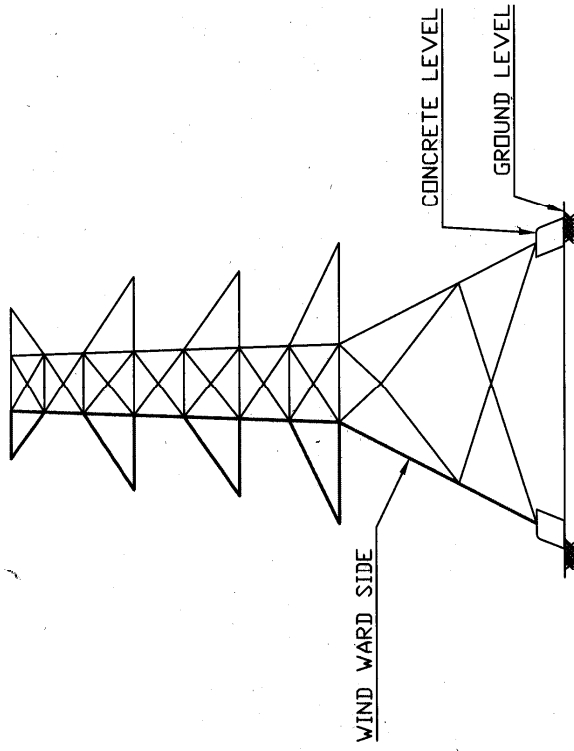


SECTION-IX

DRAWINGS

CONTENTS

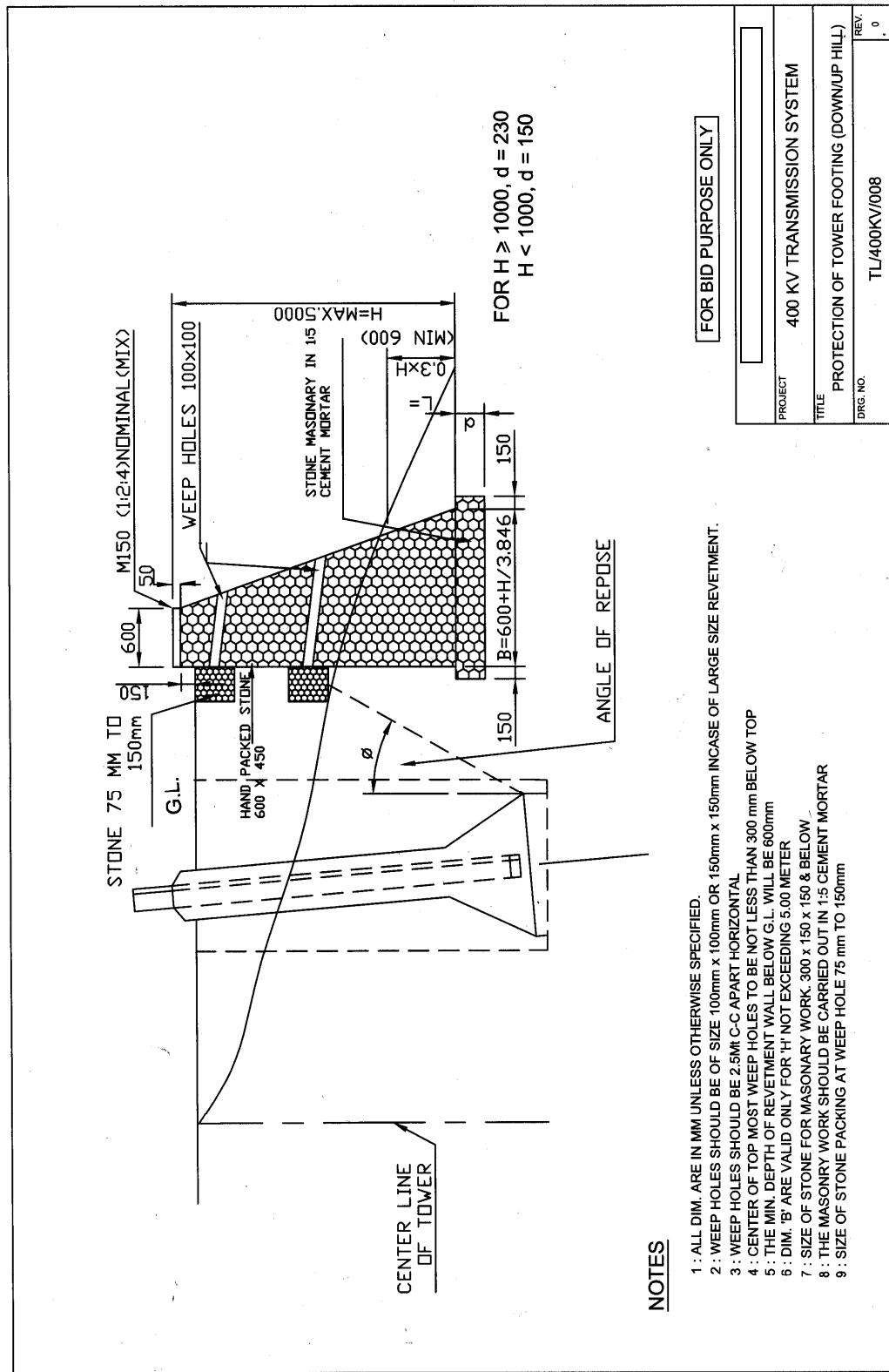
Sl. No.	Description	Drawing No.
1.	Typical 400 kV D/C Transmission Line Tower	TL/400KV/001-DC
2.	Tower Number Plate	CC:ENGG:TL:ACC:TNP
3.	Tower Phase Plate	CC:ENGG:TL:ACC:PP
4.	Danger Plate	CC:ENGG:TL:ACC:DP
5.	Circuit Plate	CC:ENGG:TL:ACC:CP
6.	Step Bolt Drawing	CC:ENGG:TL:ACC:SB
7.	Earthing Arrangement (Sheet 1/3 to 3/3)	CC:ENGG:TL:ACC:ERTH:PP SHEET 1 TO 3
8.	Detail of Anti Climbing Device	CC:ENGG:TL:ACC:ACD
9.	Protection of Tower Footing	TL/400KV/008
10.	Tentative Shape of Tower Footings	TL/400KV/010
11.	Transposition arrangement of D/C tower for 400 kV line	0-0000-68-T-E-A-009
12.	Drawing of Anti-theft Bolts & Nuts	TL/400KV/ATB
13.	400kV Double 'I' Insulator String for Quadruple 'MOOSE' ACSR conductor	TDTL/400KV/QUAD/002
14.	400kV Single 'I' Suspension Pilot Insulator String for Quadruple 'MOOSE' ACSR conductor	TDTL/400KV/QUAD/004
15.	400kV Single Tension Insulator String for Quadruple 'MOOSE' ACSR conductor	TDTL/400KV/QUAD/003
16.	400kV Quadruple Tension Insulator String for Quadruple 'MOOSE' ACSR conductor	TDTL/400KV/QUAD/001
17.	Drum Drawing for GS Earthwire (7/3.66mm)	TL/400KV/012



TYPICAL D/C TOWER

FOR BID PURPOSE ONLY

PROJECT	400 KV TRANSMISSION SYSTEM
TITLE	TYPICAL 400 KV D/C TRANSMISSION LINE TOWER
DRG. NO.	TL/400KV/001-DC
REV.	0

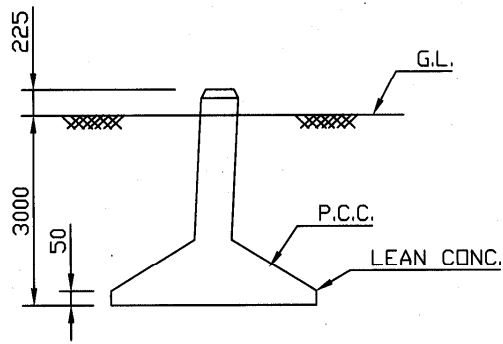


FOR BID PURPOSE ONLY

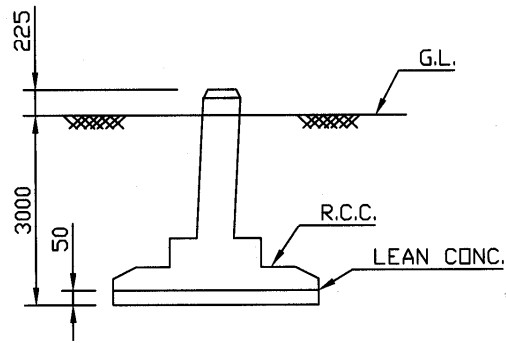
PROJECT	
TITLE	400 KV TRANSMISSION SYSTEM
DRG. NO.	PROTECTION OF TOWER FOOTING (DOWN/UP HILL)
REV.	TL/400KV/008
	0

NOTES

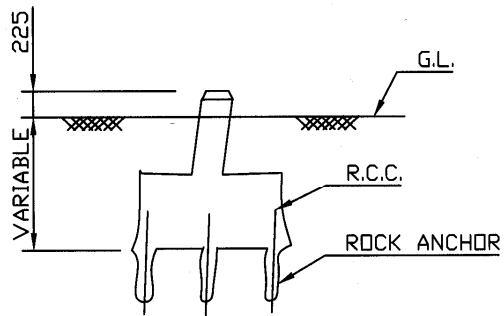
- 1 : ALL DIM. ARE IN MM UNLESS OTHERWISE SPECIFIED.
- 2 : WEEP HOLES SHOULD BE OF SIZE 100mm x 100mm OR 150mm x 150mm INCREASE OF LARGE SIZE REVETMENT.
- 3 : WEEP HOLES SHOULD BE 2.5M C-C APART HORIZONTAL
- 4 : CENTER OF TOP MOST WEEP HOLES TO BE NOT LESS THAN 300 mm BELOW TOP
- 5 : THE MIN. DEPTH OF REVETMENT WALL BELOW G.L. WILL BE 600mm
- 6 : DIM. 'B' ARE VALID ONLY FOR 'H' NOT EXCEEDING 5.00 METER
- 7 : SIZE OF STONE FOR MASONRY WORK. 300 x 150 x 150 & BELOW
- 8 : THE MASONRY WORK SHOULD BE CARRIED OUT IN 1:5 CEMENT MORTAR
- 9 : SIZE OF STONE PACKING AT WEEP HOLE 75 mm TO 150mm



TYP. FOUNDATION SHAPE FOR P.C.C. TYPE



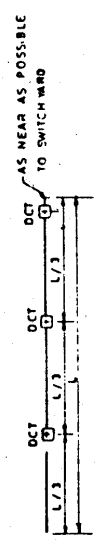
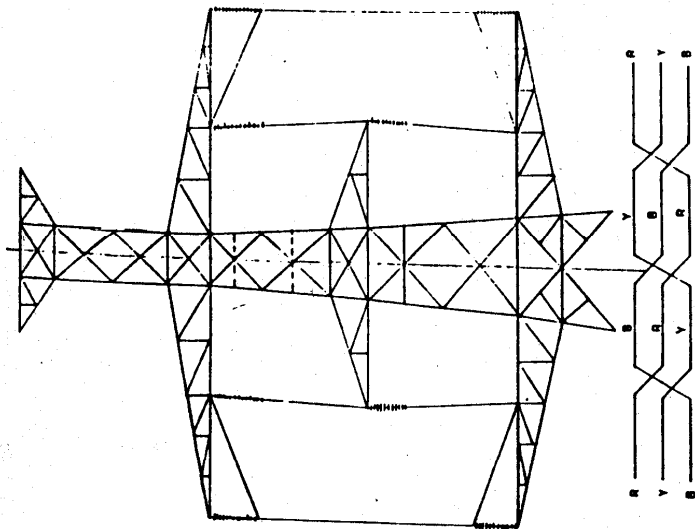
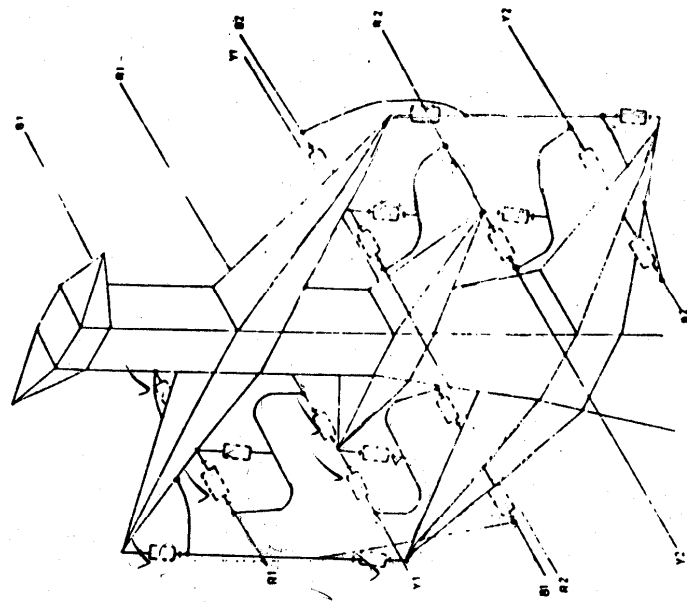
TYP. FOUNDATION SHAPE FOR R.C.C. TYPE



TYP. FOUNDATION SHAPE FOR HARD ROCK

FOR BID PURPOSE ONLY

PROJECT		400 KV TRANSMISSION SYSTEM	
TITLE		TENTATIVE SHAPE OF TOWER FOOTINGS	
DRG. NO.	TL/400KV/010	REV.	0



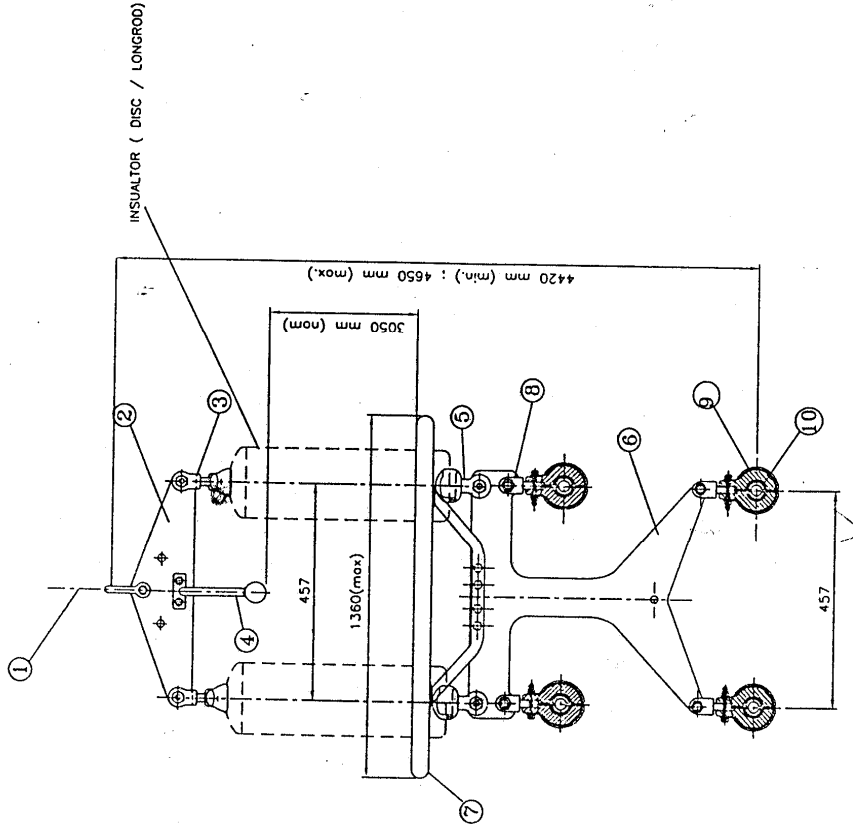
FOR BID PURPOSE ONLY

400KV TRANSMISSION LINE	
TITLE	
DETAIL OF TRANSPOSITION ARRANGEMENT ON DC TYPE TOWER	
DATE	REV
08/11/68	0
DRN	CHKD
APR	APR
BY	BY
NO	NO
0-0000-68	T-E-A-009

TECHNICAL DETAILS:

- 1) ALL DIMENSIONS ARE IN mm.
- 2) SPRING WASHER ELECTRO GALVANIZED.
- 3) SLIPPING STRENGTH OF CLAMP BETWEEN 20 TO 29 KN.
- 4) BALL & SOCKET SIZE 20 mm AS PER IS:2486 (PART-II).
- 5) ALL FERROUS PARTS ARE HOT DIP GALVANIZED AS PER POWERGRID SPECIFICATION.
- 6) MIN.CORONA EXTINGTION VOLTAGE (DRY) 320 KV (RMS).
- 7) RIV AT 305 KV R.M.S. (DRY) BELOW 1000 MICROMOLIS.
- 8) HARDWARE TOLERANCES ON LENGTH $\pm 2\%$.
- 9) INSULATOR DISC TOLERANCES ± 4 mm PER DISC.
- 10) GENERAL TOLERANCE $\pm 3\%$ APPLICABLE FOR INDIVIDUAL COMPONENTS.

FOR BID PURPOSE ONLY



Sl. No.	DESCRIPTION	MATERIAL	U.T.S.	QTY.
10	ARMOUR ROD	HIGH TENSILE ALUMINIUM ROD 65032/6061, IS:739	35 kg/mm ²	4 Sets
9	SUSPENSION CLAMP	ALUMINIUM ALLOY 4600, IS:617	70 KN	4
8	CLEVIS EYE	FORGED STEEL CL-W, IS:2004	70 KN	4
7	GRADING RING	ALUMINIUM ALLOY 6300/6063, IS:733	1.5 KN	1
6	YOKE PLATE (LINE SIDE)	MILD STEEL Fe-410, IS:2062	240 KN	1
5	SOCKET CLEVIS	FORGED STEEL CL-W, IS:2004	120 KN	2
4	ARCING HORN (TOWER SIDE)	MILD STEEL Fe-410, IS:2062	1.5 KN	2
3	BALL CLEVIS	FORGED STEEL CL-W, IS:2004	120 KN	2
2	YOKE PLATE (LOWER SIDE)	MILD STEEL Fe-410, IS:2062	240 KN	1
1	ANCHOR SHACKLE	FORGED STEEL CL-W, IS:2004	240 KN	1

Scale: NOT TO SCALE

Title:
400 KV DOUBLE 1" INSULATOR
STRING FOR QUADRUPLE MOOSE ACSR
CONDUCTOR; UTS : 240 KN.

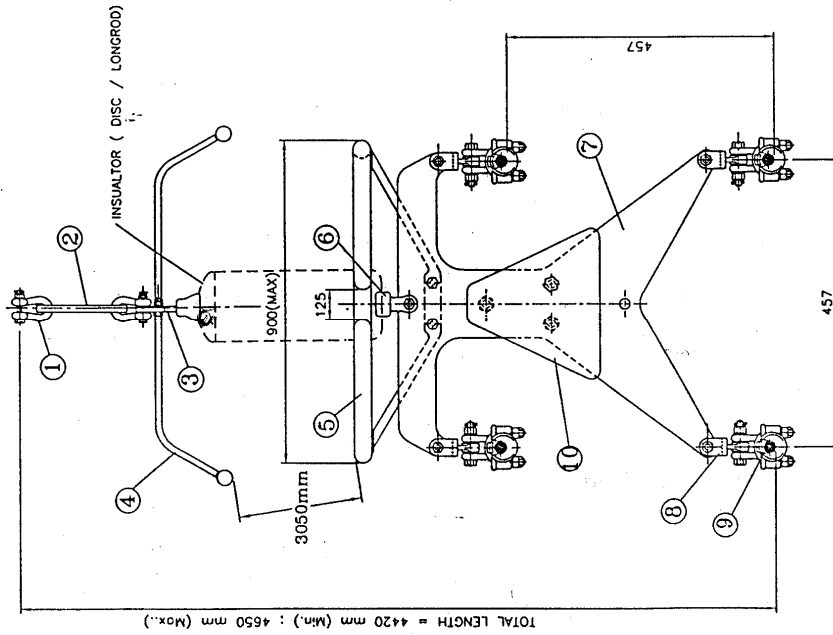
DRG. NO : TDTL/400 KV/QUAD/002

REVISION

TECHNICAL DETAILS:

- 1) ALL DIMENSIONS ARE IN MM.
- 2) SPRING WASHER ELECTRO GALVANIZED.
- 3) SLIPPING STRENGTH OF CLAMP BETWEEN 20 TO 23 KN.
- 4) BALL & SOCKET SIZE 20 mm AS PER IS:2486 (PART-II).
- 5) ALL FERROUS PARTS ARE HOT DIP GALVANIZED AS PER POWERGRID SPECIFICATION.
- 6) MIN. CORONA EXTINGUISHION VOLTAGE (DRY) 320 KV (RMS).
- 7) RVV AT 305 KV (DRY) BELOW 1000 MICROVOLTS.
- 8) HARDWARE TOLERANCES ON LENGTH $\pm 2\%$.
- 9) INSULATOR DISC TOLERANCES ± 4 mm PER DISC.
- 10) GENERAL TOLERANCE $\pm 3\%$ APPLICABLE FOR INDIVIDUAL COMPONENTS.
- 11) BALANCING WEIGHTS FOR TRANSPOSITION TOWERS ONLY.

FOR BID PURPOSE ONLY



TOTAL LENGTH = 4420 mm (Min.) : 4650 mm (Max.)

Sr.No.	DESCRIPTION	MATERIAL	U.T.S.	QTY.
10	COUNTER WEIGHT ASSEMBLY (200 KGS)	CAST IRON IS : 210	---	1 SET
9	SUSPENSION CLAMP	ALUMINIUM ALLOY A-6, IS:617	70 KN	4
8	CLEWS EYE	FORGED STEEL CL-IV, IS:2004	70 KN	4
7	YOKE PLATE	MILD STEEL F8-410 IS:2062	120 KN	1
6	SOCKET CLEWS	FORGED STEEL CL-IV, IS:2004	120 KN	1
5	GRADING RING	ALUMINIUM ALLOY 63400/6063 IS:733	1.5 KN	2
4	ARCING HORN (TOWER SIDE)	MILD STEEL F8-410 IS:2062	120 KN	1
3	HORN HOLDER BALL EYE	FORGED STEEL CL-IV, IS:2004	120 KN	1
2	EXTENSION LINK	MILD STEEL F8-410 IS:2062	120 KN	2
1	ANCHOR SHACKLE	FORGED STEEL CL-IV, IS:2004	120 KN	2
			U.T.S.	

Title:
400 KV. SINGLE 'I' SUSPENSION PILOT
INSULATOR STRING FOR QUADRUPLE

SCALE: NOT TO SCALE

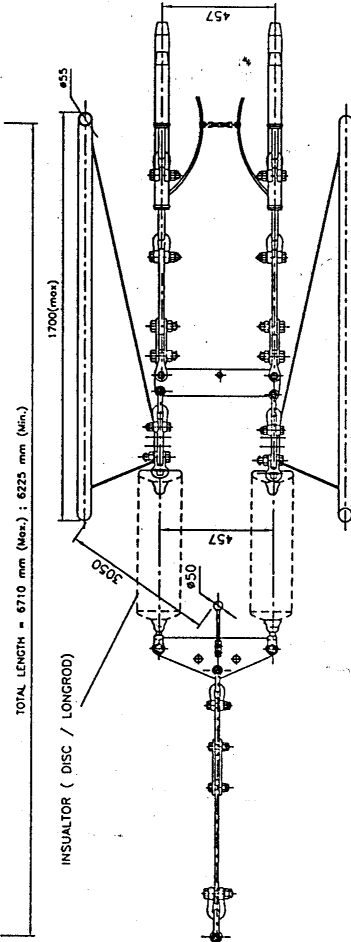
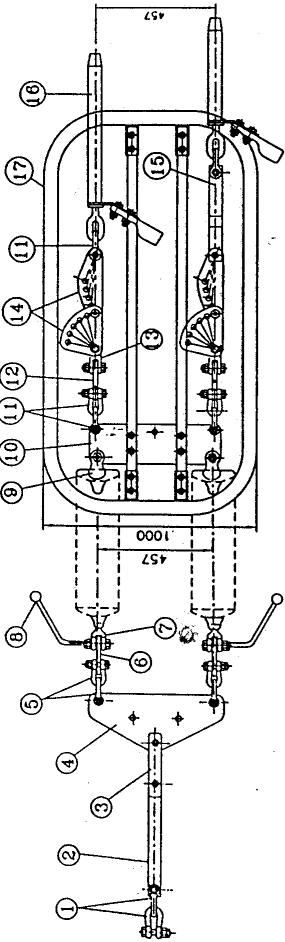
"MOOSE" ACSR CONDUCTOR, UTS : 120 KN

DRG. NO : TDTL/400 KV/QUAD/004

REVISION

TECHNICAL DETAILS:

- 1) ALL DIMENSIONS ARE IN mm.
- 2) SPRING WASHER ELECTRO CALVANIZED.
- 3) SLIPPING STRONGTH OF CLAMP : 154 KN (Min.)
- 4) BALL & SOCKET SIZE : 20 mm AS PER IS : 2486 (PART-II).
- 5) ALL FERROUS PARTS HOT DIP GALVANIZED AS PER POWERGRID SPECIFICATION
- 6) MIN. CORONA EXTINCTION VOLTAGE (DRY) : 320 KV (RMS).
- 7) RV AT 305 KV (DRY) BELOW 1000 MICROVOLTS.
- 8) HARDWARE TOLERANCES ON LENGTH ±2%.
- 9) INSULATOR DISC TOLERANCES : ±5 mm PER DISC.
- 10) GENERAL TOLERANCE ±1% APPLICABLE FOR INDIVIDUAL COMPONENTS.



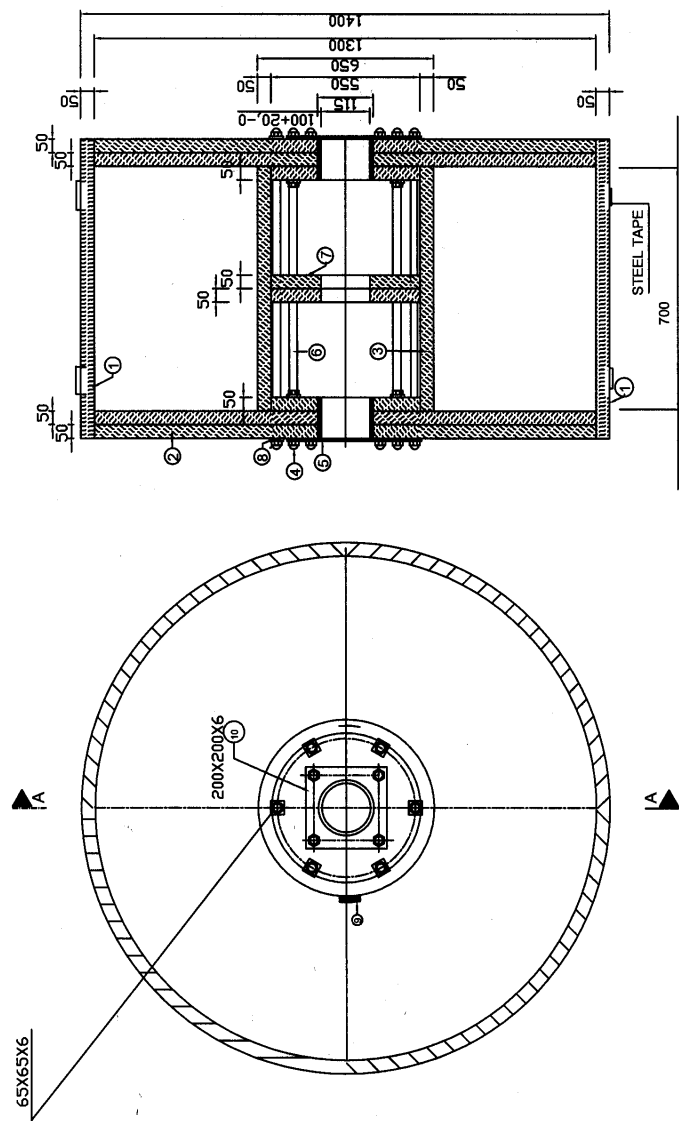
FOR BID PURPOSE ONLY

Sr.No.	DESCRIPTION	MATERIAL	U.T.S.	QTY.
17	CORONA CONTROL RING	ALUMINIUM ALLOY 63400/6063 IS:733	1.5 KN	2 SET
16	COMPRESSION DEADEND	ALUMINIUM ALLOY & FORGED STEEL	154 KN (Min)	4
15	Y-TYPE STRAP	MILD STEEL Fe-410 IS:2062	160 KN	2
14	SAG ADJUSTING PLATE	MILD STEEL Fe-410 IS:2062	160 KN	4
13	CLEVIS EYE	FORGED STEEL CL-IV, IS:2004	160 KN	4
12	YOKE PLATE	MILD STEEL Fe-410 IS:2062	320 KN	2
11	ANCHOR SHACKLE	FORGED STEEL CL-IV, IS:2004	160 KN	12
10	YOKE PLATE	MILD STEEL Fe-410 IS:2062	320 KN	2
9	SOCKET CLEVIS	FORGED STEEL CL-IV, IS:2004	160 KN	4
8	ARCING HORN	MILD STEEL Fe-410 IS:2062	1.5 KN	2
7	BALL CLEVIS	FORGED STEEL CL-IV, IS:2004	160 KN	4
6	YOKE PLATE	MILD STEEL Fe-410 IS:2062	320 KN	2
5	ANCHOR SHACKLE	FORGED STEEL CL-IV, IS:2004	320 KN	4
4	YOKE PLATE	MILD STEEL Fe-410 IS:2062	640 KN	1
3	STRAP	MILD STEEL Fe-410 IS:2062	640 KN	1 SET
2	EXTENSION LINK	MILD STEEL Fe-410 IS:2062	640 KN	1
1	ANCHOR SHACKLE	FORGED STEEL CL-IV, IS:2004	640 KN	2
		MATERIAL	U.T.S.	

Info:
400 KV. QUADRUPLT TENSION INSULATOR.
STRING FOR QUADRUPLT "MOOSE" ACSR
CONDUCTOR. UTS : 640 KN.
SCALE: NOT TO SCALE

DRG. NO : TDTL/400 KV/QUAD/001

REVISION	



SECTION A-A

S.NO.	DESCRIPTION	Qty	Material
10	BUSH PLATE	2	MS
9	SLOT FOR INNER END OF EARTH WIRE	-	-
8	WASHER	24	MS
7	BARREL SUPPORT	3	WOOD
6	TIE RODS	6	MS
5	MILD STEEL BUSH	2	MS
4	BARREL STUD	8	MS
3	BARREL	1	WOOD
2	FLANGE	2	WOOD
1	PROTECTIVE EXTERNAL LAGAING	1	WOOD

NOTES
 1 : ALL DIM. ARE IN MM
 2 : CLEARANCE FROM OUTER SURFACE OF OUTER LAYER OF EARTH WIRE TO INNER SURFACE OF PROTECTIVE LEGGING IS AT LEAST 50mm
 3 : TWO LENGTHS OF EARTH WIRE ARE WOUND ON EVERY DRUM
 THE LENGTHS ARE WELDED AND ENDS OF WELD ARE MARKED BY RED TAPE
 4 : THICKNESS OF PROTECTIVE LAGAING SHOULD BE 50 mm.
 5 : STANDARD LENGTH OF EARTH WIRE 2000m +/-5%
 6 : TOLERANCE ON WOOD DIMENSION = +3MM

FOR BID PURPOSE ONLY

POWER GRID CORP. OF INDIA LTD.
 PROJECT : 400 KV TRANSMISSION SYSTEM
 TITLE : DRUM FOR 7/3.66mm G.S EARTH WIRE
 DRG. NO. TL/400KV/012
 REV 0