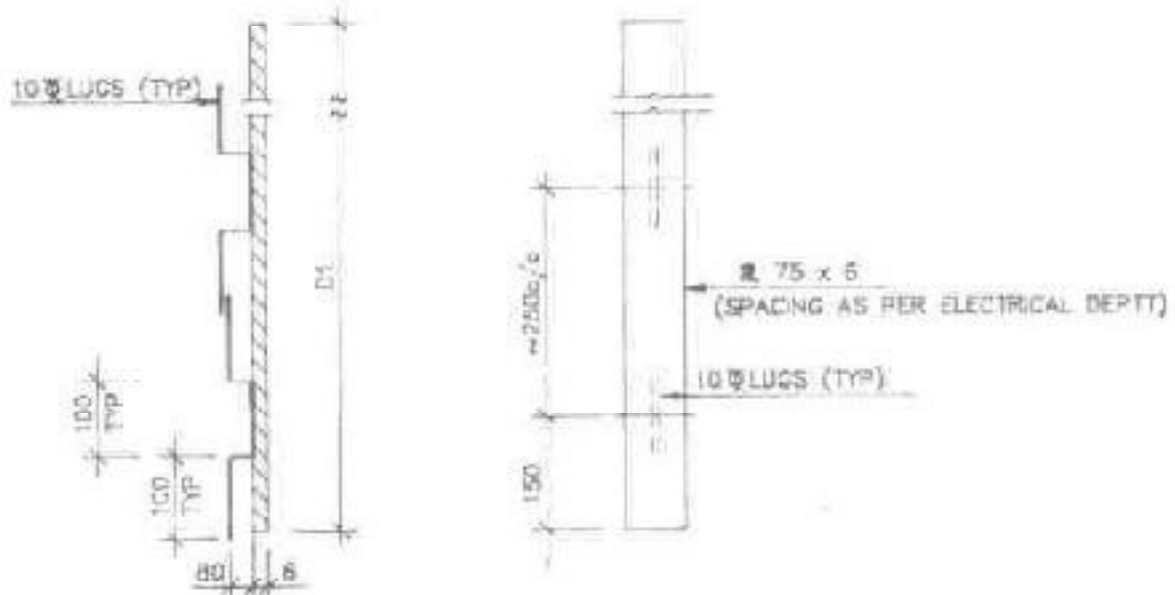
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

CIVIL ENGINEERING	NO	DATE	REVISION	DRN	CHKD	APPD
	0	03.08.88	ISSUED AS STANDARD			



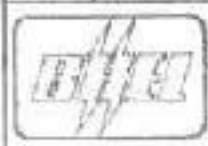
TYPICAL DETAIL AT JUNCTION FOR DIFFERENT DEPTHS OF TRENCH

R/T DETAIL OF TRENCH IN SLOPE SHALL BE BASED ON DEPTH D2



TYPICAL DETAIL OF INSERT PLATE

FILE NAME : 446514 SET. 14 OF 17

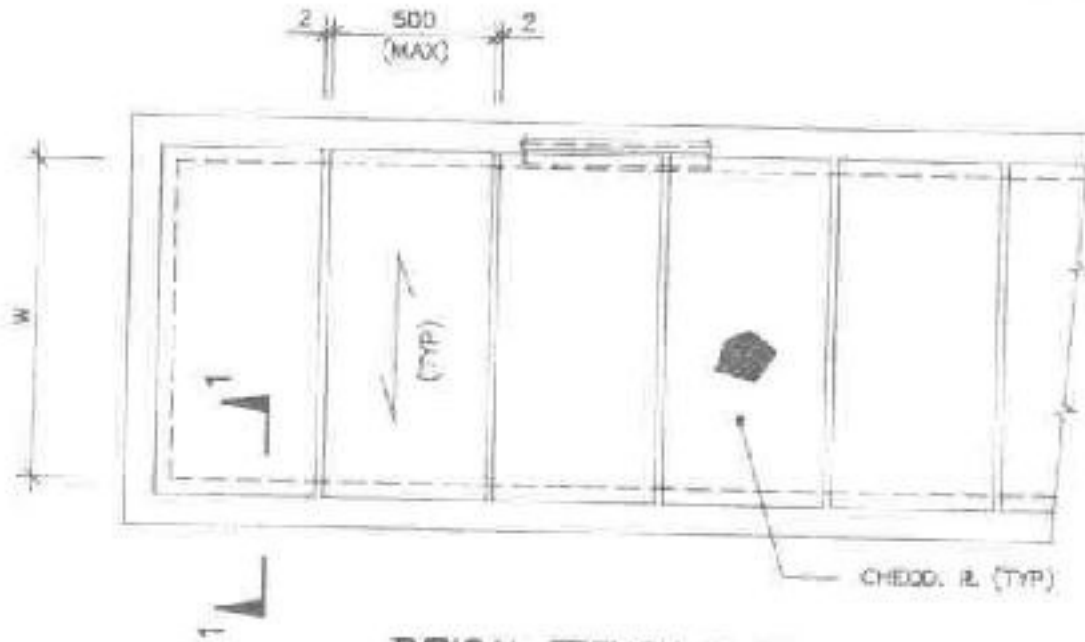


PROJECT ENGINEERING BHEL HYDERABAD	CABLE TRENCH	DRAWING NO.	REV
		4-38144-00046	00

23

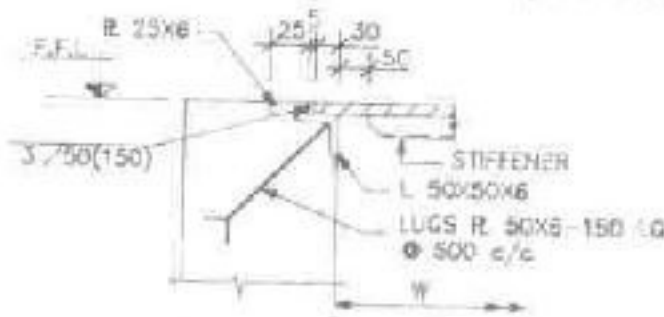
CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	08.08.99	ISSUED AS STANDARD			

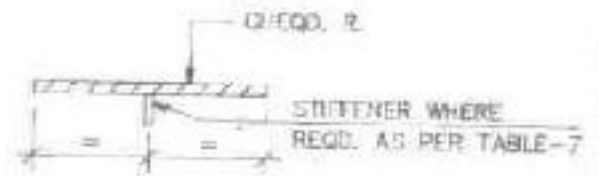


TYPICAL TRENCH PLAN

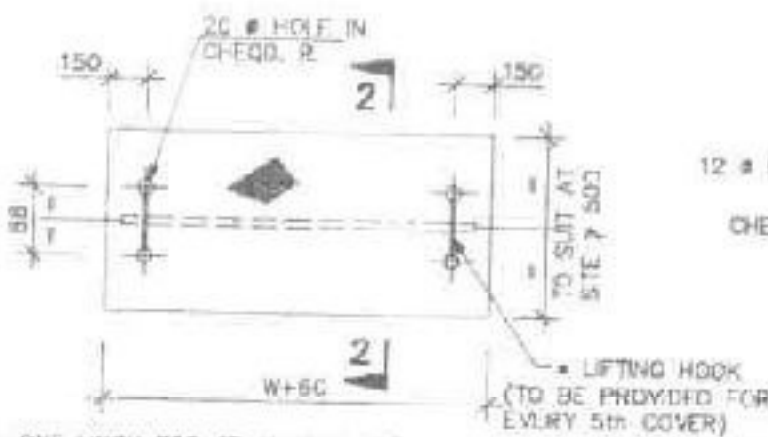
(SHOWING CHEQD. R.)



SEC. 1-1

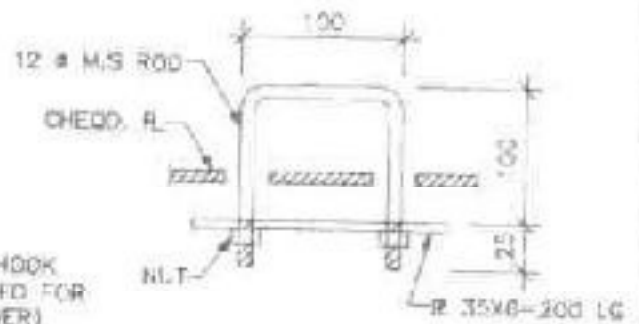


SEC. 2-2



- ONE HOOK FOR SPAN UP TO 500
- TWO HOOKS FOR SPAN ABOVE 500

TYP. CHEQD. PLATE DETAIL



TYP. LIFTING HOOK DETAIL

FILE NAME : 446510 SHT. 15 OF 17

PROJECT ENGINEERING
BHIL HYDERABAD

CABLE TRENCH

DRAWING NO.

REV

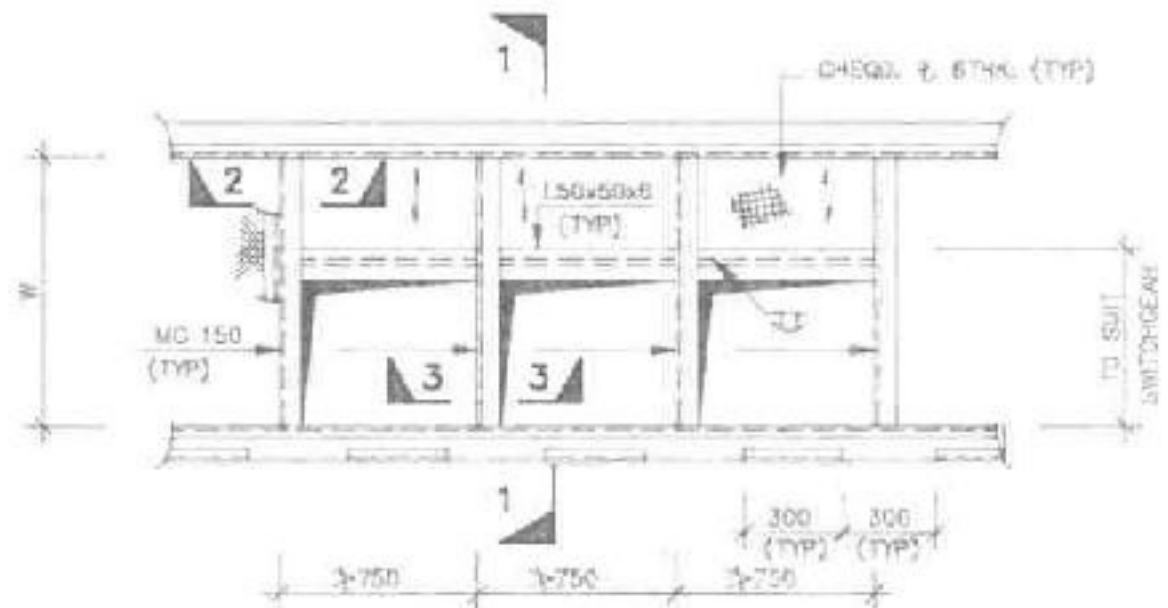
4-38144-00046 00

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY CONTRARY TO THE INTEREST OF THE COMPANY.

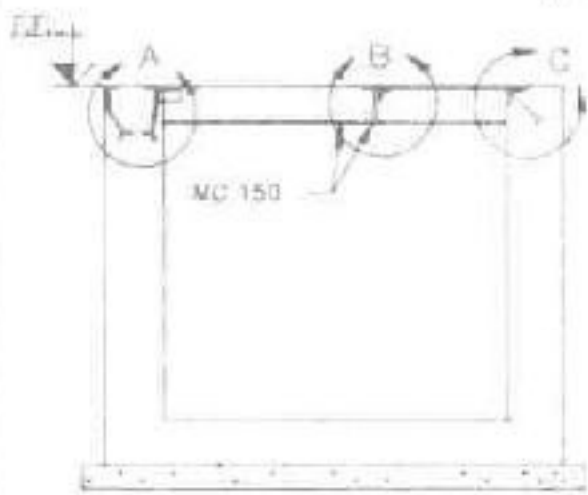
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

CIVIL ENGINEERING

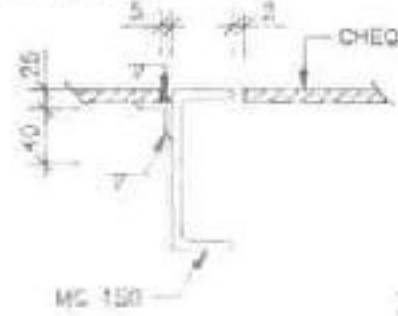
NO	DATE	REVISION	DRN	CHD	APPD
D	03.08.83	ISSUED AS STANDARD			



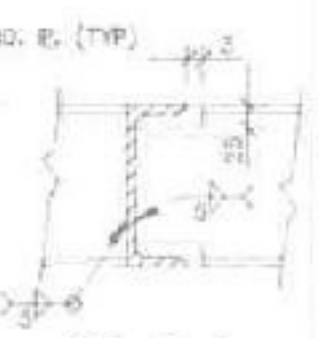
TYPICAL TRENCH PLAN
(AT SWITCH GEARS)



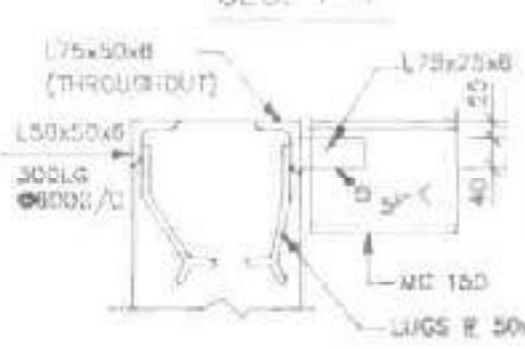
SEC. 1-1



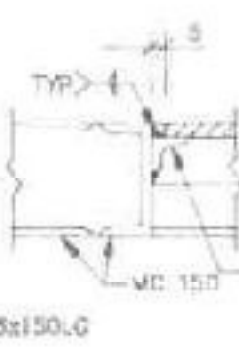
SEC. 2-2



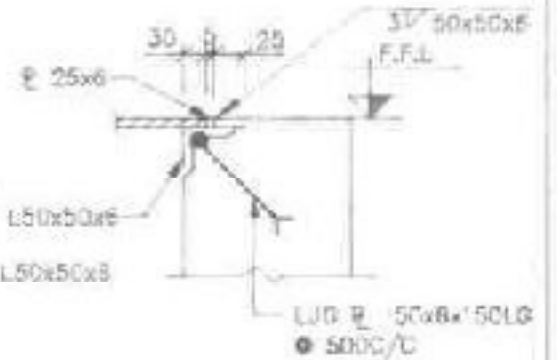
SEC. 3-3



DETAIL A



DETAIL B



DETAIL C

FILE NAME : 448516 SHI. 16 OF 17



PROJECT ENGINEERING
BHEL HYDERABAD

CABLE TRENCH

DRAWING NO.	REV
4-38144-00046	00

3-2

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	03.08.95	ISSUED AS STANDARD			

DETAIL OF CHEQUERED PLATE COVER

TABLE - 7

S.NO	TYPE	SECTION	SECTION PROPERTIES FOR 500mm WIDE PLATE			RECOMMENDED SPAN (W) mm
			Wt. kg/m	$I = \text{cm}^4$	$Z \text{ cm}^3 = \text{cm}^3$	
1	I	500 MAX (TYP)	23.55	3.80	3.75	$W < 500$
2	II	ISA 35x35x8	26.55	30.30	6.90	$500 < W < 1250$
3	II	FLAT 50x8	26.75	36.88	7.42	
4	IV	FLAT 50x10	27.45	44.90	8.16	
5	V	ISA 40x40x8	27.05	44.58	11.42	$1250 < W < 1500$
6	V	FLAT 65x8	27.55	76.40	12.56	
7	VI	FLAT 65x10	28.82	91.00	14.26	
8	VII	ISA 50x50x6	28.05	84.59	18.03	$1500 < W < 2000$
9	IX	FLAT 75x10	29.45	134.47	19.23	
10	X	FLAT 80x10	29.79	160.30	21.68	

NOTE :-

THE DESIGN IS BASED ON A LIVE LOAD OF 500 Kg/M^2 AND
 MAXIMUM ALLOWABLE DEFLECTION = $\frac{W}{200}$ (W=SPAN)

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY CRITICAL TO THE INTEREST OF THE COMPANY.

FILE NAME : 445517 SHT 17 OF 17



PROJECT ENGINEERING
 BHEL HYDERABAD

CABLE TRENCH

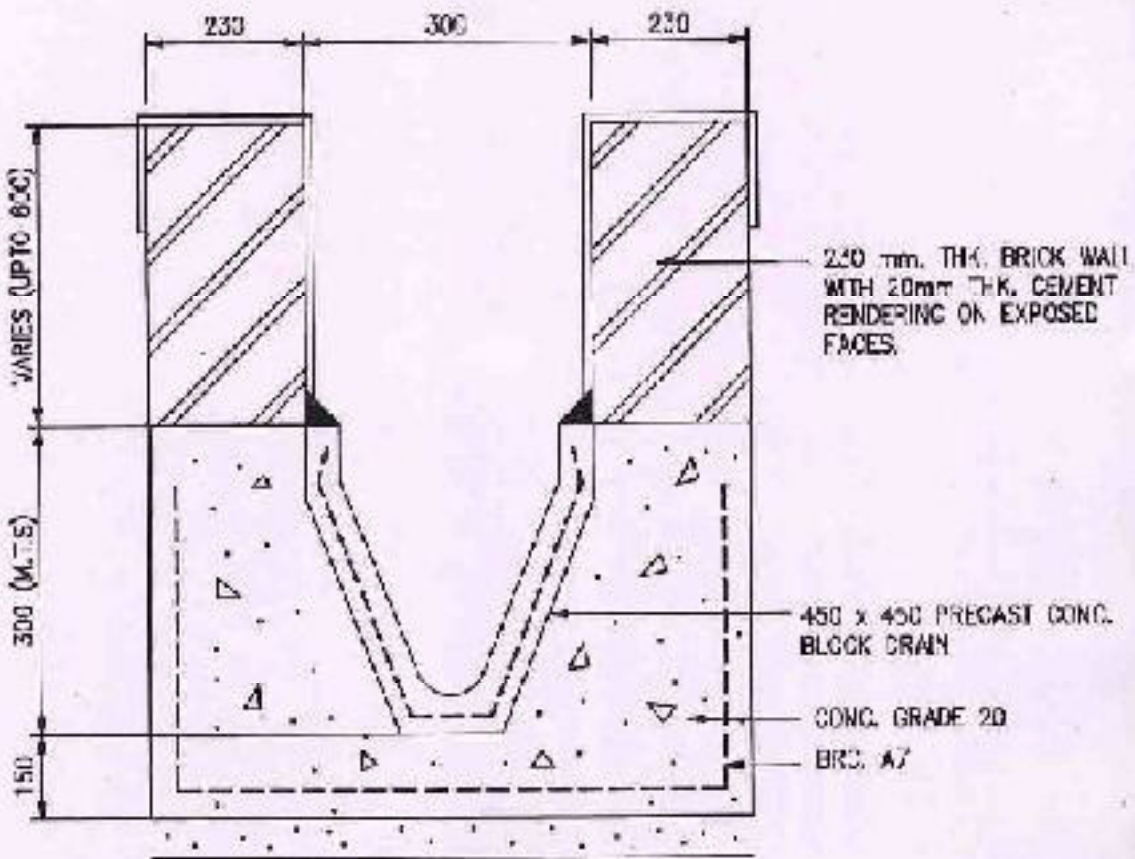
DRAWING NO.	REV
4-38144-00048	00

23

CIVIL

NO	DATE	REVISION	DRN	CHD	APPD
0	07.12.86	ISSUED AS STANDARD			

COPYRIGHT AND CONFIDENTIAL
 THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BELARAT HEAVY ELECTRICALS LIMITED.
 IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



PROJECT ENGINEERING
 BHEL HYDERABAD

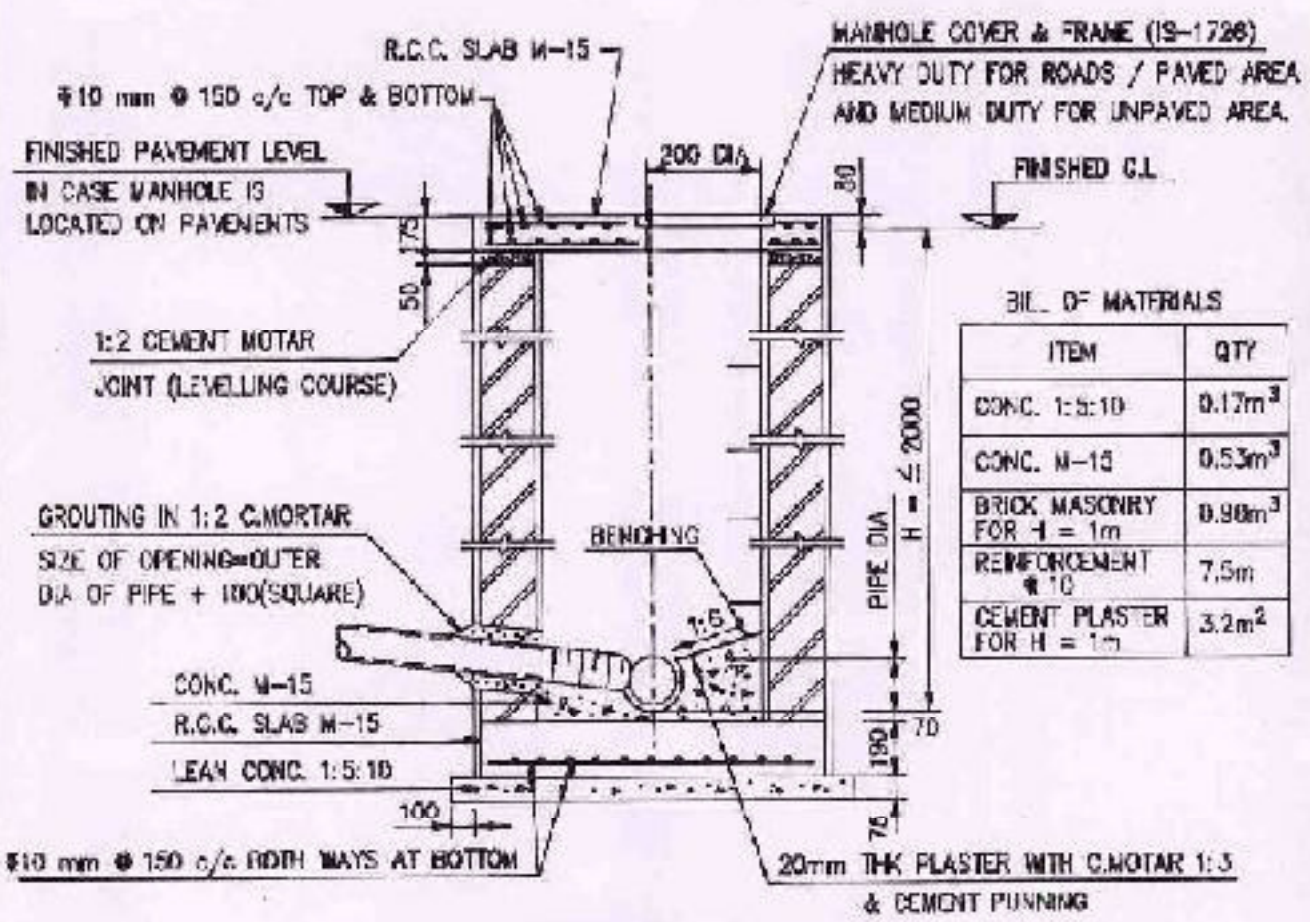
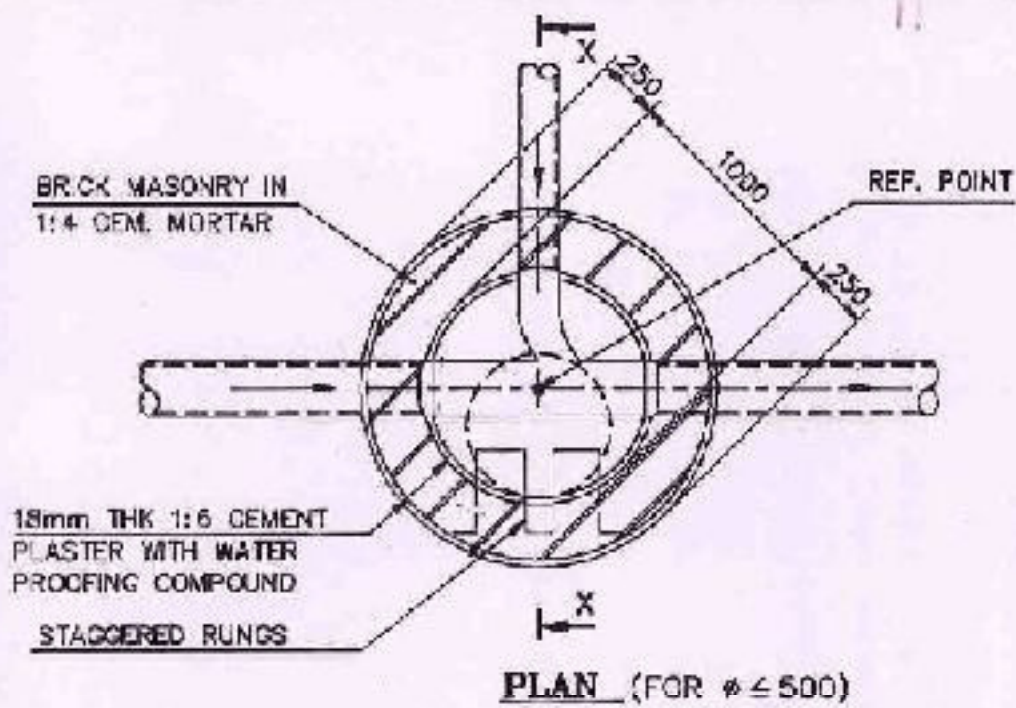
TYPICAL ROAD SIDE
 DRAIN DETAIL

DRAWING NO.	REV
4-48144-00047	00

CIVIL ENGINEERING

NO	DATE	REVISION	DRN	CHD	APPD
0	00.12.80	ISSUED AS STANDARD			

COPYRIGHT AND CONFIDENTIAL
 THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED.
 IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



BILL OF MATERIALS

ITEM	QTY
CONC. 1:5:10	0.17m ³
CONC. M-15	0.53m ³
BRICK MASONRY FOR $\phi = 1m$	0.90m ³
REINFORCEMENT $\phi 10$	7.5m
CEMENT PLASTER FOR H = 1m	3.2m ²

SECTION-XX



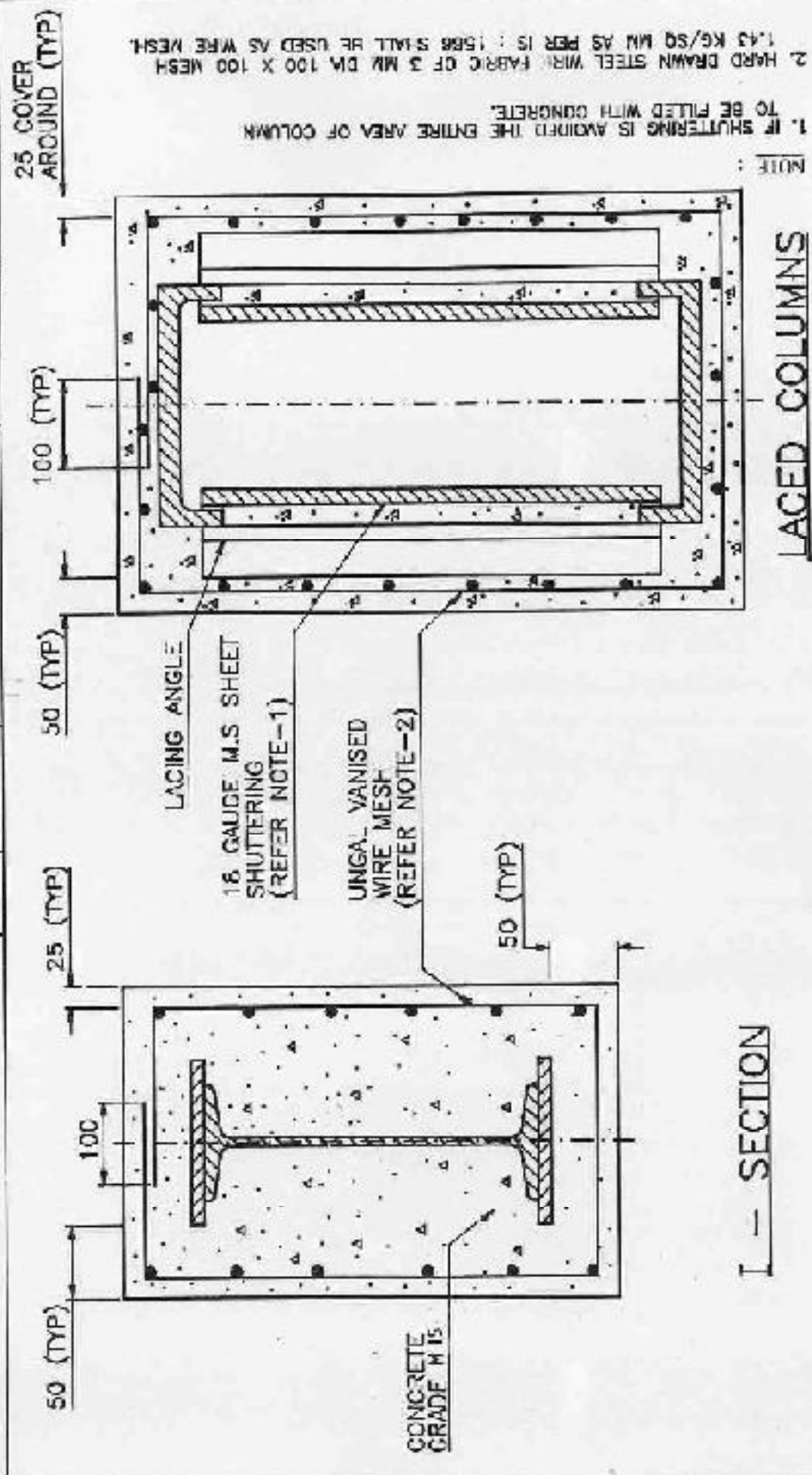
**PROJECT ENGINEERING
BHEL HYDERABAD**

**TYPICAL
MANHOLE**

DRAWING NO.	REV
4-88144-00048	00

STRUCTURAL

NO	DATE	REVISION	DRN	CHD	APPD
C	08-03-1996	ISSUED AS STANDARD		<i>Prabhakar</i>	<i>[Signature]</i>



THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

TYP. DET. OF COLUMN-ENCASING

PROJECT ENGINEERING
BHEL HYDERABAD

TYPICAL DETAIL
OF COLUMN ENCASING

DRAWING NO.
4-38144-00049

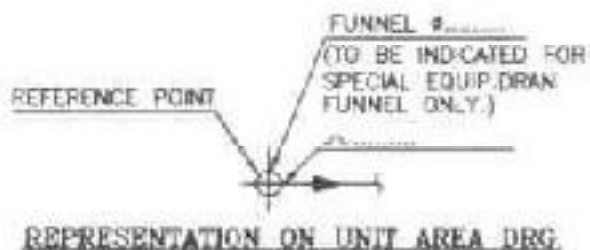
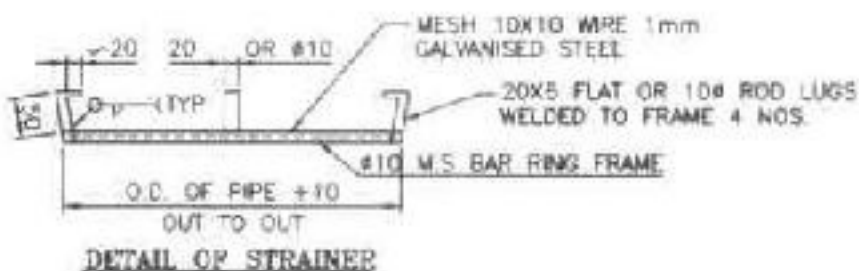
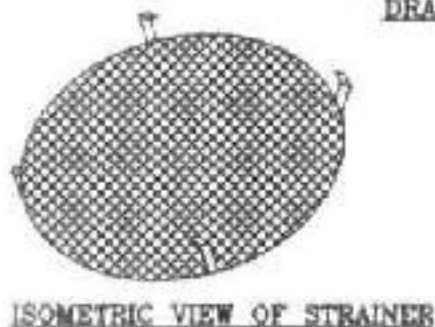
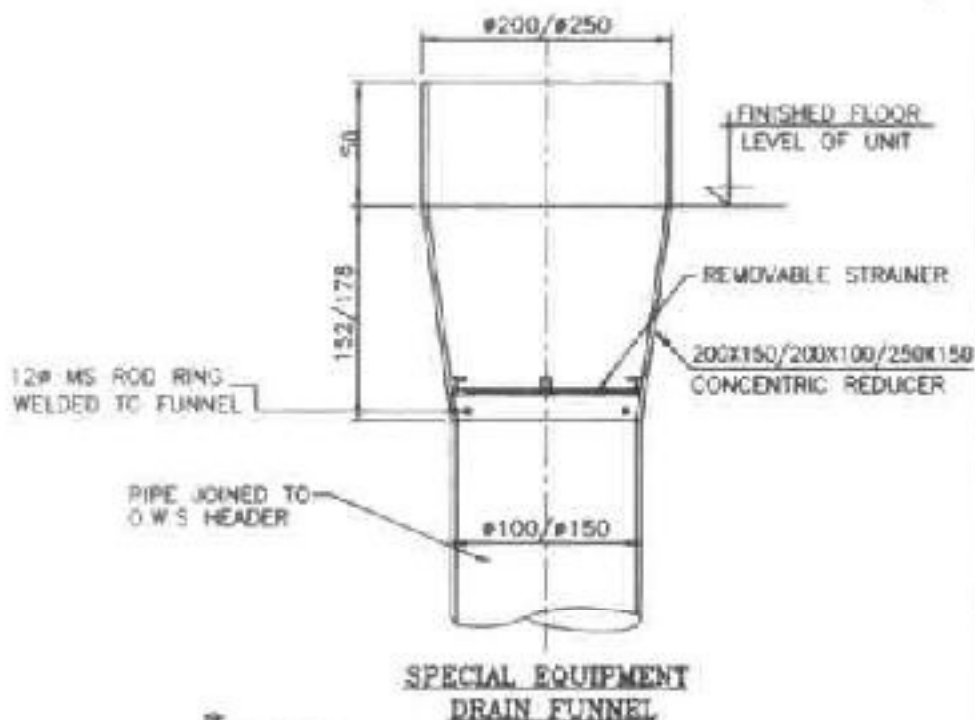
REV
00



THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

CIVIL

NO	DATE	REVISIONS	DRN	CHD	APPD
0	3.4.99	ISSUED AS STANDARD	P.C.C		<i>[Signature]</i>
1	3.9.99	ISSUED AS STANDARD			<i>[Signature]</i>



PROJECT ENGINEERING
BHEL HYDERABAD

200/250 #
DRAIN FUNNEL DETAILS
FOR O.W.S

DRAWING NO

4-38144-00053

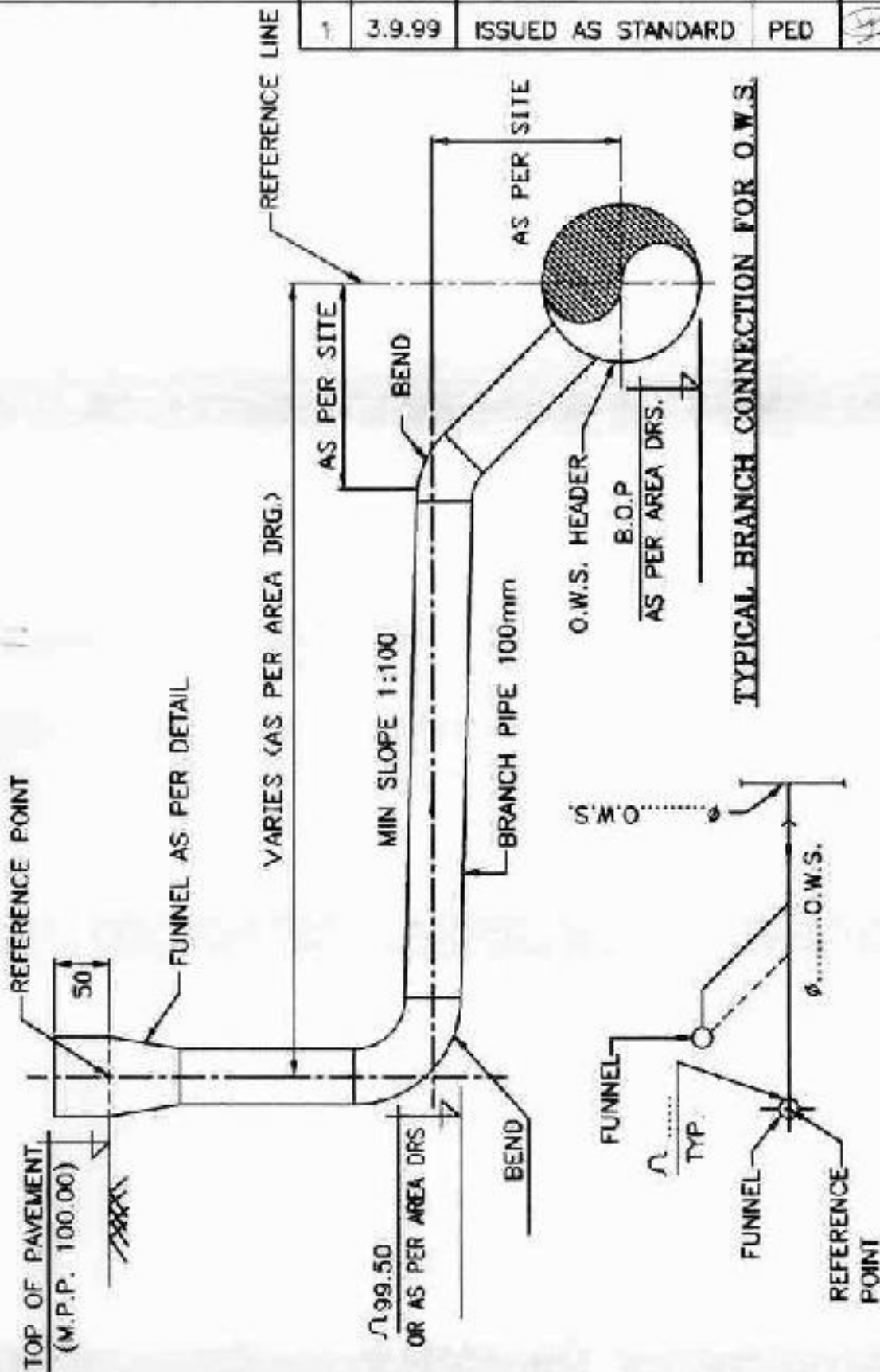
REV

0 1

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

CIVIL

NO	DATE	REVISIONS	DRN	CHD	APPD
0	3.4.99	ISSUED AS STANDARD	P.C.C	<i>[Signature]</i>	<i>[Signature]</i>
1	3.9.99	ISSUED AS STANDARD	PED	<i>[Signature]</i>	<i>[Signature]</i>



REPRESENTATION ON UNIT AREA DRG.



PROJECT ENGINEERING
BHEL HYDERABAD

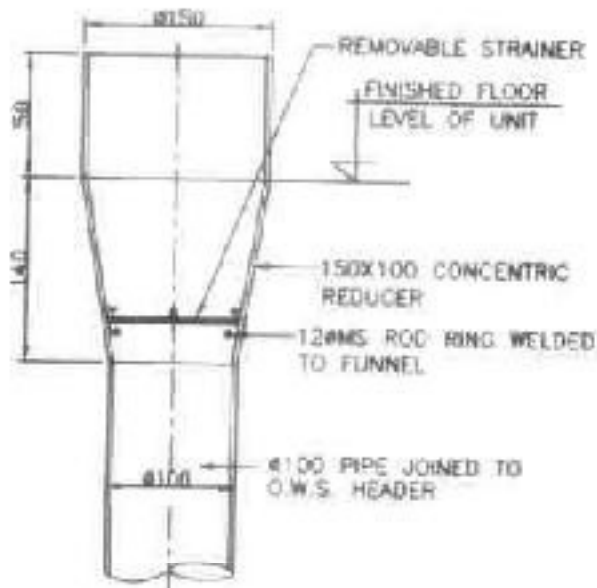
BRANCH PIPE TO HEADER
CONNECTION DETAIL FOR O.W.S

DRAWING NO
4-38144-00054

REV
01

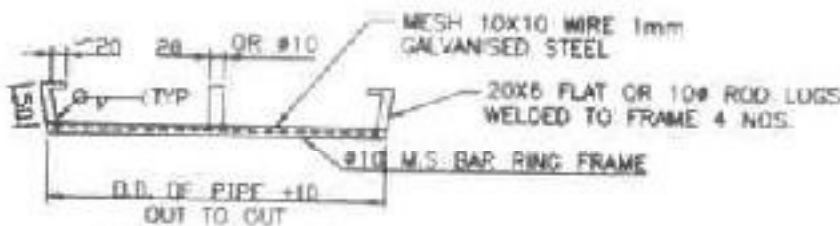
CIVIL

NO	DATE	REVISIONS	DRN	CHD	APPD
0	27.8.99	ISSUED AS STANDARD	acad		

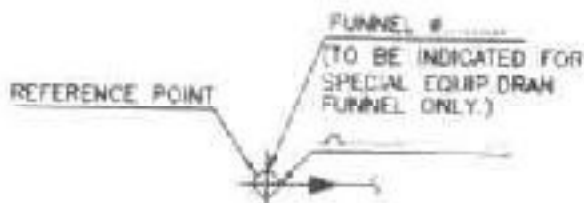


ISOMETRIC VIEW OF STRAINER

STANDARD EQUIPMENT
DRAIN FUNNEL



DETAIL OF STRAINER



REPRESENTATION ON UNIT AREA DRG.

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



PROJECT ENGINEERING
BHEL HYDERABAD

150 #
DRAIN FUNNEL DETAILS
FOR O.W.S

DRAWING NO

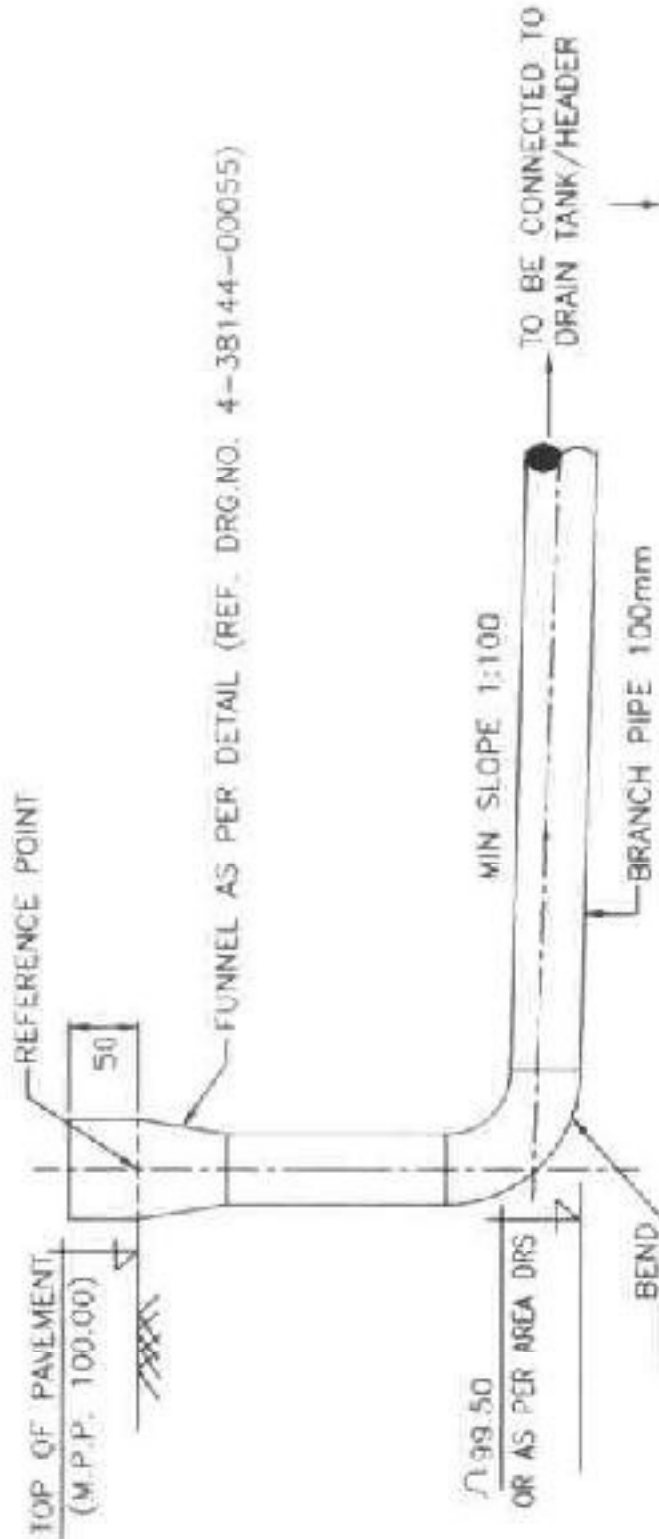
REV

4-38144-00055

00

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED.
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

CIVIL	NO	DATE	REVISIONS	DRN	CHD	APPD
	0	27.8.99	ISSUED AS STANDARD	ACAO	<i>[Signature]</i>	<i>[Signature]</i>



TYPICAL BRANCH CONNECTION FOR O.W.S.



PROJECT ENGINEERING
BHEL HYDERABAD

BRANCH PIPE DETAIL
FOR O.W.S

DRAWING NO
4-38144-00056

REV
00

