SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED

COST DATA FOR THE YEAR 2021-22

SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA. LIMITED
6-1-50, Corporate Office, Mint Compound, Hyderabad - 63

O/o Chief General Manager Projects,
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Memo No.CGM(P)/SE(P)/DE(RE)/D.No.166 /2021, Dt:6 -05-2021.

Sub: Projects – Approved Cost Data for the FY 2021-22- Communication - Reg.

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The Cost Data for FY 2021-22 is prepared by taking inputs from CGM/P&MM and CGM/Op/RRZone i.e. latest material purchase order rates received from P&MM wing and applicable SSR labour rates of GHMC and Non GHMC area for FY 2021-22 are received from Operation/RR Zone.

In the preparation of Cost Data, maximum of GHMC and Non GHMC SSR rates are considered for labour rates and Material rates are inclusive of applicable GST taxes.

The approved cost-data for the FY 2021-22 is herewith enclosed. The soft copy is placed in 202/cgm-proj/Cost-data FY21-22. The cost data for FY2021-22 is also available on the TSSPDCL website i.e., **www.tssouthernpower.com.**

This is issued with the concurrence of Chairman & Managing Director/TSSPDCL, vide Dt:04.05.2021.

Encls: As above.

Chief General Manager / Projects

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All Superintending Engineers/ Operation/
The Superintending Engineers/ Master Plan/
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COST DATA OF CENTRALISED MATERIALS FOR R.E. AND DISTRIBUTION WORKS

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
SUBHEAD - I : SUPPORTS AND FIXTURES, IRON, STEEL AND CEMENT							-			
1 (a)	RS Joists 175 x 85 mm.	PM-1988/19, dt. 01-06-2019	MT	58,410.00	45,000.00	4,500.00	49,500.00	8,910.00	18	MST00032
(b)	RS Joists 150 x 150 mm.	PM-1988/19, dt. 01-06-2019	MT	58,410.00	45,000.00	4,500.00	49,500.00	8,910.00	18	MST00029
2	MS Channel 100 x 50.	PM-2056/19, dt. 05-08-2019	MT	49,324.00	41,800.00	-	41,800.00	7,524.00	18	MST00012
3	MS Channel 75 x 40 mm	PM-2548/20, dt. 03-02-2021	MT	58,138.60	49,270.00	-	49,270.00	8,868.60	18	MST00013
4	MS Angle 65 x 65 x 6 mm.	PM-2551/20, dt. 03-02-2021	MT	57,749.20	48,940.00	-	48,940.00	8,809.20	18	MST00003
5	MS Angle 50 x 50 x 6 mm	PM-2554/20, dt. 03-02-2021	MT	57,749.20	48,940.00	-	48,940.00	8,809.20	18	MST00002
6	MS Flat 75x 8	Rpt PM-1805/18 dt. 05-11-2018.	MT	56,433.50	44,875.00	2,950.00	47,825.00	8,608.50	18	MST00015
7	MS Flat 50 x 6 mm	PM-2558/20, dt. 03-02-2021	MT	59,177.00	50,150.00	-	50,150.00	9,027.00	18	MST00014
8	MS Rod 20 mm.	Rpt PM-1805/18 dt. 05-11-2018.	MT	56,433.50	44,875.00	2,950.00	47,825.00	8,608.50	18	MST00019
9	MS Rod 16 mm.	PM-2561/20, dt. 03-02-2021	MT	60,392.40	51,180.00	-	51,180.00	9,212.40	18	MST00018
10	GI Stay wire 7/3.15 mm.	PM-2619/20, dt. 26-02-2021	MT	66,670.00	53,000.00	3,500.00	56,500.00	10,170.00	18	WRS00006
11	GI Stay wire 7/2.5 mm	PM-2619/20, dt. 26-02-2021	MT	67,850.00	54,000.00	3,500.00	57,500.00	10,350.00	18	WRS00007
12	GI wire 4 mm	PM-2619/20, dt. 26-02-2021	MT	64,900.00	51,500.00	3,500.00	55,000.00	9,900.00	18	WRS00005
13	PSCC Pole (9.1 M) - 280 Kg WL	PM-2434/20 Dt: 23-09-2020	Nos.	2,950.00	2,300.00	200.00	2,500.00	450.00	18	PLS00004
14	PSCC Pole (8.0 M) - 140 Kg WL	PM-2486/20 Dt: 03-12-2020	Nos.	1,528.10	1,150.00	145.00	1,295.00	233.10	18	PLS00001
15	PSCC Poles (11 Mtrs) 365 Kgs	PM-2584/20 Dt: 08-02-2021	Nos.	5,404.40	4,000.00	580.00	4,580.00	824.40	18	PLS00013
SUBHEAD - II : INSULATORS AND HARDWARE							-			
1	33KV Polymer Pin Insulators With GI Pins	PM-2610/20, Dt: 18-02-2021.	Nos.	396.01	316.80	18.80	335.60	60.41	18	INS30008
2	33 KV Post Insulators	Rpt PM-1074/16, Dt. 27-03-2017	Sets	898.13	761.13	-	761.13	137.00	18	INS30004
3	33 KV Hard Ware Fittings (B&S)	PM-1298/17, Dt. 13-09-2017.	Sets	185.25	150.00	6.99	156.99	28.26	18	HWR00004
4	33 KV Polymer String Insulator (B&S)	PM-1312/17, Dt. 18-09-2017.	Nos.	282.40	239.32	-	239.32	43.08	18	INS30007
5	11KV Polymer Pin Insulators With GI Pins	LOI/D.No.7216/20 Dt. 25-02-2021.	Nos.	132.75	112.50	-	112.50	20.25	18	INS10009
6	11 KV Post Insulator.	Rpt PM-2147/19 Dt: 15-10-2019.	Nos.	315.00	266.95	-	266.95	48.05	18	INS10008
7	11 KV String Hardware Fitting (C&T)	LOI/D.No.6223/20 Dt. 05-02-2021.	Sets	87.92	68.00	6.51	74.51	13.41	18	HWR00002
8	11 KV Polymer String insulator (C&T)	PM-2539/20, Dt: 11-01-2021.	Nos.	109.74	87.00	6.00	93.00	16.74	18	INS10003
9	11 KV Solid Core Insulators	PM-2498/20, Dt: 19-12-2020.	Nos.	264.00	223.73	-	223.73	40.27	18	INS10006
10	LT Pin Insulators	Rpt PM-2534/20, Dt. 11-01-2021.	Nos.	21.75	18.43	-	18.43	3.32	18	INS00001
11	LT GI Pins	PM-2590/20, Dt: 08-02-2021.	Nos.	32.04	25.30	1.85	27.15	4.89	18	HWR00015
12	LT Shackle Insulators	Rpt PM-2537/20, Dt. 11-01-2021.	Nos.	21.75	18.43	-	18.43	3.32	18	INS00002
13	LT Shackle Hardware (LT Metal Parts)	PM-2580/20, Dt: 06-02-2021.	Nos.	35.87	28.40	2.00	30.40	5.47	18	HWR00016
14	HT Guy Insulators	PM-2616/20, Dt: 18-02-2021.	Nos.	53.10	45.00	-	45.00	8.10	18	INS10005
15	LT Guy Insulators	PM-2613/20, Dt: 18-02-2021.	Nos.	21.00	17.80	-	17.80	3.20	18	INS00003
SUBHEAD - III CONDUCTOR AND CABLES							-			
1	ACSR Panther Conductor (200 sq mm).	PM-2470/20, Dt.29-10-2020	KM	140,678.42	117,219.00	2,000.00	119,219.00	21,459.42	18	CDR00010
2	100 Sqmm AAA Conductor or 7/4.26 AAAC.	PM-2569/20, Dt:03-02-2021	KM	56,131.42	47,145.00	424.00	47,569.00	8,562.42	18	CDR00004
3	55 Sqmm AAA Conductor or 7/3.15 AAAC/RABBIT	PM-2393/20, Dt:18-08-2020	KM	27,238.86	22,856.78	227.00	23,083.78	4,155.08	18	CDR00003
4	34 Sqmm AAA Conductor or 7/2.50 AAAC/Weasel	PM-2111/19, Dt:17-09-2019	KM	18,027.12	14,962.62	314.60	15,277.22	2,749.90	18	CDR00002
SUBHEAD - III (A) LT AERIAL BUNCHED CABLE				-			-			
1	2 x 16+25 Sqmm Cable	Rpt PM-832/15 Dt: 27-07-2016	KM	28,998.69	23,970.16	605.00	24,575.16	4,423.53	18	CBA00005
2	3 x 16+25 Sqmm Cable	PM-2258/19, Dt.17-01-2020	KM	43,354.00	35,990.68	750.00	36,740.68	6,613.32	18	CBA00006
3	3 x 70 + 1x16 +1x50 Sqmm XLPE AB, Cable	PM-2520/20, Dt.02-01-2021	KM	168,209.00	141,300.00	1,250.00	142,550.00	25,659.00	18	CBA00004

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
SUBHEAD - III (B) 33 & 11 KV XLPE POWER CABLE				-			-			
1	33 KV 3CX400 Sq.mm.	PM-2230/19, Dt:31-12-2019	KM	2,488,620.00	2,071,460.00	37,540.00	2,109,000.00	379,620.00	18	CBX30001
2	11 KV 3x300 sq.mm	PM-2371/20, Dt.27-06-2020	KM	1,199,999.82	998,969.00	17,980.00	1,016,949.00	183,050.82	18	CBX10008
3	11 KV 3x185 sq.mm.	PM-2389 /20, Dt.13-08-2020	KM	814,200.00	677,801.00	12,199.00	690,000.00	124,200.00	18	CBX10007
5	11 KV 3x35 sq.mm	PM-4327/22-04-2015	KM	317,665.84						CBX10002
SUBHEAD - III (C)11 KV AB Cable (Aluminum)										
4	3x185+70 Sqmm.	PM-2423/20, Dt.18-09-2020	KM	630,587.28	511,486.00	22,910.00	534,396.00	96,191.28	18	CBA10006
SUBHEAD - III (D) LT XLPE POWER CABLE										
1	3 ½ Cx185 sq.mm.	PM-2591/20, Dt.10-02-2021	KM	489,700.00	415,000.00	0.00	415,000.00	74,700.00	18	CBX00015
2	3 ½ Cx95 sq.mm	PM-1142/17, Dt.11-05-2017.	KM	227,400.60	191,634.42	1,077.95	192,712.37	34,688.23	18	CBX00013
3	3 ½ Cx70 sq.mm	PM-1285/17, 04-09-2017	KM	184,660.50	154,751.00	1,740.95	156,491.95	28,168.55	18	CBX00012
4	3 ½ Cx35 sq.mm	PM-1246/17, Dt.20-07-2017.	KM	112,549.38	86,951.00	978.20	87,929.20	24,620.18	28	CBX00020
5	1x120 sq mm	PM-2297/19, Dt.10-02-2020	KM	73,515.55	62,301.31	-	62,301.31	11,214.24	18	CBX00004
SUBHEAD - III (E) L.T.P.CONTROL CABLE							-			
1	2x2.5 sq.mm Copper	PM-1755/18, Dt.12-09-2018	KM	44,604.00	37,500.00	300.00	37,800.00	6,804.00	18	CBP00001
2	4x2.5 sq.mm Copper.	PM-1976/19, Dt.21-05-2019	KM	74,500.01	62,389.60	746.00	63,135.60	11,364.41	18	CBP00002
3	10x2.5 sq.mm Copper.	PM-2344/20, Dt.05-06-2020	KM	163,441.80	136800	1,710.00	138,510.00	24,931.80	18	CBP00006
SUBHEAD - IV : POWER TRANSFORMERS & TRANSFORMER OIL										
1	5 MVA PTR	PM-2260/19, Dt.17-01-2020	Nos.	3,294,736.46	2,767,149.54	25,000.00	2,792,149.54	502,586.92	18	PTR00006
2	8 MVA PTR	PM-2217/19, Dt.28-12-2019	Nos.	4,283,400.00	3,605,000.00	25,000.00	3,630,000.00	653,400.00	18	PTR00008
3	12.5 MVA PTR	PM-2103/19, Dt.13-09-2019	Nos.	6,854,679.00	5,773,050.00	36,000.00	5,809,050.00	1,045,629.00	18	PTR00020
4	Transformer Oil (New)	PM-2400 /20, Dt.25-08-2020	KL	62,246.18	52751.00	-	52,751.00	9,495.18	18	OFO10006
SUBHEAD - IV (A) : Distribution Transformers										
1	3-Phase 63 KVA (CSP) (Al) BIS EE LEVEL 3	Rpt. PM-2564/20, Dt.03-02-2021	Each	90,159.08	75,906.00	500	76,406.00	13,753	18	DTC30128
2	3-Phase 100 KVA (CSP) (Al) BIS EE LEVEL 3	Ext.PM-2565/20, Dt.03-02-2021	Each	116,963.96	98,522.00	600	99,122.00	17,842	18	DTC30137
3	3-Phase 160 KVA (CSP) (Al) BIS EE LEVEL 3	PM- 2525/20, Dt.02-01-2021	Each	220,660.00	184,900.00	2,100.00	187,000.00	33,660	18	DTC30135
4	3-ph 315 KVA DTR Al BIS EE Level-3	PM- 2412/20, Dt.11-09-2020	Each	574,992.70	484,491.95	2,790.00	487,281.95	87,711	18	DTC30127
6	3-ph 25 KVA DTR Al BIS EE Level-2	PM-2450/20, dt.30-09-2020	Each	54,278.82	45,639.00	360.00	45,999.00	8,280	18	DTC30126
7	3-ph 500 KVA DTR Al BIS EE Level-3	Ext.PM- 2605/20, Dt. 17-02-2021	Each	865,500.00	731,224.58	2,250.00	733,474.58	132,025	18	DTC30136
8	1-Phase 25 KVA (CSP) (Aluminium)	PM- 2606/20, Dt. 17-02-2021	Each	53,475.41	44,788.14	530.00	45,318.14	8,157	18	DTC10009
SUBHEAD - V : SWITCH CONTROL AND PROTECTIVE GEAR										
1	33 KV 24V DC HV VCB with CRPs & CTs 400-200-100/1-1-1A	PM-1948/19, Dt.02-05-2019	Nos.	395,604.44	325,700.00	9,558.00	335,258.00	60,346.44	18	BRK30031
2	33 KV 24V DC VCB with CRPs & CTs ratio 400-200-100/1-1A	PM-1949/19, Dt.02-05-2019	Nos.	386,046.44	317,600.00	9,558.00	327,158.00	58,888.44	18	BRK30019
3	11KV, 24V DC LV VCB with diff. prot. with CRPs & CTs of Ratio 600-300/1-1-0.577A	Rpt.PM-2264/19, Dt.25-01-2020	Nos.	313,448.12	258,200.00	7,434.00	265,634.00	47,814.12	18	BRK10009
4	11KV 24V LV VCBs with CTs & Panel (600-300/1-1A)	PM-2327/20, Dt.10-06-2020	Nos.	273,996.00	225,000.00	7,200.00	232,200.00	41,796.00	18	BRK10014
5	11KV, 24V DC feeder VCBs with CRPs & CTs of Ratio 400-200-100/1-1A	PM-2516/20, Dt.31-12-2020	Nos.	276,000.01	226,698.31	7,200.00	233,898.31	42,101.70	18	BRK10015
6	33 KV PT (Single Phase) 10VA Burden 0.2 Class	PM-2600/20, Dt.15 -02-2021	Nos.	23,151.60	17,622.00	1,998.00	19,620.00	3,531.60	18	ITR30061
7	33 KV PT (Single Phase) 100VA Burden 0.2 Class	PM-1651/18, Dt.13-06-2018	Nos.	21,712.00	17,900.00	500.00	18,400.00	3,312.00	18	ITR30058
8	11 KV 3 Ph PTs with 50VA Burden 0.2 Class accuracy	PM-2212/19, Dt.20-12-2019	Nos.	19,849.96	15,852.00	970.00	16,822.00	3,027.96	18	ITR10065
9	33 KV 800 Amps AB Switch	PM-2602/20 Dt: 16-02-2021	Nos.	33,189.15	26,279.00	1,847.40	28,126.40	5,062.75	18	ABS30004
10	11 KV 800 Amps (Conventional) AB Switch	PM-1614/18, Dt. 17-05-2018	Nos.	23,499.70	19,915.00	-	19,915.00	3,584.70	18	ABS10015

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
11	11 KV 400 Amps (Conventional) SB AB Switch with post type porcelain insulators	PM-1989/19, Dt. 01-06-2019	Nos.	8,248.20	6,990.00	-	6,990.00	1,258.20	18	ABS10008
12	11 KV 200 Amps AB Switch (Tilting) round pipe	PM-2494/20, Dt. 15-12-2020	Nos.	5,655.74	4,793.00	-	4,793.00	862.74	18	ABS10002
13	30 KV 10 KA Metal Oxide Lightning Arresters (station type)	LOI/D.No. 7378/20, Dt.02-03-2021	Nos.	3,191.90	2,705.00	-	2,705.00	486.90	18	LAS00004
14	9 KV 10 KA Metal Single Phase Lightning Arrester (station type)	LOI/D.No. 7380/20, Dt.02-03-2021	Nos.	1,527.51	1,294.50	-	1,294.50	233.01	18	LAS00002
15	11 KV HG Fuse set with insulators	PM-2241/19, Dt. 13-01-2020	Nos.	1,749.00	1,482.20	-	1,482.20	266.80	18	HGF10002
16	24 V, 40 AH Batteries with Chargers (Conventional)	PM-2542/20, Dt. 15-01-2021	Nos.	24,318.72	18,999.00	-	18,999.00	5,319.72	28	BAT00074
17	24 V, 40 AH Chargers (Conventional)	PM-2418/20, Dt.15-09-2020	Nos.	14,750.00	12,500.00	-	12,500.00	2,250.00	18	BAT00075
18	12 V 42 AH SMF VRLA Batteries	Rpt.&Ext.PM-2184/19, Dt.16-11-2019	Nos.	4,003.84	3,064.00	64.00	3,128.00	875.84	28	BAT00056
20	220V 80 AH Battery charger & DCDB	PM - 1711/18, Dt. 10-08-2018.	Nos.	310,003.70	259,857.00	2,858.00	262,715.00	47,288.70	18	BAT00072
21	220 V, 80 AH SMF Batteries	Ext.PM-2416/20, Dt.11-09-2020	Nos.	211,200.00	165,000.00	-	165,000.00	46,200.00	28	BAT00023
22	11 KV 2 MVAR Capacitor banks with associated equipment			-			-			
(a)	Type A	PM-1382/17 Dt: 10-11-2017	Nos.	799,000.00	677,118.64	-	677,118.64	121,881.36	18	CPT10009
(b)	Type B with 40 Mtrs HT UG cable	PM-2672/15.12.08	Nos.	895869.07						
(c)	Type C (Indoor Type with HT UG cable	PM-3518, Dt.29-02-2012	Nos.	1,295,000.00						CPT10014
23	Sectionalizers	PM-671/04-03-2016	Nos.	487,782.24	Procured specially for SCADA DMS project					SBR00599
24	Auto - Reclosures	PM-671/04-03-2016	Nos.	855,193.83	Procured specially for SCADA DMS project					
26	11KV 3 Way RMU with FRTU	Ext.PM- 2286/19, Dt.29-01-2020	Nos.	561,680.00	476,000.00	-	476,000.00	85,680.00	18	BRK10022
27	11KV 5 Way RMU with FRTU	Rpt.PM-2454/20, Dt.06-10-2020	Nos.	886,180.00	739,750.00	11,250.00	751,000.00	135,180.00	18	BRK10023
28	33 KV Indoor twin feeder control panel	PM-579/15, Dt: 30-11-2015	Nos.	385,643.32	324,299.00	2,517.37	326,816.37	58,826.95	18	BRK30014
29	33/11 KV Indoor switch gear (8 feeders)	Rpt.& Ext. PM-2439/20, Dt.28-09-2020	Nos.	18,000,000.84	14,836,000.00	418,238.00	15,254,238.00	2,745,762.84	18	BRK30020
30	33 KV CTs of ratio 600-300/1-1A 0.2S Class of Accuracy	Rpt&Extn.PM-1116/17, Dt.17-04-2017	Nos.	22,566.91	18,400.00	724.50	19,124.50	3,442.41	18	ITR30068
SUBHEAD - VI : METERS AND METERING EQUIPMENT				-			-			
I	**HT Metering**			-			-			
1	**HT Trivector Meter of class 0.2S**	PM-2317/19 Dt: 20-03-2020	Nos.	7,949.66	6,737.00	0.00	6,737.00	1,212.66	18	As per annexure
II	**11 KV Metering (11 KV CT PT Sets)**						-			
1	10/5 (0.2S class)	PM-2576/20 Dt: 03-02-2021	Nos.	39,553.82	31,522.19	1,998.00	33,520.19	6,033.63	18	ITR10049
2	20/5 (0.2S class)	PM-2319/19 Dt. 20-03-2020	Nos.	35,565.20	28,152.00	1,988.00	30,140.00	5,425.20	18	ITR10047 ITR10048
3	40/5 (0.2S class)	PM-2319/19 Dt. 20-03-2020	Nos.	35,565.20	28,152.00	1,988.00	30,140.00	5,425.20	18	ITR10047 ITR10048
4	5/5A (0.2s class)	PM-2321/19 Dt. 20-03-2020	Nos.	41,860.50	34,780.00	695.00	35,475.00	6,385.50	18	ITR10076
5	60/5A (0.2s class)	PM-2319/19 Dt. 20-03-2020	Nos.	35,990.00	28,502.00	1,998.00	30,500.00	5,490.00	18	ITR10046
6	75/5A (0.2s class)	Rpt PM-843/16, Dt.06-08-2016	Nos.	45,253.00	37,750.00	600.00	38,350.00	6,903.00	18	ITR10063
7	100/5A(0.2S CLASS)	PM-843/16, Dt.06-08-2016	Nos.	45,253.00	37,750.00	600.00	38,350.00	6,903.00	18	ITR10045
III	**LT Meters**									
1	LT Trivector meter (without CTs & Meter box) 100/5A (with DLMS) - Cat- C with	PM-2254/19 Dt: 17-01-2020	Nos.	2,340.00	1,983.05	0.00	1,983.05	357	18	MTE30042
2	LT TVR Meters Cl. 0.5 (Including Box & 3 CTs) 200/5A for DTR Metering (for AGL	PM-1691/18, Dt: 21-07-2018	Nos.	5,758.40	4,880.00	-	4,880.00	878	18	MTE30025
3	LT TVR Meters Cl. 0.5S (Including Box & 3 CTs) 50/5A for AGL DTRs		Nos.	5,758.40	4,880.00	-	4,880.00	878	18	MTE30023
4	LT TVR Meters Cl. 0.5S (Including Box & 3 CTs) 100/5A (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	5,758.40	4,880.00	-	4,880.00	878	18	MTE30024

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
IV	**Single phase electronic meter**									
1	Single Phase 5-30A Meters With PP box & IR port	Ext.PM-2357/20 Dt: 09-06-2020	Nos.	790.00	669.49	0.00	669.49	120.51	18	MTE10023
2	Single Phase 5-30A Meters Without PP box & IR port	PM-1995/19 Dt: 20-06-2019	Nos.	660.00	559.32	0.00	559.32	100.68	18	MTE10024
V	**Three phase Electronic meters**									
14	Three Phase 10-40A Meters with IRDA Port with PP Box	PM-1939/19 Dt: 01-05-2019	Nos.	2,160.00	1,805.51	25.00	1,830.51	329.49	18	MTE30038
14	Three Phase 10-40A Meters with IRDA Port without PP Box	PM-1939/19 Dt: 01-05-2019	Nos.	1,850.00	1,552.80	15.00	1,567.80	282.20	18	MTE30047
VI	**Testing equipments & others**			-			-			
1	LT ERS Field Testing Kit (Along with accessories)	PM-1865/18, Dt: 07-01-2019	Each	174,067.11	147,000.00	514.50	147,514.50	26,553	18	TEQ10016
2	ERS Testing kits of accuracy 0.02 Class	PM-2484/20, Dt.25-11-2020	Nos.	11,659,860.00	9,822,000.00	59,237.29	9,881,237.29	1,778,622.71	18	TEQ10082
3	Semi Automatic Master Test benches of class 0.1 accuracy	PM-2627, Dt.03-10-2008	Nos.	2,320,506.58	1,959,881.00	6,650.00	1,966,531.00	353,976	18	TEQ10030
4	Hand held computers	PM-2802/9.10.09	Each	5273.83						OMT10026
5	Integrated Spot Billing Machines	PM-2511/20 Dt: 22-12-2020	Nos.	9,650.04	8,178.00	-	8,178.00	1,472	18	OMT10083
6	CMRI	PM-2052/19 Dt: 30-07-2019	Nos.	22,355.10	18,945.00	0.00	18,945.00	3,410.10	18	OMT10014
7	LT distribution box (SMC)	PM-2391/20 Dt: 18-08-2020	Nos.	7,720.00	6,542.37	0	6,542.37	1,177.63	18	BXS00047
SUBHEAD - VII : VCB & PTR spares							-			
1	IDMT (3 O/L+E/L) Numerical Relay 24V DC	Rpt.PM-2422/20, Dt.17 -09-2020	Nos.	7,338.42	6,219.00	-	6,219.00	1,119.42	18	SBR00177
2	IDMT Static Relay (3 O/L+1E/L) 220 V DC Relays	PM- 2092/19, Dt.30-08-2019	Nos.	29,854.00	25,300.00	-	25,300.00	4,554.00	18	SBR00216
VIII	**COMPUTERS/LAPTOPS**						-			
1	Desktop Computers(Make HP)	PM-2485/20, Dt.28-11-2020	Nos.	42,362.00	35,900.00	-	35,900.00	6,462	18	CAH00011
2	Desktop Computers(Make DELL)	Rpt PM-1429/17, Dt. 11-12-2017	Nos.	37,978.30	32,185.00	-	32,185.00	5,793	18	CAH00011
3	Desktop Computers(Make ACER)	Rpt PM-1428/17, Dt. 11-12-2017	Nos.	37,978.30	32,185.00	-	32,185.00	5,793	18	CAH00011
4	Printers Dot Matrix Printers: (80 Column)	PM-1882/18, Dt: 13-03-2019	Nos.	8,206.90	6955	-	6,955.00	1,252	18	CAH00016
5	Dot Matrix Printers: (132 Column)	PM-1882/18, Dt: 13-03-2019	Nos.	11,398.80	9660	-	9,660.00	1,739	18	CAH00288
6	Laser Jet Printer	PM-2482/20, Dt.19-11-2020	Nos.	10,897.30	9,235.00	-	9,235.00	1,662.30	18	CAH00004
11	Transformer winding resistance kit	PM-2729, Dt: 23-04-2009	Nos.	121,540.00	100000	3000	103,000.00	18,540	18	TEQ10033
12	Transformer Turns Ratio Test Kit	PM-2729, Dt: 23-04-2009	Nos.	133,340.00	110000	3000	113,000.00	20,340	18	TEQ10034
13	Tan Delta and Capacitance Test Kit	PM-2729, Dt: 23-04-2009	Nos.	572,300.00	480000	5000	485,000.00	87,300	18	TEQ10035
14	Transformer Oil Resistivity Test kit	PM-2729, Dt: 23-04-2009	Nos.	357,540.00	300000	3000	303,000.00	54,540	18	TEQ10036
16	Digital Earth Clamp Testers	PM-3180, Dt:06-10-2010	Nos.	63,592.56	53,892.00	-	53,892.00	9,701	18	TEQ10073
17	High Voltage Detectors	PM-3180, Dt:06-10-2010	Nos.	17,211.07	14,585.65	-	14,585.65	2,625	18	TEQ10074
18	**11KV LV VCBs with CTs and panel (CTs ratio 600-300/1-1A)**						-			
19	9KV 10KA LAS (Line type) Porcelain	PM- 2566/20, Dt.03 -02-2021	Nos.	578.20	490.00	-	490.00	88.20	18	LAS00001
20	Three phase portable analyzers	PM-2833, Dt: 10-11-2009	Nos.	404,740.00	340,000.00	3,000.00	343,000.00	61,740.00	18	TEQ10067
21	Circuit Breaker Time interval Meter with PC download software	PM-2834, Dt: 10-11-2009	Nos.	88,500.00	75,000.00	-	75,000.00	13,500.00	18	TEQ10068
22	Dissolved Gas Analyzer(DGA) with water PPM Kit(Model-Transport-X)	PM-2835, Dt; 10-11-2009	Nos.	3,148,240.00	2,668,000.00	-	2,668,000.00	480,240.00	18	TEQ10069
23	RGGVY SMC Meter Boxes along with accessories	PM-3227, Dt: 07-01-2011	Nos.	345.60	280.00	12.88	292.88	52.72	18	BXS00048
24	RGGVY Polycorbonate Meter Boxes along with accessories	PM-3076, Dt: 06-09-2010	Nos.	282.02	239.00	-	239.00	43.02	18	BXS00049
25	Digital Clamp Meters	PM-3286, Dt: 06-04-2011	Nos.	2,745.57	2,270.00	56.75	2,326.75	418.82	18	OMT10050
26	Single phase Variacs	PM-3286, Dt: 06-04-2011	Nos.	15,723.50	13,000.00	325.00	13,325.00	2,398.50	18	TEQ10075
27	Electronic Insulated Testers/Meggers	PM-3286, Dt: 06-04-2011	Nos.	79,461.20	65,690.00	1,650.00	67,340.00	12,121.20	18	TEQ10076
28	Ratio Test Kits	PM-3287, Dt: 06-04-2011	Nos.	105,374.00	87,300.00	2,000.00	89,300.00	16,074.00	18	TEQ10079
29	Capacitance Meters	PM-3287, Dt: 06-04-2011	Nos.	30,975.00	24,250.00	2,000.00	26,250.00	4,725.00	18	TEQ10080
30	Portable Relay Test Kits	PM-3288, Dt: 06-04-2011	Nos.	531,000.00	450,000.00	-	450,000.00	81,000.00	18	TEQ10077

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
31	Time interval Meter	PM-3289, Dt: 06-04-2011	Nos.	20,650.00	17,500.00	-	17,500.00	3,150.00	18	TEQ10078
32	Earth Tester (0-20-200-2000Ω)	PM-3290, Dt: 06-04-2011	Nos.	4,743.60	3,920.00	100.00	4,020.00	723.60	18	OMT10074
33	Primary Injection Kit	PM-3291, Dt: 06-04-2011	Nos.	90,034.00	75,300.00	1,000.00	76,300.00	13,734.00	18	TEQ10081
35	33KV, 3CX400 Sq.mm XLPE UG Cable Straight through heat shrinkable jointing kits	PM-2368/20, Dt.25-06-2020	Nos.	26,035.60	21,738.00	326.07	22,064.07	3,971.53	18	SCB10113
36	Integrated Spot Billing Machines Without GSM/GPRS Modems	PM-2511/20, Dt. 22-12-2020	Nos.	9,650.04	8,178.00	-	8,178.00	1,472.04	18	OMT10083
	Additional Items						-			
1	11KV 400 Amps (Conventional) DB AB Switch with Porcelain type insulators	Rpt. PM- 2266/19 Dt. 27-01-2020	Nos.	12,787.01	10,836.45	-	10,836.45	1,950.56	18	ABS10009
2	11 KV 200 Amps AB Switch (Tilting) Square pipe (a) Polymer Type	PM-1728/18, Dt. 27-08-2018	Nos.	6,632.78	5,621.00	-	5,621.00	1,011.78	18	ABS10002
3	11KV, 220V DC Feeder VCBs with CRPs & CTs of ratio 400-200-100/1-1A (with Feeder Protection IED relays)	Rpt PM-2517/20, Dt.31-12-2020	Nos.	345,060.00	285,223.73	7,200.00	292,423.73	52,636.27	18	BRK10019
4	11KV, 220V DC LV VCBs with CRPs & CTs of ratio 600-300/1-1A (with Trans. Prot. IED relays)	Rpt.& Ext.PM-2438/20, Dt.23-09-2020	Nos.	430,700.00	357,800.00	7,200.00	365,000.00	65,700.00	18	BRK10020
5	33KV, 220V DC Feeder VCBs with CRPs & CTs of ratio 400-200-100/1-1A (with IEDs)	PM-2514/20, Dt.31-12-2020	Nos.	486,499.84	401,242.00	11,046.00	412,288.00	74,211.84	18	BRK30037
6	11KV three phase HG Fuse Sets with Solid Core Insulators	PM-2241/19 Dt: 13-01-2020	Nos.	1,749.00	1,482.20	-	1,482.20	266.80	18	HGF10002
7	11 KV Solid Core Insulators for HG Fuses	PM-1879/18 Dt: 11-03-2019	Nos.	184.81	156.62	-	156.62	28.19	18	INS10007
9	33 KV CTs 50/1 for HT Metering (0.2s class)	PM-2532/20, Dt.11 -01-2021	Nos.	18,290.00	15,250.00	250.00	15,500.00	2,790.00	18	ITR30057
10	33 KV CTs 400-200-100/1-1A for HT Metering (0.2s class)	Rpt.PM-1606/18, Dt.17-05-2018	Nos.	21,234.10	17,520.00	475.00	17,995.00	3,239.10	18	ITR30067
11	11KV CTs of ratio 600-300/1-1A, 0.2S class	PM-2251/19, Dt.13 -01-2020	Nos.	17,999.72	14,504.00	750.00	15,254.00	2,745.72	18	ITR10071
12	11KV CTs of ratio 400-200/1-1A, 0.2S class	LOI/D.No.7196 /20, Dt.25-02-2021	Nos.	18,786.78	14,922.00	999.00	15,921.00	2,865.78	18	ITR10072
13	11KV CTs of ratio 600-300/1-1-0.577A, 0.2S class	PM-1923/19 DT: 23-04-2019	Nos.	20,827.00	17,250.00	400.00	17,650.00	3,177.00	18	ITR10075
14	1Ph 10-60A Ele meter with PP box	PM-299/14, Dt.13-02-2015.	Nos.	1,025.77	846.96	22.34	869.30	156.47	18	MTE10007
15	Three phase 10-40 A Meters without PP Box with IRDA port	PM-1939/19 Dt: 01-05-2019	Nos.	1,850.00	1,552.80	15.00	1,567.80	282.20	18	MTE30047
16	LT TVR Meters (4 CTs-0.5S)-DLMS protocol	PM-1288/17, Dt.06-09-2017	Nos.	5,923.60	4,900.00	120.00	5,020.00	903.60	18	MTE30026
17	LTCT Mts(4CTs-0.5S)400/5A DLMS Protocol	PM-4211/13, Dt:31-12-2013	Nos.	6,706.90	5,454.00	229.81	5,683.81	1,023.09	18	MTE30036
18	LT TVR 100/5A PP 0.5S (CAT-C) DLMS&IRDA	Rpt PM-1249/17, Dt. 22-07-2017	Nos.	9,654.42	7,992.00	189.71	8,181.71	1,472.71	18	MTE30040
19	LT TVR 50/5A 0.5S Cat-C meter w/o box	PM-862/16, Dt.01-09-2016	Nos.	2,057.38	1,725.30	18.24	1,743.54	313.84	18	MTE30041
20	LT TVR 200/5A 4CTs0.5S DLMS(w/oCTs&box)	PM-1288/17, Dt: 06-09-2017	Nos.	1,905.70	1,600.00	15.00	1,615.00	290.70	18	MTE30043
21	LT TVR 200/5A 3CT 0.5S DLMS(w/o CTs&box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	1,774.72	1,504.00	-	1,504.00	270.72	18	MTE30044
22	LT TVR 100/5A 3CT 0.5S DLMS(w/o CTs&box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	1,774.72	1,504.00	-	1,504.00	270.72	18	MTE30045
23	LT TVR 50/5A 3CT 0.5S DLMS(w/o CTs&box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	1,774.72	1,504.00	-	1,504.00	270.72	18	MTE30046
24	11KV 1 MVAR Capacitor Banks	PM-1382/17 Dt: 10-11-2017	Nos.	699,000.00	592,372.88	-	592,372.88	106,627.12	18	CPT10016
25	ERS Testing kits 0.05 accuracy	PM-2289/19 Dt: 30-01-2020	Nos.	1,300,000.10	1,096,713.00	4,982.00	1,101,695.00	198,305.10	18	TEQ10087
26	LT XLPE cable 1C x 150 Sq.mm	PM-2471/20, Dt.29-10-2020	KM	94,709.16	78,291.00	1,971.00	80,262.00	14,447.16	18	CBX00021
27	LT XLPE cable 1C x 185 Sq.mm	PM-2238/19, Dt.08-01-2020	KM	120,151.60	101,823.39	0.00	101,823.39	18,328.21	18	CBX00022
28	LT 3 ½ Cx240 sq.mm.	PM-1277/17, Dt.28-08-2017	KM	626,490.89	484,001.00	5,445.01	489,446.01	137,044.88	28	CBX00019

COST - DATA ABSTRACT

Sl. No	Particulars of items	Wind. Pr. In Kg /m2	W.Load in Kg.	Type of pole being used	Span in Mtrs.	No. of poles/ KM	Size of conductor	Total Cost in Rs.
1	33 KV Line	75	365	11 M RS Joist	50	21	100 sqmm AAAC	1188146
2	33 KV DC Line	75	365	12 M RS Joist	50	21	100 sqmm AAAC	1586694
3	33 KV Line	75	365	11 M PSCC	60	17	100 sqmm AAAC	701968
4	33 KV DC Line	75	365	11 M PSCC	40	26	100 sqmm AAAC	1237948
5	33 KV Line	75	280	9.1 Mtr.PSCC	80	14	100 sqmm AAAC	523400
6	33 KV Line	75	280	9.1 Mtr.PSCC	65	16	100 sqmm AAAC	533500
7	11 KV line	75	140	9.1 Mtr.PSCC	60	18	55 sqmm AAAC	400525
8	11 KV line	75	140	9.1 Mtr.PSCC	60	18	34 sqmm AAAC	361039
9	11 KV line	75	140	8 Mtr.PSCC	60	18	55 sqmm AAAC	362294
10	11 KV line	75	140	8 Mtr.PSCC	60	18	34 sqmm AAAC	324312
11	11 KV line	75	140	RSJoist Poles	50	21	55 sqmm AAAC	641371
12	6.3 KV line	75	140	8 Mtr.PSCC	90	11	34 sqmm AAAC	142526
13	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x55+2x34sqmmAAA	330198
14	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	45	23	3x55+2x34sqmmAAA	365672
15	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	5x34sqmm AAA	297297
16	LT 3 Ph.4 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x55+1x34sqmmAAA	299296
17	LT 3 Ph.4 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	4x34sqmm AAA	266597
18	LT 1 Ph. 3 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x34 sqmm AAA	226333
19	LT 1 Ph. 2 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	2x34 sqmm AAA	194388
20	L.T.AB Cable	75	140	8 Mtr.PSCC	65	16	3x16+25sqmm	201614
21	L.T.AB Cable	75	140	8 Mtr.PSCC	65	16	2x16+25sqmm	183915
22	Convertion of 1Ph 2 W/L to 3 Ph 4 W/L	75	140	8 Mtr.PSCC	65	16	2x55xqmm	100091
22	Erection of 100 KVA CSP CRGO Distribution Transformer							233607
23	Erection of 63 KVA CSP Distribution Transformer							202512
24	Erection of 63 KVA CSP CRGO core Distribution Transformer on plinth							173656
25	Erection of 63 KVA CSP CRGO core Distribution Transformer on structure							171937
26	Erection of 100 KVA CSP CRGO core Distribution Transformer on column plinth							223523
27	Erection of 25 KVA, 3- Phase CRGO core Distribution Transformer							121942
28	Erection of 25 KVA, 3-Phase, 11 KV/433 V /250 V CRGO Conventional Transformer							108899
29	Erection of 25 KVA, Single Phase, 6.3 KV/0-240 V C.S.P. CRGO Transformer							78400

30	Erection of 15 KVA Single Phase 6.3 KV/0-240 V CSP CRGO Distribution Transformer	46223
31	Release of poly phase Agl. Service erected on support	5839
32	Release of 1 ph Domestic & non-domestic service (Electronic meter)	2354
33	Release of 3 ph. Domestic & non-domestic service (Electronic meter)	5127
34	Release of poly phase Indl.service below 20 HP (Electronic meter)	5789
35	Release of Industrial service above 20H.P upto 50 HP with LT Trivector meter	9855
36	Release of Industrial service above 50 HP and upto 75 HP (HT metering)	193362
37	Release of Street light service (1 -ph electonic meter)	2850
38	Erection of L.T. C.T. Operated Electonic trivector meter on LV side of DTR	11191
39	Erection of 33/11 KV Sub-station with2 x8 MVA power transformer & 6 Nos. 11 KV feeders (without 11 KV 2 MVAR capacitor Bank)	25883068
40	Erection of 33/11 KV Sub-station with2 x8 MVA power transformer & 6 Nos. 11 KV feeders (with 11 KV 2 MVAR capacitor Bank)	27345959
41	Erection of 33/11 KV Sub-station(Indoor substation) with2x8 MVA power transformer & 6 Nos. 11 KV feeders (without 11 KV 2 MVAR capacitor Bank)	43996675
42	Erection of 33/11 KV Sub-station with 9.1 mts PSCC Poles and 2x5 MVA power transformer & 5 Nos. 11 KV feeders (without 11 KV 2 MVAR capacitor Bank)	16867350
43	Erection of 33/11 KV Sub-station with 9.1 mts PSCC Poles and 2x5 MVA power transformer & 5 Nos. 11 KV feeders (with 11 KV 2 MVAR capacitor Bank)	17857145
44	Erection of 33/11 KV Sub-station with 9.1 mts PSCC Poles and 1 No.power transformer & 3 Nos. 11 KV feeders (with 11 KV 2 MVAR capacitor Bank)	12424362
45	11 KV Bay extention in existing 33/11 KV Sub-stations with girder poles	93420
46	11 KV Bay extention in existing 33/11 KV Sub-stations with PSCC poles	60590
47	33KV Bay Extension at 33/11 kV Sub-station	136200
48	33KV Bay Extension at 132/33KV SS	909988
49	Erection of 11 KV VCB at 33/11 kV Sub-station	357350
50	Erection of 33KV VCB at 132/33KV SS	1221003
51	Erection of 2MVAR Capacitor Bank	1098379
52	Enhancement of PTR Capacity	3449799
53	Laying of 11 KV, 3 core 300 Sq.mm UG Cable	2629517
54	Laying of 33 KV, 3 core 400 Sq.mm UG Cable	3605564
55	Erection of M+3 tower	165751
56	Erection of K+3 tower	91912
57	Erection of L+3 tower	123010
58	Erection of additional 5 MVA PTR in existing 33/11 KV Sub-station	4061200
59	Extention of 3Mtrs for K+3 Towers as per ASCI Standard	12968
60	Extention of 3Mtrs for L+3 Towers as per ASCI Standard	20472
61	Extention of 3Mtrs for M+3 Towers as per ASCI Standard	25732
62	REC construction standard Drawings (19 Nos.)	

COST DATA FOR HILLY AND TRIBAL AREAS AS ADOPTED BY IRRIGATION DEPARTMENT IN THE STATE

For hilly and tribal areas, the following extra rates are allowed over and above approved cost data of labour.

a.40% extra allowed for the works located within the interior Agency/Tribal limits, i.e., for the works located beyond 16Km from any all weather route inside Agency/Tribal.

b.25% extra allowed for the works located within the interior Agency/Tribal limits, i.e., for the works located within & upto 16KM from any all weather routes inside Agency/Tribal.

Cost data per Km of 33 KV Line with 100 Sq.mm AAA Conductor over 11 Mts.
RS Joist box type at 50 Mts. Span, 100 Kg/sq.Mt wind pressure, working load 365 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	RS Joist box type11mtrs Pole with 175x85mm of 450Kgs	21	26,285	Each	551,985
2	1.53 M Channel / '**V**' Cross Arm (100x50mm)	21	1,396	Each	29,316
3	Top Clamp with cleat(75x8mm)	20	380	Each	7,600
4	Back Clamp	20	217	Each	4,340
5	Stay Set complete	12	1,395	Each	16,740
6	Bracing Set with double cross arm	1	9,255	Set	9,255
7	100 Sq.mm AAA Conductor	3.06	56,131	K.M.	171,761
8	33KV Polymer Pin Insulators With GI Pins	63	396	Each	24,949
9	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting))	12	282	Set	3,389
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	92,557
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	9036
	Total Cost of Material				**920,928**

3% storage & handling charges on items (1) to (9)		24,580
3% Contingencies on Materials		27,628
Labour & Transport		104,167
GST at 18 % on L&T		18,750
10% Estt. & Genl. Charges on Materials		92,093
	Total	**1188146.36**
	Or Say	**1,188,146**

Cost data per Km of 33 KV DC Line with 100 Sq.mm AAA Conductor over 12 Mts.
RS Joist box type at 50 Mts. Span, 100 Kg/sq.Mt wind pressure, working load 365 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	RS Joist box type12mtrs Pole with 150 x 150 mm of 500Kgs	21	29,205	Each	613,305
2	1.53 M Channel / '**V**' Cross Arm	60	1,396	Each	83,760
3	Back Clamp	60	217	Each	13,020
4	Stay Set complete	12	1,395	Each	16,740
5	Double Bracing Set with double cross arm	1	12,971	Set	12,971
6	100 Sq.mm AAA Conductor	6.12	56,131	K.M.	343,522
7	33KV Polymer Pin Insulators With GI Pins	108	396	Each	42,769
8	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	24	282	Set	6,778
9	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	93,559
10	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	9,036
	Total Cost of Material				**1,235,460**

3% storage & handling charges on items (1) to (8)		33,986
3% Contingencies on Materials		37,064
Labour & Transport		132744
GST at 18 % on L&T		23,894
10% Estt. & Genl. Charges on Materials		123,546
	Total	**1,586,694**

REC Construction Standard No.M2/1979 (R-1989)

Cost data per Km of 33 KV Line (SC) with 100 Sq.mm AAA Conductor over 11 Mts. PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 365 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	11 M PSCC Pole	17	5404	Each	91,868
2	1.53 M Channel / '**V**' Cross Arm	17	1396	Each	23,732
3	Top Clamp with cleat	16	380	Each	6,080
4	Back Clamp	17	217	Each	3,689
5	Stay Set complete	12	1395	Each	16,740
6	Bracing Set with double cross arm	1	9255	Set	9,255
7	100 Sq.mm AAA Conductor	3.06	56131	K.M.	171,761
8	33KV Polymer Pin Insulators With GI Pins	48	396	Each	19,008
9	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	282	Set	3,389
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	107245
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	6050
	Total Cost of the Material				**458,817**

3% storage & handling charges on items (1) to (9)		10,366
3% Contingencies on Materials		13,765
Labour & Transport		146727
GST at 18 % on L&T		26,411
10% Estt. & Genl. Charges on Materials		45,882
	Total	**701,968**
Stays Pits (0.76x0.76x1.5) Excavation		
	Or Say	**701,968**

REC Construction Standard No.M2/1979 (R-1989)

Cost data per Km of 33 KV Line (DC) with 100 Sq.mm AAA Conductor over 11 Mts. PSCC Poles at 40 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 365 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	11 M PSCC Pole	26	5404	Each	140,504
2	1.53 M Channel / '**V**' Cross Arm	72	1396	Each	100,512
3	Back Clamp	75	217	Each	16,275
4	Stay Set complete	12	1395	Each	16,740
5	Double Bracing Set with double cross arm	1	12971	Set	12,971
6	100 Sq.mm AAA Conductor	6.12	56131	K.M.	343,522
7	33KV Polymer Pin Insulators With GI Pins	156	396	Each	61,777
8	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	24	282	Set	6,778
9	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	129051
10	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	6655
	Total Cost of the Material				**834,785**

3% storage & handling charges on items (1) to (8)		20,972
3% Contingencies on Materials		25,044
Labour & Transport		231922
GST at 18 % on L&T		41,746
10% Estt. & Genl. Charges on Materials		83,479
	Total	**1,237,948**

REC Construction Standard No.M-2/1979 (R-1989)
Cost data per Km of 33 KV Line with 100 Sq.mm AAA Conductor over 9.1 Mts.
PSCC Poles at 80 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 280 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 M PSCC Pole	14	2,950	Each	41,300
2	1.53 M Channel / '**V**' Cross Arm	14	1,396	Each	19,544
3	Top Clamp with cleat	12	380	Each	4,560
4	Back Clamp	13	217	Each	2,821
5	Stay Set complete	12	1,395	Each	16,740
6	Bracing Set with double cross arm	1	9,255	Set	9,255
7	100 Sq.mm AAA Conductor	3.06	56,131	K.M.	171,761
8	33KV Polymer Pin Insulators With GI Pins	39	396	Each	15,444
9	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	282	Set	3,389
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	79,611
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	5500
	Total Cost of Material				**369,925**

3% storage & handling charges on items (1) to (9)		8,544
3% Contingencies on Materials		11,098
Labour & Transport		82106
GST at 18 % on L&T		14,779
10% Estt. & Genl. Charges on Materials		36,993
	Total	**523,445**
	Or Say	**523,400**

REC Construction Standard No.M-2/1979 (R-1989)
Cost data per Km of 33 KV Line with 100 Sq.mm AAA Conductor over 9.1 Mts. PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 280 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 M PSCC Pole	16	2,950	Each	47,200
2	1.53 M Channel / '**V**' Cross Arm	16	1,396	Each	22,336
3	Top Clamp with cleat	15	380	Each	5,700
4	Back Clamp	15	217	Each	3,255
5	Stay Set complete	10	1,395	Each	13,950
6	Bracing Set with double cross arm	1	9,255	Set	9,255
7	100 Sq.mm AAA Conductor	3.06	56,131	K.M.	171,761
8	33KV Polymer Pin Insulators With GI Pins	45	396	Each	17,820
9	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	282	Set	3,389
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	74,866
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	5500
	Total Cost of Material				**375,032**

3% storage & handling charges on items (1) to (9)		8,840
3% Contingencies on Materials		11,251
Labour & Transport		85469
GST at 18 % on L&T		15,384
10% Estt. & Genl. Charges on Materials		37,503
	Total	**533,479**
	Or Say	**533,500**

REC Construction Standard No. A-34/1993
Cost data per Km of 11 KV Line with 55 Sq.mm AAA Conductor over 9.1 Mts. PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 M PSCC Pole	18	2,950	Each	53,100
2	1.07 M Channel / '**V**' Cross Arm	18	718	Each	12,924
3	Top Clamp with cleat	16	400	Each	6,400
4	Back Clamp	17	161	Each	2,737
5	Stay Set complete	10	1,162	Each	11,620
6	Bracing Set with double cross arm	1	7,615	Set	7,615
7	55 Sq.mm AAA Conductor	3.06	27,239	K.M.	83,351
8	11 KV Pin Insulator with Pin	54	133	Each	7,169
9	Strain Insulator with metal parts	12	110	Each	1,317
10	Concreting of Pole, Stay sets & Base concreting			L.S	70,217
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**260,450**

3% storage & handling charges on items (1) to (9)		5,587
3% Contingencies on Materials		7,814
Labour & Transport		85279
GST at 18 % on L&T		15,350
10% Estt. & Genl. Charges on Materials		26,045
	Total	**400,525**

Cost data per Km of 11 KV Line with 34 Sq.mm AAA Conductor over 9.1 Mts. PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 M PSCC Pole	18	2,950	Each	53,100
2	1.07 M Channel / '**V**' Cross Arm	18	718	Each	12,924
3	Top Clamp with cleat	16	400	Each	6,400
4	Back Clamp	17	161	Each	2,737
5	Stay Set complete	10	1,162	Each	11,620
6	Bracing Set with double cross arm	1	7,615	Set	7,615
7	34 Sq.mm AAA Conductor	3.06	18,027	K.M.	55,163
8	11 KV Pin Insulator with Pin	54	133	Each	7,169
9	Strain Insulator with metal parts	12	110	Each	1,317
10	Concreting of Pole, Stay sets & Base concreting			L.S	70217
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**232,262**

3% storage & handling charges on items (1) to (9)		4,741
3% Contingencies on Materials		6,968
Labour & Transport		79527
GST at 18 % on L&T		14,315
10% Estt. & Genl. Charges on Materials		23,226
	Total	**361,039**

REC Construction Standard No. A-34/1993
Cost data per Km of 11 KV Line with 55 Sq.mm AAA Conductor over 8 Mts.
PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	18	1,528	Each	27,506
2	1.07 M Channel / '**V**' Cross Arm	18	718	Each	12,924
3	Top Clamp with cleat	16	400	Each	6,400
4	Back Clamp	17	161	Each	2,737
5	Stay Set complete	10	1,162	Each	11,620
6	Bracing Set with double cross arm	1	7,615	Set	7,615
7	55 Sq.mm AAA Conductor	3.06	27,239	K.M.	83,351
8	11 KV Pin Insulator with Pin	54	133	Each	7,169
9	Strain Insulator with metal parts	12	110	Each	1,317
10	Concreting of Pole, Stay sets & Base concreting			L.S	70,217
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**234,856**

3% storage & handling charges on items (1) to (9)		4,819
3% Contingencies on Materials		7,046
Labour & Transport		78040
GST at 18 % on L&T		14,047
10% Estt. & Genl. Charges on Materials		23,486
	Total	**362,294**

REC Construction Standard No. A-34/1993
Cost data per Km of 11 KV Line with 34 Sq.mm AAA Conductor over 8 Mts. PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	18	1,528	Each	27,506
2	1.07 M Channel / '**V**' Cross Arm	18	718	Each	12,924
3	Top Clamp with cleat	16	400	Each	6,400
4	Back Clamp	17	161	Each	2,737
5	Stay Set complete	10	1,162	Each	11,620
6	Bracing Set with double cross arm	1	7,615	Set	7,615
7	34 Sq.mm AAA Conductor	3.06	18,027	K.M.	55,163
8	11 KV Pin Insulator with Pin	54	133	Each	7,169
9	Strain Insulator with metal parts	12	110	Each	1,317
10	Concreting of Pole, Stay sets & Base concreting			L.S	70,217
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**206,668**

3% storage & handling charges on items (1) to (9)		3,974
3% Contingencies on Materials		6,200
Labour & Transport		73562
GST at 18 % on L&T		13,241
10% Estt. & Genl. Charges on Materials		20,667
	Total	**324,312**

REC Construction Standard No. A-34/1993
Cost data per Km of 11 KV Line with 55 Sq.mm AAA Conductor over RS Joist Poles at 50 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	RSJoist Poles (175x85mm)	21	11,682	Each	245,322
2	1.07 M Channel / '**V**' Cross Arm	21	718	Each	15,078
3	Top Clamp with cleat	20	400	Each	8,000
4	Back Clamp	21	161	Each	3,381
5	Stay Set complete	10	1,162	Each	11,620
6	Bracing Set with double cross arm	1	7,615	Set	7,615
7	55 Sq.mm AAA Conductor	3.06	27,239	K.M.	83,351
8	11 KV Pin Insulator with Pin	54	133	Each	7,169
9	Strain Insulator with metal parts	12	110	Each	1,317
10	Concreting of Pole, Stay sets & Base concreting			L.S	79,515
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**466,368**

3% storage & handling charges on items (1) to (9)		11,486
3% Contingencies on Materials		13,991
Labour & Transport		87194
GST at 18 % on L&T		15,695
10% Estt. & Genl. Charges on Materials		46,637
	Total	**641,371**

REC Construction Standard No. A-17/1987
Cost data per Km of 6.3 KV Sph Line with 34 Sq.mm AAA Conductor over 8 Mts. PSCC Poles at 90 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	11	1,528	Each	16,809
2	Top Clamp with cleat	11	400	Each	4,400
3	Back Clamp	10	161	Each	1,610
4	Stay Set complete	4	1,162	Each	4,648
5	34 Sq.mm AAA Conductor	1.02	18,027	K.M.	18,388
6	11 KV Pin Insulator with Pin	10	133	Each	1,328
7	Strain Insulator with metal parts	4	110	Each	439
8	Concreting of Pole, Stay sets & Base concreting			L.S	28087
9	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	2100
	Total Cost of Material				**77,809**

3% storage & handling charges on items (1) to (7)		1,429
3% Contingencies on Materials		2,334
Labour & Transport		45062
GST at 18 % on L&T		8,111
10% Estt. & Genl. Charges on Materials		7,781
	Total	**142,526**

REC Construction Standard No. B-8/1984
Cost data per Km of LT 3 Ph 5 Wire line (Horizontal formation) with
3 x 55 Sq. mm + 2 x 34 Sq. mm AAAC over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,528	Each	24,450
2	LT 3 Phase cross arms	18	417	Each	7,506
3	LT top fitting	18	238	Each	4,284
4	Back Clamp	18	89	Each	1,602
5	Stay Set complete	6	1,162	Each	6,972
6	55 Sq.mm AAA Conductor	3.06	27,239	KM	83,351
7	34 Sq.mm AAA Conductor	2.04	18,027	KM	36,775
8	Shackle Insulator with metal parts	16	58	Each	928
9	LT pin insulator with pin	56	54	Each	3,024
10	C.I. Knob	16	10	Each	160
11	Concreting of Pole, Stay sets & Base concreting			L.S	42130
12	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**215,182**

3% storage & handling charges on items (1) to (10)		5,072
3% Contingencies on Materials		6,455
Labour & Transport		69467
GST at 18 % on L&T		12,504
10% Estt. & Genl. Charges on Materials		21,518
	Total	**330,198**

REC Construction Standard No. B-8/1984
Cost data per Km of LT 3 Ph 5 Wire line (Horizontal formation) with
3 x 55 Sq. mm + 2 x 34 Sq. mm AAAC over 8 Mts.
PSCC Poles at 45 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	23	1,528	Each	35,146
2	LT 3 Phase cross arms	24	417	Each	10,008
3	LT top fitting	24	238	Each	5,712
4	Back Clamp	24	89	Each	2,136
5	Stay Set complete	6	1,162	Each	6,972
6	55 Sq.mm AAA Conductor	3.06	27,239	KM	83,351
7	34 Sq.mm AAA Conductor	2.04	18,027	KM	36,775
8	Shackle Insulator with metal parts	16	58	Each	928
9	LT pin insulator with pin	84	54	Each	4,536
10	C.I. Knob	23	10	Each	230
11	Concreting of Pole, Stay sets & Base concreting			L.S	51429
12	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**241,223**

3% storage & handling charges on items (1) to (10)	5,574
3% Contingencies on Materials	7,237
Labour & Transport	74,166
GST at 18 % on L&T	13,350
10% Estt. & Genl. Charges on Materials	24,122
Total	**365,672**

REC Construction Standard No. B-8/1984
Cost data per Km of LT 3 Ph 5 Wire line (Horizontal formation) with
5 x 34 Sqmm AAAC over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,528	Each	24,450
2	LT 3 Phase cross arms	18	417	Each	7,506
3	LT top fitting	18	238	Each	4,284
4	Back Clamp	18	89	Each	1,602
5	Stay Set complete	6	1,162	Each	6,972
6	34 Sq.mm AAA Conductor	5.1	18,027	KM	91,938
7	Shackle Insulator with metal parts	16	58	K.M.	928
8	LT pin insulator with pin	56	54	Each	3,024
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	42130
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**186,994**

3% storage & handling charges on items (1) to (9)		4,226
3% Contingencies on Materials		5,610
Labour & Transport		69295
GST at 18 % on L&T		12,473
10% Estt. & Genl. Charges on Materials		18,699
	Total	**297,297**

REC Construction Standard No. B-8/1984
Cost data per Km of LT 3 Ph 4 Wire line (Horizontal formation) with
3 x 55 Sqmm + 1 x 34 mm AAAC over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,528	Each	24,450
2	LT 3 Phase cross arms	18	417	Each	7,506
3	Back Clamp	18	89	Each	1,602
4	Stay Set complete	6	1,162	Each	6,972
5	55 Sq.mm AAA Conductor	3.06	27,239	K.M.	83,351
6	34 Sq.mm AAA Conductor	1.02	18,027	K.M.	18,388
7	Shackle Insulator with metal parts	12	58	Each	696
8	LT pin insulator with pin	42	54	Each	2,268
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	42130
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**191,523**

3% storage & handling charges on items (1) to (9)	4,362
3% Contingencies on Materials	5,746
Labour & Transport	66536
GST at 18 % on L&T	11,977
10% Estt. & Genl. Charges on Materials	19,152
Total	**299,296**

REC Construction Standard No. B-8/1984
Cost data per Km of LT 3 Ph 4 Wire line (Horizontal formation) with
4 x 34 Sqmm AAAC over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,528	Each	24,450
2	LT 3 Phase cross arms	18	417	Each	7,506
3	Back Clamp	18	89	Each	1,602
4	Stay Set complete	6	1,162	Each	6,972
5	34 Sq.mm AAA Conductor	4.08	18027.1	K.M.	73,551
6	Shackle Insulator with metal parts	12	58	Each	696
7	LT pin insulator with pin	42	54	Each	2,268
8	C.I. Knob	16	10	Each	160
9	Concreting of Pole, Stay sets & Base concreting			L.S	42130
10	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**163,335**

3% storage & handling charges on items (1) to (8)		3,516
3% Contingencies on Materials		4,900
Labour & Transport		66,536
GST at 18 % on L&T		11,977
10% Estt. & Genl. Charges on Materials		16,333
	Total	**266,597**

REC Construction Standard No. B-11/1984
Cost data per Km of LT Single Phase 3 Wire line (Horizontal formation)
with 34 Sqmm AAAC over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,528	Each	24,450
2	LT 1 Phase cross arms	18	220	Each	3,960
3	LT top fitting	18	238	Each	4,284
4	Back Clamp	18	89	Each	1,602
5	Stay Set complete	4	1,162	Each	4,648
6	34 Sq.mm AAA Conductor	3.06	18,027	K.M.	55,163
7	Shackle Insulator with metal parts	8	58	Each	464
8	LT pin insulator with pin	28	54	Each	1,512
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	32736
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
	Total Cost of Material				**132,979**

3% storage & handling charges on items (1) to (9)	2,887
3% Contingencies on Materials	3,989
Labour & Transport	62,017
GST at 18 % on L&T	11,163
10% Estt. & Genl. Charges on Materials	13,298
Total	**226,333**

REC Construction Standard No. B-11/1984
Cost data per Km of LT Single Phase 2 Wire line (Horizontal formation)
with 2 x 34 Sqmm AAAC over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,528	Each	24,450
2	LT 1 Phase cross arms	18	220	Each	3,960
3	Back Clamp	18	89	Each	1,602
4	Stay Set complete	4	1,162	Each	4,648
5	34 Sq.mm AAA Conductor	2.04	18,027	K.M.	36,775
6	Shackle Insulator with metal parts	4	58	Each	232
7	LT pin insulator with pin	14	54	Each	756
8	C.I. Knob	16	10	Each	160
9	Concreting of Pole, Stay sets & Base concreting			L.S	32736
10	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	2900
	Total Cost of Material				**108,219**

3% storage & handling charges on items (1) to (8)		2,177
3% Contingencies on Materials		3,247
Labour & Transport		59,257
GST at 18 % on L&T		10,666
10% Estt. & Genl. Charges on Materials		10,822
	Total	**194,388**

REC Construction Standard No. B-32/1984
Cost data per Km of LT Line with 3 x 16 + 25 Sqmm AB Cable over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,528	Each	24,450
2	Suspension clamp assembly with eye hook	14	70	Each	980
3	Dead end clamp assembly with eye hook	4	105	Each	420
4	Stay Set complete	4	1,162	Set	4,648
5	L.T. A.B. Cable 3 x 16 + 25 Sq.mm	1.02	43,354	K.M.	44,221
6	Insulated Connectors with covers	56	105	Each	5,880
7	Concreting of Pole, Stay sets & Base concreting			L.S	32736
8	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	3000
	Total Cost of Material				**116,335**

3% storage & handling charges on items (1) to (6)	2,418
3% Contingencies on Materials	3,490
Labour & Transport	57,404
GST at 18 % on L&T	10,333
10% Estt. & Genl. Charges on Materials	11,634
Total	**201,614**

REC Construction Standard No. B-32/1984
Cost data per Km of LT Line with 2 x 16 + 25 Sqmm AB Cable over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,528	Each	24,450
2	Suspension clamp assembly with eye hook	14	70	Each	980
3	Dead end clamp assembly with eye hook	4	105	Each	420
4	Stay Set complete	4	1,162	Set	4,648
5	L.T. A.B. Cable 2 x 16 + 25 Sq.mm	1.02	28,999	K.M.	29,579
6	Insulated Connectors with covers	56	105	Each	5,880
7	Concreting of Pole, Stay sets & Base concreting			L.S	32736
8	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	3000
	Total Cost of Material				**101,693**

3% storage & handling charges on items (1) to (6)	1,979
3% Contingencies on Materials	3,051
Labour & Transport	56,799
GST at 18 % on L&T	10,224
10% Estt. & Genl. Charges on Materials	10,169
Total	**183,915**

Cost Data for Conversion of Single Phase 2 wire line to Three Phase 4 wire line over existing 8 M PSCC poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Unit	Amount in Rs.
1	55 Sq.mm AAA conductor	2.04	27239	KM	55567
2	LT 3 phase X arms	17	417	Each	7089
3	Back Clamps	17	89	Each	1513
4	Shackle Insulators with metal parts	12	58	Each	691.4328
5	Pin Insulators with pins	45	54	Each	2420.298
6	Stay sets complete	6	1162	Each	6972
	Total Cost of Material				**74,253**
	3% storage & handling charges on items (1) to (6)				2,228
	3% Contingencies on Materials				2,228
	Labour & Transport				14,300
	Distmantling Charges				1,000
	GST at 18 % on L&T				2,574
	10% Estt. & Genl. Charges on Materials				7,425
			Total		**104,008**
			Or Say		**104,008**
	Less Credits				
1	Single Phase cross arms (scrap)	51	11	Kg	561
2	Original Erection charges				2200
3	Dismantling charges				1100
4	Orginal Estt & Genl Charges				56
			Total		**3917**
			Or Say		**3917**
	Net Cost		Gross - Less		**100,091**

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1993

COST DATA FOR ERECTION OF 100 KVA - 11 KV/433 V CSP TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 100 KVA CSP TRANSFORMER (Aluminium)	116963.96	8,801
2	Erection of 11 KV AB Switch (200A)	5,656	2,555
3	D.P. Structure	15,418	16,533
4	Erection of 11 K.V. H.G. Fuse set	1,749	930
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	8,999	866
7	Installation of HT Lightening Arresters	1,116	1,515
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
	Total Cost of Material	**162,087**	**38,632**

3% Storage & handling charges	4,863
3% Contingencies on Materials	4,863
Labour & Transport	38,632
GST at 18 % on L&T	6,954
10% Estt. & General charges on Materials	16,209
Total Cost in Rs.	**233,607**
Or Say	**233,607**

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

COST DATA FOR ERECTION OF 63 KVA - 11 KV/433 V CSP TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 63 KVA CSP Distribution Transformer (Aluminium)	90,159.08	8,801
2	Erection of 11 KV AB Switch (200A)	5,656	2,555
3	D.P. Structure	15,418	16,533
4	Erection of 11 K.V. H.G. Fuse set	1,749	930
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	Metering arrangement with CTs including cable connections and cleat arrangement	8,999	866
7	Installation of HT Lightening Arresters	1,116	1,515
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
	Total Cost of Material	**135,282**	**38,632**

3% Storage & handling charges	4,058
3% Contingencies on Materials	4,058
Labour & Transport	38,632
GST at 18 % on L&T	6,954
10% Estt. & General charges on Materials	13,528
Total Cost in Rs.	**202,512**
Or say	**202,512**

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

COST DATA FOR ERECTION OF 63 KVA - 11 KV/433 V TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 63 KVA Distribution Transformer (Aluminium)	90,159	8,801
2	Erection of 11 KV AB Switch (200A)	5,656	2,555
3	Plinth for distribution transformer (5'x4'x8')	0	7,235
4	Erection of 11 K.V. H.G. Fuse set	1,749	930
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	8,999	866
7	Installation of HT Lightening Arresters	1,116	1,515
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
	Total Cost of Material	**119,864**	**29,334**

3% Storage & handling charges	3,596
3% Contingencies on Materials	3,596
Labour & Transport	29,334
GST at 18 % on L&T	5,280
10% Estt. & General charges on Materials	11,986
Total Cost in Rs.	**173,656**
Or say	**173,656**

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

COST DATA FOR ERECTION OF 63 KVA - 11 KV/433 V TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 63 KVA CSP Distribution Transformer (Aluminium)	90,159	8,801
2	Erection of 11 KV AB Switch (200A)	5,656	2,555
3	Erection of structure for mounting of transformer	5,000	863
4	Erection of 11 K.V. H.G. Fuse set	1,749	930
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	8,999	866
7	Installation of HT Lightening Arresters	1,116	1,515
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
	Total Cost of Material	**124,864**	**22,962**

3% Storage & handling charges	3,746
3% Contingencies on Materials	3,746
Labour & Transport	22,962
GST at 18 % on L&T	4,133
10% Estt. & General charges on Materials	12,486
Total Cost in Rs.	**171,937**
Or say	**171,937**

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

COST DATA FOR ERECTION OF 100 KVA - 11 KV/433 V

CSP TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 100 KVA CSP Distribution Transformer (Aluminium)	116,964	8,801
2	Erection of 11 KV AB Switch (200A)	5,656	2,555
3	Construction of RCC Column type DTR Plinth of size 1'X1'X10',topslab 4'x4'x6" & beam size 4'X8'X8"	0	23,144
4	Erection of 11 K.V. H.G. Fuse set	1,749	930
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	8,999	866
7	Installation of HT Lightening Arresters with earth connection	1,116	1,515
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
	Total Cost of Material	**146,669**	**45,243**

3% Storage & handling charges		4,400
3% Contingencies on Materials		4,400
Labour & Transport		45,243
GST at 18 % on L&T		8,144
10% Estt. & General charges on Materials		14,667
	Total Cost in Rs.	**223,523**
	Or say	**223,523**

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

COST DATA FOR ERECTION OF 25 KVA, 3-Ph, 11 KV/433 V/250 V DISTRIBUTION TRANSFORMER (COPPER)

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433V/250 V 25 KVA 3-Ph Distribution Transformer (Copper)	65,524	8,801
2	Erection of 11 KV AB Switch (200A)	5,656	2,555
3	Erection of 11 KV HG Fuse set	1,749	930
4	Mounting arrangements for Transformer	5,000	550
5	Installation of L.T.H.G. Fuse sets including connect	968	484
6	C.I. Pipe earthing (2 Nos.)	7,478	4,632
7	Misc. items (like bolts & nuts, washers etc.)	500	
	Total Cost of Material	**86,875**	**17,952**

3% Storage & handling charges	2,591
3% Contingencies on Materials	2,606
Labour & Transport	17,952
GST at 18 % on L&T	3,231
10% Estt. & General charges on Materials	8,687
Total Cost in Rs.	**121,942**
Or Say	**121,942**

COST DATA FOR ERECTION OF 25 KVA, 3-Ph, 11 KV/433 V /250 V CONVENTIONAL TRANSFORMER (Alluminium)

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433V/250 V 25 KVA 3-Ph Conventional Distribution Transformer (Aluminium)	54,279	8,801
2	Erection of 11 KV AB Switch (200A)	5,656	2,555
3	Erection of 11 KV HG Fuse set	1,749	930
4	Mounting arrangements for Transformer	5,000	550
5	Installation of L.T.H.G. Fuse sets including connect	968	484
6	C.I. Pipe earthing (2 Nos.)	7,478	4,632
7	Misc. items (like bolts & nuts, washers etc.)	500	
	Total Cost of Material	**75,630**	**17,952**

3% Storage & handling charges	2,254
3% Contingencies on Materials	2,269
Labour & Transport	17,952
GST at 18 % on L&T	3,231
10% Estt. & General charges on Materials	7,563
Total Cost in Rs.	**108,899**
Or Say	**108,899**

REC - CONSTRUCTION STANDARD SPECIFICATION No. F-13/1987

COST DATA FOR ERECTION OF 25 KVA SINGLE PHASE 6.3 KV/0-240 V C.S.P. TRANSFORMER ON EXISTING 8 M PSCC SUPPORT

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	25 KVA Oil Immersed Single Phase 6.3 KV/0-240 V CSP CRGO core Transformer (Copper)	1	53,475	Each	53,475
2	Mounting arrangements for Transformer	1	2,085	Set	2,085
3	C.I. Pipe earthing	2	3,739	Each	7,478
4	LT Distribution Box (1-Phase) with XLPE 70 sq mm cable and 100 A fuse unit completely	1	1,000	Each	1,000
5	Misc. items (like bolts & nuts, washers etc.)	L.S.	500	L.S.	500
	Total Cost of Material				**64,538**

3% Storage & handling charges on items 1 to 3	1,891
3% Contingencies on Materials	1,936
Labour & Transport	3,000
GST at 18 % on L&T	540
10% Estt. & General charges on Materials	6,454
Total Cost in Rs.	**78,359**
Or Say	**78,400**

REC - CONSTRUCTION STANDARD SPECIFICATION No. F-13/1987

COST DATA FOR ERECTION OF 15 KVA SINGLE PHASE 6.3 KV/0-240 V

CRGO CORE C.S.P. TRANSFORMER ON EXISTING 8 M PSCC SUPPORT

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	15 KVA Oil Immersed Single Phase 6.3 KV/0-240 V CRGO Core Transformer (Copper)	1	25,869	Each	25,869
2	Mounting arrangements for Transfomer	1	2,085	Set	2,085
3	C.I. Pipe earthing	2	3,739	Each	7,478
4	LT Distribution Box (1-Phase) with XLPE 70 sq mm cable and 100 A fuses complete.	1	1,000	Each	1,000
5	Misc. Items	L.S.	400		400
	Total Cost of Material				**36,832**

3% Storage & handling charges on items 1 to 3	1,063
3% Contingencies on Materials	1,105
Labour & Transport	3,000
GST at 18 % on L&T	540
10% Estt. & General charges on Materials	3,683
Total Cost in Rs.	**46,223**
Or Say	**46,223**

REC - CONSTRUCTION STANDARD SPECIFICATION No. H6 & H8/1981

COST DATA FOR RELEASE OF POLY PHASE AGRICULTURAL SERVICE ERECTED ON SUPPORT

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	Three Phase 10-40A Meters with IRDA Port with PP Box	1	2,160	Each	2,160
2	3 Phase 63 A M.C.B.	1	670	Each	670
3	P.V.C. Cable 6 Sq.mm Single Core	90	9	Each	802
4	Installation of 2 KVAR Capacitor	1	550	Each	550
5	Misc. items such as Bolts, Nuts & Board etc.	L.S.	220	L.S.	220
	Total Cost of Material				**4,402**

3% Contingencies on Materials	132
Labour & Transport	733
GST at 18 % on L&T	132
10% Estt. & General charges on Materials	440
Total Cost in Rs.	**5,839**

REC - CONSTRUCTION STANDARD SPECIFICATION No. H-1 TO H3/1981

COST DATA FOR DOMESTIC AND NON-DOMESTIC SERVICE CONNECTION (SINGLE PHASE) WITH ELECTRONIC METER

S. No.	Particulars	Rate		Chargeable to DISCOM		Chargeable to Consumers		Amount in Rs.
				Qty.	Amount	Qty.	Amount	
1	Single Phase Electronic meter (5 A to 30 A) housed in a PP box	790	Each	1	790			790
2	M.C.B. 16 A	201	Each	1	201			201
3	P.V.C. Cable Single Core 2.5 Sq.mm	5	Mts.			60	300	300
4	G.I. Wire No. 6	48	Kg			1	48	48
5	P.V.C. Pipe 25 mm	30	Mts.			2	60	60
6	P.V.C. Bends 25 mm	6	Each			2	12	12
7	Misc.items (meter board & bolts & nuts etc.)	L.S.	L.S.		50		100	150
	Total Cost of Material				**1,041**		**520**	**1,561**
	3% Contingencies on Materials				31		16	47
	Labour & Transport				160		340	500
	GST at 18 % on L&T				29		61	90
	10% Estt. & General charges on Materials				104		52	156
	Total Cost in Rs.				**1,365**		**989**	**2,354**
	Or Say							**2,354**

REC - CONSTRUCTION STANDARD SPECIFICATION No. H1 TO H3/1981
COST DATA FOR DOMESTIC AND NON-DOMESTIC SERVICE CONNECTION
(THREE PHASE) (Electronic)

S. No.	Particulars	Rate		Chargeable to DISCOM Qty.	Chargeable to DISCOM Amount	Chargeable to Consumers Qty.	Chargeable to Consumers Amount	Amount in Rs.
1	3 Phase Electronic Energy Meter (10 A - 40 A) with PP Box	2160	Each	1	2,160			2,160
2	3 Phase 63 A M.C.B.	670	Each	1	670			670
3	P.V.C. Cable Single Core 2.5 Sq.mm	5	Mts.			120	600	600
4	G.I. Wire No. 8	48	Kg			1	48	48
5	P.V.C. Pipe 40 mm	78	Mts.			2	155	155
6	P.V.C. Bends 40 mm	18	Each			2	36	36
7	Misc.	L.S.	L.S.				75	75
	Total Cost of Material				**2,830**		**914**	**3,744**
	3% Contingencies on Materials				85		27	112
	Labour & Transport				320		440	760
	GST at 18 % on L&T				58		79	137
	10% Estt. & General charges on Materials				283		91	374
	Total Cost in Rs.				**3,576**		**1,551**	**5,127**
	Or Say							**5,127**

Note: Item Nos. 3 to 7 are to be borne & arranged by the consumer as per latest APTRANSCO rules.

REC - CONSTRUCTION STANDARD SPECIFICATION No. H-5/1981
POLY PHASE SERVICE CONNECTION CHARGES FOR ERECTION OF
1 NO. INDUSTRIAL SERVICE (BELOW 20 H.P.) (ELECTRONIC METER)

S. No.	Particulars	Rate		Chargeable to DISCOM Qty.	Amount	Chargeable to Consumers Qty.	Amount	Amount in Rs.
1	3-Phase (10 - 40 A) Electronic meter housed in a PP box	2160	Each	1	2,160			2,160
2	3 Phase 63 A M.C.B.	670	Each	1	670			670
3	P.V.C. Cable Single Core 10 Sq.mm	12	Mts.			80	960	960
4	G.I. Wire 8 mm	48	Kg			1	48	48
5	P.V.C. Pipe 40 mm	78	Mts.			2	155	155
6	P.V.C. Bends 40 mm	18	Each			2	36	36
7	Misc. items viz. link clips, wooden box, bolts & nuts etc.	L.S.	L.S.		100		200	300
	Total Cost of Material				**2,930**		**1,399**	**4,329**
	3% Contingencies on Materials				88		42	130
	Labour & Transport				320		440	760
	GST at 18 % on L&T				58		79	137
	10% Estt. & General charges on Materials				293		140	433
	Total Cost in Rs.				**3,689**		**2,100**	**5,789**
	Or Say							**5,789**

REC - CONSTRUCTION STANDARD SPECIFICATION No. H-5/1981
POLY PHASE SERVICE CONNECTION CHARGES FOR ERECTION OF
1 NO. INDUSTRIAL SERVICE (20 HP & ABOVE) (LT TRIVECTOR METER)

S. No.	Particulars	Rate		Chargeable to DISCOM Qty.	Amount	Chargeable to Consumers Qty.	Amount	Amount in Rs.
1	LT TVR Meters Cl. 0.5S (Including Box & 4 CTs)	5758	Each	1	5,758			5,758
2	3 Phase 63 A M.C.B.	670	Each	1	670			670
3	P.V.C. Cable Single Core 10 Sq.mm	12	Mts.			80	960	960
4	G.I. Wire 8 mm	48	Kg			1	48	48
5	P.V.C. Pipe 40 mm	78	Mts.			2	155	155
6	P.V.C. Bends 40 mm	18	Each			2	36	36
7	Misc. items viz. link clips, wooden box, bolts & nuts etc.	L.S.	L.S.		100		200	300
	Total Cost of Material				**6,528**		**1,399**	**7,927**
	3% Contingencies on Materials				196		42	238
	Labour & Transport				320		440	760
	GST at 18 % on L&T				58		79	137
	10% Estt. & General charges on Materials				653		140	793
	Total Cost in Rs.				**7,755**		**2,100**	**9,855**
	Or Say							**9,855**

REC - CONSTRUCTION STANDARD SPECIFICATION No. H-5/1981
POLY PHASE SERVICE CONNECTION CHARGES FOR ERECTION OF
1 NO. INDUSTRIAL SERVICE (50 HP & UPTO 75 HP) (HT METERING)

Amount in Rs.

S. No.	Particulars	Rate		Material		Labour		
				Qty.	Amount	Qty.	Amount	
1	DP Structure with 9.1 mts. PSCC poles	15418	Each	2	30,836	2	16,533	
2	11 KV 400 Amps conventional type AB switch	8,248	Each	2	16,496	2	3,196	
3	11 KV HG Fuse set	1,749	Each	2	3,498	2	1,860	
4	3x35 sq.mm 11 KV XLPE cable	317.67	Mts.	30	9,530	30	10,170	
5	End termination suitable for 35 sq.mm XLPE (Cable outdoor type)	1375	Each	4	5,500	4	5,776	
6	G.I. earthing (3 Nos. GI Pipe)	4184.4	Nos.	1	4,184	1	3,960	
7	11 KV CT PT 10-20/5	39,554	Each	1	39,554	1	1,138	
8	HT Trivector Meter (Clause 0.2 S)	7,950	Each	1	7,950	1	1,000	
9	Special type box for Trivector meter	5500	Each	1	5,500	1	200	
10	Transport of material						1,650	
11	Misc. items viz. link clips, wooden box, bolts & nuts etc.	L.S.	L.S.				550	
	Total Cost of Material				**123,048**		**46,033**	**-**

3% Contingencies on Materials	3,691
Labour & Transport	46,033
GST at 18 % on L&T	8,286
10% Estt. & General charges on Materials	12,305
Total Cost in Rs.	**193,362**
Or Say Rs.	**193,362.00**

COST DATA FOR STREET LIGHT SERVICE CONNECTION (SINGLE PHASE)

S. No.	Particulars	Qyt.	Rate in Rs.	Per Unit	Amount in Rs.	
1	1 Phase (5-20A) Electronic Meter housed in a PP box	1	790	Each	790	
2	1 Phase 20 A M.C.B.	1	179	Each	179	
3	Light sensitive switch	1	400	Each	400	
4	P.V.C. Cable 4 Sq.mm Single Core	15	10	Mts.	150	
5	P.V.C. Pipe 25 mm	2	30	Mts.	61	
6	P.V.C. Bends 25 mm	2	6	Each	12	
7	Moulded Distribution Box	1	250	Each	250	
8	Wooden, Plugs, clamps, bolts, nuts, link clips etc.	L.S.		L.S.	150	
	Total Cost of Material				1,991	

3% Contingencies on Materials	60
Labour & Transport	600
GST at 18 % on L&T	108
10% Estt. & General charges on Materials	199
Total Cost in Rs.	2,850
Or Say	2,850

COST ESTIMATE FOR ERECTION OF 1 NO. LT ELECTRONIC TRIVECTOR METERS ON LV SIDE OF DTR

Sl. No.	Particulars	Qty.	Unit	Rate per (in Rs.)	Amount (in Rs.)
1	LT 3-Phase class 0.5S Accuracy CT Operated Energy Meter Housed in a box with 3 Nos. CTs	1	Each	5,758.40	5,758.40
2	3.5 Core 95 LT XLPE Cable (for 10 meters) to LT side of DTR with cleat wiring.	LS			3,240.62
	Total				**8,999.02**
	3% Contingencies				269.97
	Fixing of CT operated meter on LV side of Distribution transformers with box including cost of lugs, clamps, GI wire and transport from district store to site.				866.00
	GST at 18 % on L&T				156
	10% Estt. & Genl. Charges				899.90
	Total Cost in Rs.				**11,190.77**
	Or Say				**11,191.00**

COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH 2X8MVA POWER TRANSFORMERS AND NF = 6 NO. 11 KV FEEDERS (WITH OUT 11 KV 2 MVAR CAPACITORS BANK)

Rs. in Lakhs

Sl. No		Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 (a)	Lands and Rights	LS	As per local conditions		50.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaing wall around switchward with gravel filling, gate and bore well	LS		LS	16.50
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	13	0.584	MT	7.59
8	Transformers				
a)	33/11kv **8 MVA** Power Transformer	2	42.834	Each	85.67
b)	11kv / 433 v **25 kva** 3-ph Stn. Transformer (CSP copper)	1	0.543	Each	0.54
9	Circiut Breakres (including trivector meters)				
a)	33 KV Group control VCB with CTs and panel	1	3.956	Each	3.96
b)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=6)	6	2.760	Each	16.56
c)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
10	Control Circiut Panels				
a)	AC Supply Panel	1	0.330	Each	0.33
b)	Alaram Panel	1	0.330	Each	0.33
11	Instrumnet Transformers				
a)	33KV PT (single unit)	3	0.217	Each	0.65
b)	11kv P.T (3 Phase)	1	0.198	Each	0.20
12	Lightning Arrestors				
a)	33KV 10KA	6	0.032	Each	0.19
b)	11KV Line Type (NF=6)	18	0.015	Each	0.27
c)	11KV Station Type 10 KA	6	0.015	Each	0.09
13	Isolating Switches				
a)	33KV 800A AB Switch (Double Breaker)	3	0.332	Each	1.00
b)	11KV 800A AB Switch (Double Breaker)	3	0.235	Each	0.70
c)	11KV 400A AB Switch (Double Breaker)	12	0.082	Each	0.99
d)	11KV 200A AB Switch	1	0.057	Each	0.06
e)	11KV HG fuse Switch	3	0.017	Each	0.05
f)	33KV Horn Gap Fuse Set (1XNT)	2	0.000	Each	0.00
14	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.45
15	220 Volts 80 AH SMF Battery Set including Battery Charger and DC DB	1	3.10	Each	3.10
16	Earthing of Power Transformer VCBs,AB Swicthes,Strucutres with 75x8mm GI Flat			LS	1.98
	Sub Total				**216.77**
	3% Contingencies on items 7 to 15				3.87
	1% T&P Charges on items No. 7 to 15				1.29
	10% Erection and transport and commissioning charges on items 7 to 15				12.90
	GST at 18% on L&T				2.32
	10% Establishment and General Charges				21.68
	Grand Total				**258.83**

COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH 2X8MVA POWER TRANSFORMERS AND NF = 6 NO. 11 KV FEEDERS (WITH 11 KV 2 MVAR CAPACITORS BANK)

Rs. in Lakhs

Sl. No	Particulars	Qty.	Rate (Rs. in	Unit	Amount (Rs. in
1 (a)	Lands and Rights	LS	As per local conditions		50.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaing wall around switchward with gravel filling, gate and bore well	LS		LS	16.50
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	20	0.584	MT	11.68
8	Transformers				
a)	33/11kv 8 MVA Power Transformer	2	42.834	Each	85.67
b)	11kv / 433 v 25 kva 3-ph Stn. Transformer	1	0.543	Each	0.54
9	Circiut Breakres (including trivector meters)				
a)	33 KV Group control VCB with CTs and panel	1	3.956	Each	3.96
b)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=6)	6	2.760	Each	16.56
c)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
10	Control Circiut Panels				
a)	AC Supply Panel	1	0.330	Each	0.33
b)	Alaram Panel	1	0.330	Each	0.33
11	Instrumnet Transformers				
a)	33KV PT (single unit)	3	0.217	Each	0.65
b)	11kv P.T (3 Phase)	1	0.198	Each	0.20
12	Lightning Arrestors				
a)	33KV 10KA	6	0.032	Each	0.19
b)	11KV Line Type (NF=6)	18	0.015	Each	0.27
c)	11KV Station Type 10 KA	6	0.015	Each	0.09
13	Isolating Switches (Double Breaker)				
a)	33KV 800A AB Switch (Double Breaker)	3	0.332	Each	1.00
b)	11KV 800A AB Switch (Double Breaker)	3	0.235	Each	0.70
c)	11KV 400A AB Switch (Double Breaker)	12	0.082	Each	0.99
d)	11KV 200A AB Switch	1	0.057	Each	0.06
e)	11KV HG fuse Switch	3	0.017	Each	0.05
f)	33KV Horn Gap Fuse Set (1XNT)	2	0.000	Each	0.00
14	2MVAR 11KV Capacitor Bank along with Associated Equipment (Type A)	1	7.990	Each	7.99
15	220 Volts 80 AH Battery Set including Battery Charger and DC DB	1	3.100	Each	3.10
16	Earthing of Power Transformer VCBs,AB Swicthes,Strucutres with 75x8mm GI Flat			LS	1.98
	Sub Total				**228.40**

3% Contingencies on items 7 to 15	4.22
1% T&P Charges on items No. 7 to 15	1.41
10% Erection and transport and commissioning charges on items 7 to 15	14.06
GST at 18% on L&T	2.53
10% Establishment and General Charges	22.84
Grand Total	**273.46**

COST DATA FOR ERECTION OF 33/11KV INDOOR SUBSTATION WITH 2 Nos. 8MVA POWER TRANSFORMERS & 6 Nos. 11KV FEEDERS

Sl. No	PARTICULARS	QTY		RATE	UNIT	AMOUNT Rs in Lakhs
1	Lands and rights	Ls		As per local conditions		50.00
a)						
b)	Plantation of Trees	Ls		0.15	LS	0.15
2	**Civil Works**					
i	Construction of Control room	LS		22.00	LS	22.00
ii	Compound wall, Gate,levelling of site and Borewell	LS		4.95	LS	4.95
iii	special foundations					
iv	Laying of Cable Trench	LS		3.03	LS	3.03
v	Electrification and sanitation arrangements	LS		0.83	LS	0.83
vi	Construction of Transformer plinth	LS		0.83	LS	0.83
3	**Station Auxillaries**					0.00
a)	Yard lighting	6		0.07	E	0.43
b)	Spreading of Metal	Ls		0.11	LS	0.11
c)	Telephone (P &T) and wireless set	Ls		1.38	LS	1.38
d)	Fire fighting Equipment, Miscellenous items like Rubber Mats, Earth rods, Helmets, Gloves, Furniture, T&P etc	Ls		1.10	LS	1.10
e)	Water supply arrangements	Ls		0.55	LS	0.55
4	Foundations for breakers etc.	Ls		0.66	LS	0.66
5	Bus bar arrangements	Ls		2.75	LS	2.75
6	Control cables	Ls		1.10	LS	1.10
7	**Power and Distribution Transformers**					
a)	33/11 KV, 8 MVA Power Transformers	2	No	42.834	E	85.67
b)	25KVA 11/04KV Station Transformer	1	No	0.543	E	0.54
8	**Indoor switch gear & Control panels**					
a)	33 KV, 25 KVA, 1250 A, 8 Panels SF-6, GIS Switch gear consisting of the following					
i	1250 A Transformers control cubicals 2 Nos.					
ii	1250 - A Incoming feeder cubicals - 3 Nos.					
iii	1250 - A Bus coupler - 1 No.					
b)	11 KV, 20 KVA, 1250 A ,14 panels SF6 GIS switch gear consisting the following equipments	1	No	180.00	E	180.00
i	1250 A Transformers control cubicals 2 Nos.					
ii	1250 - A feeder cubicals - 6 Nos.					
iii	1250 - A Bus coupler - 1 No.					
iv	Bus transformers panel - 1 No.					
v	Adopter for station transformer - 1 No.					
9	**Alaram and Annunciation Panel**	1	No	0.31	E	0.31
10	AC Panel	1	No	0.33	E	0.33
11	220 Volts, 200 AH, Battery with trickle charger	1	No	3.10	E	3.10
12	Data Acquisition equipment (SIM, modem, cabling etc)				LS	0.45
13	**Earthing Arrangements**					
a)	MS Flat75x8 mm for providing earthing matting complete	2	MT	0.564	MT	0.58
b)	MS Flat 50x6 mm for earthing the equipment	2	MT	0.592	MT	0.58
c)	Earthing electrodes & GI pipes	LS		0.90	LS	0.90
14	RS Joist 175x85/150x150(Girder poles) for base of switch gear	1.5	MT	0.5841	MT	0.88
				Total		**363.19**
	3% Contingencies on Items 7 To 14					8.20
	10% Transport, Erection and Commissioning charges on items 7 To 14					27.33
	GST at 18% on L&T					4.92
	10% Establishment and General Charges					36.32
	Grand Total					**439.97**

COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH 9.1 Mtrs PSCC POLES, 2 X 5 MVA POWER TRANSFORMERS AND 5 NO. 11 KV FEEDERS (WITH 11 KV 2 MVAR CAPACITORS BANK)

Rs. in Lakhs

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 (a)	Lands and Rights	LS	As per local conditions		11.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaing wall around switchward with gravel filling, gate and bore well	LS		LS	11.00
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	4.5	0.584	MT	2.63
8	9.1 meters PSCC poles	30	0.03	Each	0.89
9	Transformers				
a)	33/11kv 5 MVA Power Transformer	2	32.95	Each	65.89
b)	3-Phase 25 KVA (CSP) (Al)	1	0.543	Each	0.54
10	Circiut Breakres (including trivector meters)				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=5)	5	2.760	Each	13.80
b)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
11	Control Circiut Panels				
a)	AC Supply Panel	1	0.303	Each	0.30
b)	Alaram Panel	1	0.303	Each	0.30
12	Instrumnet Transformers				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
13	Lightning Arrestors				
a)	33KV 10KA	6	0.032	Each	0.19
b)	11KV Line Type (NF=5)	15	0.015	Each	0.23
c)	11KV Station Type 10 KA	6	0.015	Each	0.09
14	Isolating Switches				
a)	33KV 800A AB Switch (Double Break)	3	0.332	Each	1.00
b)	11KV 800A AB Switch (NT X 1+1) (Double Break)	3	0.235	Each	0.70
c)	11KV 400A AB Switch (NF X 2+2) (Double Break)	12	0.082	Each	0.99
d)	33KV Horn Gap Fuse Set (1XNT)	2	0.000	Each	0.00
15	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.40
16	24 Volts 40 AH Battery Set including Battery Charger	7	0.243	Each	1.70
17	2MVAR 11KV Capacitor Bank along with Associated Equipment	1	7.990	Each	7.99
18	Earthing of Power Transformer VCBs,AB Swicthes,Strucutres with 75x8mm GI Flat			LS	1.98
	Sub Total				**147.38**

3% Contingencies on items 7 to 17	3.12
1% T&P Charges on items No. 7 to 17	1.04
Erection and transport and commissioning charges on items 7 to 17 at 10%	10.41
GST at 18% on L&T	1.874
10% Establishment and General Charges	14.74
Total	**178.57**

Note NF = No. of 11 KV Feeders, The number of outgoing feeders at substation limited to the demand in MVA i.e. if substation demand is 5 MVA, the number of feeders should not exceed five.
In GHMC area include 33 KV group control VCB

COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH 9.1 Mtrs PSCC POLES, 2 X 5 MVA POWER TRANSFORMERS AND 5 NO. 11 KV FEEDERS (WITH OUT 11 KV 2 MVAR CAPACITORS BANK)

Rs. in Lakhs

Sl. No	Particulars	Qty.	Rate (Rs. in	Unit	Amount (Rs. in
1 (a)	Lands and Rights	LS	As per local conditions		11.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaing wall around switchward with gravel filling, gate and bore well	LS		LS	11.00
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.00
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	6	0.584	MT	3.50
8	9.1 meters PSCC poles	38	0.030	Each	1.12
9	Transformers				
a)	33/11kv 5 MVA Power Transformer	2	32.95	Each	65.89
b)	3-Phase 25 KVA (CSP) (Al)	1	0.543	Each	0.54
10	Circiut Breakres (including trivector meters)				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=	5	2.760	Each	13.80
b)	20 KA 11 kv LV VCB including Control panel and CTs	2	2.740	Each	5.48
11	Control Circiut Panels				
a)	AC Supply Panel	1	0.303	Each	0.30
b)	Alaram Panel	1	0.303	Each	0.30
12	Instrumnet Transformers				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
13	Lightning Arrestors				
a)	33KV 10KA	6	0.032	Each	0.19
b)	11KV Line Type (NF=5)	15	0.015	Each	0.23
c)	11KV Station Type 10 KA	6	0.015	Each	0.09
14	Isolating Switches				
a)	33KV 800A AB Switch (Double Breaker)	3	0.332	Each	1.00
b)	11KV 800A AB Switch (NT X 1+1) (Double Breaker)	3	0.235	Each	0.70
c)	11KV 400A AB Switch (NF X 2+2) (Double Breaker)	12	0.082	Each	0.99
d)	33KV Horn Gap Fuse Set (1XNT)	2	0.000	Each	0.00
15	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.40
16	24 Volts 40 AH Battery Set including Battery Charger	7	0.243	Each	1.70
17	Earthing of Power Transformer VCBs,AB Swicthes,Strucutres with 75x8mm GI Flat			LS	1.80
	Sub Total				**139.49**

3% Contingencies on items 7 to 16	2.89
1% T&P Charges on items No. 7 to 16	0.96
Erection and transport and commissioning charges on items 7 to 16 at 10%	9.65
GST at 18% on L&T	1.736
10% Establishment and General Charges	13.95
Total	**168.67**

Note : NF = No. of 11 KV Feeders, The number of outgoing feeders at substation limited to the demand in MVA i.e. if substation demand is 5 MVA, the number of feeders should not exceed five.

COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH PSCC POLES, 1 X 5 MVA POWER TRANSFORMERS and 3 NO. 11 KV FEEDERS WITH 11 KV 2 MVAR CAPACITORS BANK

Rs. in Lakhs

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 (a)	Lands and Rights	LS	11.00		11.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaing wall around switchward with gravel filling, gate and bore well	LS		LS	11.00
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	5.5	0.584	MT	3.21
8	9.1 meters PSCC poles	23	0.030	Each	0.68
9	8 meters PSCC poles	8	0.015	Each	0.12
10	Transformers				
a)	33/11kv 5 MVA Power Transformer	1	32.95	Each	32.95
b)	3-Phase 25 KVA (CSP) (Al)	1	0.543	Each	0.54
11	Circiut Breakres (including trivector meters)				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=3)	3	2.760	Each	8.28
b)	20 KA 11 kv LV VCB including Control panel and CTs	1	2.740	Each	2.74
12	Control Circiut Panels				
a)	AC Supply Panel	1	0.303	Each	0.30
b)	Alaram Panel	1	0.303	Each	0.30
13	Instrumnet Transformers				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
14	Lightning Arrestors				
a)	33KV 10KA	6	0.032	Each	0.19
b)	11KV Line Type (NF=3)	9	0.015	Each	0.14
c)	11KV Station Type 10 KA	3	0.015	Each	0.05
15	Isolating Switches				
a)	33KV 800A AB Switch	3	0.332	Each	1.00
b)	11KV 800A AB Switch (NT X 1+1)	2	0.235	Each	0.47
c)	11KV 400A AB Switch (NF X 2+2)	8	0.082	Each	0.66
d)	33KV Horn Gap Fuse Set (1XNT)	1	0.000	Each	0.00
16	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.30
17	24 Volts 40 AH Battery Set including Battery Charger	4	0.243	Each	0.97
18	2MVAR 11KV Capacitor Bank along with Associated Equipment	1	7.990	Each	7.99
19	Earthing of Power Transformer VCBs,AB Swicthes,Strucutres with 75x8mm GI Flat			LS	1.80
	Sub Total				**104.17**
	3% Contingencies on items 7 to 17				1.83
	1% T&P Charges on items No. 7 to 17				0.61
	10% Erection and transport and commissioning charges on items 7 to 17				6.11
	GST at 18% on L&T				1.100
	10% Establishment and General Charges				10.42
	Total				**124.24**

Note : NF = No. of 11 KV Feeders, The number of outgoing feeders at substation limited to the demand in MVA i.e. if substation demand is 5 MVA, the number of feeders should not exceed five.

Cost data for erection of 11 KV Bay Extension in existing 33/11 KV sub-station (with RS Joist)

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	150X150 mm H type beam of 8.5 mts length (2 Nos. RS Joist)	0.598	58,410.00	MT	34953.00
2	100x50 mm Channel	0.166	49,324.00	MT	8183.00
3	MS flat 75x8 mm	0.05	56,433.50	MT	2822.00
4	AB switch 400 Amps conventional type	1	8,248.20	Each	8248.00
5	200 sqmm ACSR Conductor (Panther-conductor)	0.02	140,678.42	KM	2814.00
6	11 KV Polymer String insulator (C&T)	18	110	Each	1975.00
7	Earthing arrangement (20 mts length with 75x8 MS flat (20x4.7=94)	94	56.43	KG	5305.00
8	Pad clamps, bolts & nuts & Miscellaneous items	LS			1650.00
	Sub-Total				**65950.00**

3% Contingencies	1978.50
Labour & Transport	16013.80
GST at 18% on L&T	2882.484
10% Establishment & General charges	6595.000
Grand Total	**93419.78**
or say	**93420.00**

Cost data for erection of 11 KV Bay Extension in existing 33/11 KV sub-station (with 9.1 mts PSCC poles)

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 mts. PSCC poles	2	2,950	Each	5900.00
2	100x50 mm Channel	0.166	49,324.00	MT	8183.00
3	MS flat 75x8 mm	0.05	56,433.50	MT	2822.00
4	AB switch 400 Amps conventional type	1	8,248.20	Each	8248.00
5	200 sqmm ACSR Conductor (Panther conductor)	0.02	140,678.42	KM	2814.00
6	11 KV Polymer String insulator (C&T)	18	110	Each	1975.00
7	Earthing arrangement (20 mts length with 75x8 MS flat (20x4.7=94)	94	56.43	KG	5305.00
8	Pad clamps, bolts & nuts & Miscellaneous items	LS			1650.00
	Sub-Total				**36897.00**

3% Contingencies		1106.91
Labour & Transport		16013.80
GST at 18% on L&T		2882.484
10% Establishment & General charges		3689.700
Grand Total		**60589.89**
	or say	**60590.00**

Cost Data for 33 KV Bay Extension in 33/11 KV substation

Sl.No	Description of Material	Qty	Unit	Rate	Amount in Rs.
1	150 x 150 RSJ pole (8m)	0.6	MT	58,410.00	35046
2	100 x 50 mm MS channel	0.27	MT	49,324.00	13317
3	75 x 8mm flat for clamps & earthing	0.2	MT	56,433.50	11286.7
4	200 sqmm Panther conductor	0.02	KM	140,678.42	2813.5684
5	Strain Insulator set with metal parts (each set consists 3 Nos 11 KV strain insulators)	6	Set	329	1975
6	Erection of 33 KV AB switch (800 Amps, Conventional)	1	Each	33,189.15	33189.152
7	Miscelleneous items like fabrication of channels & pad clamps etc.		LS		2750
	Sub-Total				**100378**
	3% Contingencies				3011.35
	3% S&H charges				3011.35
	Labour & Transport				16711.20
	GST at 18 % on L&T				3008.02
	10% Estt & General charges on material				10037.82
			Total		**136157.95**
			Or Say Rs		**136200.00**

Cost-Data for Extention of 33KV Bay at 132/33KV Sub-station

Sl.No.	Description	Qty	Rate	Per	Amount in Rs.
1	Galvanised steel such as M.S.angles, flats, channels for TC & TD towers. (GHMC SSR Towers sheet)	5.00	76174	MT	380871
2	Spacer clamps for 33KV bus	9	508	Each	4572
3	Spacer clamp with T off zebra for one feeder	3	153	Each	459
4	33 KV Polymer String Insulator (B&S)	8	282	Each	2259
5	Tension hardware for twin zebra	6	2,512	Each	15072
6	Zebra condutor	0.150	299369	KM	44905
7	33KV AB Switch 800 A	1	33189	Each	33189
8	Twin Zebra connector	12	600	Each	7200
9	T Clamps	12	500	Each	6000
10	MS.Flat 100x16	0.63	46904	MT	29550
11	MS.Flat 50X8	0.62	51817	MT	32127
12	GI Flat 100X16	0.151	63235	MT	9548
13	GI Flat 50X8	0.155	63478	MT	9839
14	Civil works for erection of towers in sub-station yard and other miscellaneous items.			LS	100000
	Sub-Total				**675591**
	3% S&H charges on Material				17268
	3% Contingencies on Material				17268
	Labour & Transport				112121
	GST at 18 % on L&T				20181.78
	10% Estt. & Gen. Chargtes				67559
				Gross Total	**909988**
				Or Say in Rs.	**909988**

Cost Data for erection of 11 KV breaker in sub-station

Sl.No	Description of work	Qty	Unit	Rate	Amount in Rs.
1	11 KV VCB along with all Accessories Including CTs	1	Each	276000	276000.01
2	4x2.5 sqmm Control cable	0.05	KM	74500	3725
3	Earthing arrangements	LS			1650
4	Miscellenous items like conductor and clamps etc	LS			1650
	Sub-Total				**283025**
	3% Contingencies				8491
	3% S&H charges				8491
	Labour & Transport				24611
	GST at 18 % on L&T				4430.00
	10% Estt & General charges				28303
			Total		**357350**
			Or Say Rs		**357350**

Cost-Data for erection of 33 KV VCB and Twin feeder Control Pannel at 132/33KV Sub-stations

S.No.	Description of work	Qty	Rate	Per	Amount in Rs.
1	33 KV VCB with relay& CTs (400-200-100/1-1-1A)	1	395,604.44	Each	395604
2	LT PVC Copper Control Cable 10 C x2.5 Sq.mm	0.75	163,441.80	KM	122581
3	LT PVC Copper Control Cable 4 C x2.5 Sq.mm	0.75	74,500.01	KM	55875
4	33KV LAS line type	3	3,191.90	Each	9576
5	33 KV Twin feeder control panel	1	385,643.32	No	385643.32
6	Miscellenous items			LS	1100
	Sub-Total				**970380**

3% S&H charges		29111
3% Contingencies on material		29111
Labour & Transport		80816
GST 18 % on L&T		14546.84
10% Estt. & General Charges		97038
	Gross Total	**1221003**
	Or Say Rs.	**1221003**

Cost data for erection of 2 MVAR Capacitor Bank

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	2 MVAR 11KV Capacitor Bank along with associated Equipment (Capactors, Structure and VCB) (Type A)	1	799,000.00	Each	799000
2	24 volts 40AH Battery Set including Battery Charger	1	24,318.72	Each	24319
3	M.S.Flat 50x6mm	0.36	59,177.00	MT	21304
4	Panther Conductor	0.05	140,678.42	KM	7034
5	4 Core 2.5 Sqmm PVC Copper Control Cable	0.05	74,500.01	KM	3725
6	10 Core 2.5 Sqmm PVC Copper Control Cable	0.1	163,441.80	KM	16344
7	2 Core 2.5 Sqmm PVC Copper Control Cable	0.06	44,604.00	KM	2676
8	11KV Post type insulators	3	315.00	Each	945
9	Cost of CI pipe of 100 mm dia, 8 mm thick and 2.75 Mts long	2	3486	Each	6972
10	11KV H.G. Fuse Set with Insulators	1	1,749.00	Each	1749
11	11KV LA's Station type	3	1,527.51	Each	4583
12	M.S. Channel 100x50mm	0.24	49,324.00	MT	11838
13	Miscellaneous items	LS			550.00
	Sub-Total				**901039.00**

3% Contingencies		27031.17
Labour ,Transport & Commsioning charges		67969.92
GST at 18 % on L&T		12234.586
10% Establishment & General charges		90103.9
	Grand Total	**1098378.58**
	or say	**1098379.00**

Cost Data for Enhancement of capacity of existing Power Transformer from 5 MVA to 8 MVA.

Sl.N	Particulars	Qty	Rate in Rs.	Unit	Amount in Rs.
1	33/11 KV 8 MVA Power Transformer	1	4283400.00	Each	4283400
2	Erection of 33 KV VCB with directional relay	1	395,604.44	Each	395604
3	Miscellneous Items			LS	50000
		Sub-Total			4729004
	3 % Storage & Handling charges				141870
	3% Contingencies on material				141870
	Labour & Transport				120000
	GST at 18% on L&T				21600.00
	10% Estt & General charges on material				472900
	Add: Dismantling charges				50000
			Grand Total		5677244
		Or say			5677244
	Less Credit				
	Less Credit has to be valued as per the respective PTR book value in SAP, if data is not available in SAP, the following value may be considered.				
1	33/11KV 5 MVA Power Transformer	1	3294736.46	Each	3294736
	Depreciation 40% (Variable as per life served)		1317895.00		1317895
				Net	1976841
	Original erection charges (SWR 21275 MP)				35280
	Original dismantling charges				17640
	10% Estt. & General charges				197684
			Total		2227445
			Or Say	Rs.	2227445
	Net Amount = Grand total - Less credit		5677244	2227445	3449799

Cost data for laying of 3 core 300 Sq.mm 11 KV UG Cable

Sl. No	Description of the material	Qty	Rate	Unit	Amount in Rs.
1	Laying 11 KV 3 core 300Sq.mm UG Cable at depth of 1.20mtrs along CC road	1	1199999.82	KM	1199999.82
2	Erection of 3 way RMU (SF6) outdoor type	1	561680.00	Each	561,680.00
3	Straight through joints for 3 core 11KV 300Sq.mm UG Cable	1	3176	Each	3176.00
4	End termination suitable for 3 core 300 Sq.mm UG cable	4	2021	Each	8084.00
5	Earthing of Cable with GI pipe of 2mt length	3	733.00	Nos	2199.00
	Sub-Total				**1775138.82**

3 % storage & handling charges		35999.99
3 % contingencies		35999.99
Labour and Transport		512596.70
GST at 18 % on L&T		92267.406
10 % Estt & General charges		177513.88
	Grand Total	**2629516.80**
	Or Say Rs	**2629517**

Cost data for laying of 3 core 400Sq.mm 33KV UG Cable

Sl. No	Description of the material	Qty	Rate	Unit	Amount in Rs.
1	Laying 33 KV 3 core 400Sq.mm UG Cable at depth of 1.20mtrs along CC road	1	2488620.00	KM	2488620.00
2	Straight through joints and end terminators suitable for 3 core 33KV 400Sq.mm UG Cable and Hume pipes and GI pipe (15% of cost cable)	1	4764	Each	4764.00
3	End termination suitable for 400 Sq.mm (outdoor type)	2	2310	Nos	4620.00
4	Earthing of Cable with GI pipe of 2mt length	2	698.00	Nos	1396.00
	Sub-Total				**2499400.00**

3 % Storage & handling charges			74658.60
3 % Contingencies			74658.60
Labour and Transport			599073.20
GST at 18 % on L&T			107833.176
10 % Estt & General charges			249940.00
	Grand Total		**3605563.58**
	Or Say	**Rs**	**3605564**

Erection of Non Galvanised M+3 Tower as per ASCI Standard without excavation (for span length 100m for angle deviation 20degrees to 60degrees/Cut point/Deadend)

S. No.	Particulars	Qty.	Per Unit	Rate	Amount in Rs.
1	Supply of Non Galvanised M+3 type tower as per Specification.	1.468	MT	54174.12	79527.61
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	158	KG	100.49	15877.42
3	Fabrication of tower Parts as per Specification	1.468	MT	6352.50	9325.47
4**	Excavation of pit including dewatering, planking, showring and shuttering(where ever necessary) and leveling a) in all types of soils such as BC, red earth, hard gravel etc., b) in hard rock sites (where blasting is	4.752	CUM		
5	Setting of stubs in position for laying of foundation of towers with 1:2:4 cc mix using 40 mm HBG metal including cost of all concreting materials and cement, form boxes and curing for 14 days	4.752	CUM	7166.78	34056.54
6	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering,transport of meterial and bolts and nuts etc.,	1.468	MT	7507.50	11021.01
7	Tack welding of total tower nuts and bolts	1	Job	1732.50	1732.50
8	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc.,	2	Each	1708.82	3417.64
9	Transport of Material to site including loading and unloading	1.626	MT	2310.00	3756.06

S. No.	Particulars	Qty.	Per Unit	Rate	Amount in Rs.
10	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	1.468	MT	2175.80	3194.07
b	Labour charges for painting including scratching and cleaning of tower	1.468	MT	847.77	1244.53
c	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc,.	1.468	MT	1289.20	1892.55
d	Labour charges for painting including scratching and cleaning of tower	1.468	MT	480.48	705.34
				Total:	**165750.74**

(**) Note:-(1) Earth work excavation of Hard Roack removal (where blasting is prohibited) rate to be calculated as per code SWR10856. The quantity of earth work excavation with Hard Rock removal may vary based on the site condition

Tower details

1	Weight of M type tower	1.29 MT
2	Weight of 1 No. extension of 3 Mts	0.335 MT
3	Weight of M+3 tower	1.626 MT
4	Weight of M+6 tower	1.962 MT
5	Weight of M+9	2.294 MT
6	Weight of **SIX** arms	0.091 MT

stu (110X110X8) **110X110X10**= 4.56 mts

100X100X8=1.998 mts

80X80X8 =1.898 mtrs

65X65X6 = 2.274 mts

50X50X6=2.761 mtrs

Total height 13.5 mts

Depth of tower below ground level : 3.2 mts

Height of tower above ground level : 10.3 mts.

Erection of Non-Galvanised L+3 Tower as per ASCI Standard without excavation (for span length 100mts for angle deviation between 2degrees to 20degrees)

S. No.	Particulars	Qty.	Per Unit	Rate	Amount
1	Supply of Non-Galvanized L+3 type tower as per Specification.	1.05	MT	54174.12	56882.83
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	168	KG	100.49	16882.32
3	Fabrication of tower Parts as per Specification	1.05	MT	6352.50	6670.13
4	Excavation of pit including dewatering, planking, showring and shuttering(where ever necessary) and leveling a) in all types of soils such as BC, red earth, hard gravel etc., b) in hard rock sites (where blasting is prohibited) with size 1.0x1.0x3.0 mtr i.e.3.0cum	3	CUM		
5	Setting of stubs in position for laying of foundation of towers with 1:2:4 cc mix using 40 mm HBG metal including cost of all concreting materials and cement, form boxes and curing for 14 days i.e 3.15 cum	3.15	CUM	6887.27	21694.88
6	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering,transport of meterial and bolts and nuts etc.,	1.05	MT	7507.50	7882.88
7	Tack welding of total tower nuts and bolts	1	Job	1732.50	1732.50
8	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc.,	2	Each	1708.82	3417.64
9	Transport of Material to site including loading and unloading	1.22	MT	2310.00	2813.58
10	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				

S. No.	Particulars	Qty.	Per Unit	Rate	Amount
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	1.05	MT	2175.80	2284.59
b	Labour charges for painting including scratching and cleaning of tower	1.05	MT	847.77	890.16
c	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc,.	1.05	MT	1289.20	1353.66
d	Labour charges for painting including scratching and cleaning of tower	1.05	MT	480.48	504.50
				Total:	**123009.66**

(**) Note:-(1) Earth work excavation of Hard Roack removal (where blasting is prohibited) rate to be calculated as per code SWR10856. The quantity of earth work excavation with Hard Rock removal may vary based on the site condition.
This quantity is to be certified by he field Engineer and the same has to be deducted from the quantity of excavation of pit with hard gravel at the time of billing.

(2) The material has to be certified before dispatch of materials to the site by field Engineer not below the rank of Divisional Engineer.

(*) Note: -(3) the steel used for the fabrication of towers should be of Tata steel, sail steel, vizag steel or zindal steel to be certified by the field Engineer not below the rank of Divisional Engineer.

Tower details

1	Weight of L type tower including nuts&bolts	0.9565 MT
2	Weight of 1 No. extension of 3 Mts	0.26325 MT
3	Weight of L+3 tower	1.219
4	Weight of L+6 tower	1.483
5	Weight of L+9	1.746
6	Weight of each arm	0.084 MT

stubs 90X90X8 = 4.256 mts

80X80X8=1.998 mts

65X65X6 =2.898 mtrs

50X50X5 = 1.274 mts

45X45X5=2.726 mtrs

Total height 13.15 mts

Depth of tower below ground level : 3.0 mts

Height of tower above ground level : 10.15mts.

Erection of Non-Galvanised K+3 Tower as per ASCI Standard without excavation (for span length 100mts for angle deviation not exceeding 2degrees)

S. No.	Particulars	Qty	Per Unit	Rate	Amount
1	Supply of Non Galvanised K+3 type tower as per Specification.	0.75	MT	54174.12	40630.59
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.(MP SSR)	118.27	KG	100.49	11884.95
3	Fabrication of tower Parts as per Specification	0.75	MT	6352.50	4764.38
4**	Excavation of pit including dewatering, planking, showring and shuttering(where ever necessary) and leveling a) in all types of soils such as BC, red earth, hard gravel etc., b) in hard rock sites (where blasting is prohibited) with size 1.0x1.0x2.5 mtr i.e.2.5 cum	2.5	CUM		
5	Setting of stubs in position for laying of foundation of towers with 1:2:4 cc mix using 40 mm HBG metal including cost of all concreting materials and cement, form boxes and curing for 14 days i.e 2.65 cum	2.65	CUM	6887.27	18251.27
6	Erection of tower parts completely as per specification including erection of insulators with all accessories, jumpering and bolts and nuts etc.,	0.75	MT	7507.50	5630.63
7	Tack welding of total tower nuts and bolts	1	Job	1732.50	1732.50
8	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc., (MP SSR)	2	Each	1708.82	3417.64
9	Transport of Material to site including loading and unloading	0.87	MT	2310.00	2005.08

S. No.	Particulars	Qty	Per Unit	Rate	Amount
10	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	0.75	MT	2175.80	1631.85
b	Labour charges for painting including scratching and cleaning of tower	0.75	MT	847.77	635.83
c	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc,.	0.75	MT	1289.20	966.90
d	Labour charges for painting including scratching and cleaning of tower	0.75	MT	480.48	360.36
	Total:				**91911.97**

GST will be extra as per Govt. orders

(**) Note:-(1) Earth work excavation of Hard Roack removal (where blasting is prohibited) rate to be calculated as per code SWR10856. The quantity of earth work excavation with Hard Rock removal may vary based on the site condition.
This quantity is to be certified by he field Engineer and the same has to be deducted from the quantity of excavation of pit with hard gravel at the time of billing.

(2) The material has to be certified before dispatch of materials to the site by field Engineer not below the rank of Divisional Engineer.

(*) Note: -(3) the steel used for the fabrication of towers should be of Tata steel, sail steel, vizag steel or zindal steel to be certified by the field Engineer not below the rank of Divisional Engineer.

Tower details

1	Weight of K type tower including nuts&bolts	0.705 MT
2	Weight of 1 No. extension of 3 Mts	0.163 MT
3	Weight of K+3 tower	0.867
4	Weight of K+6 tower	1.03
5	Weight of K+9	1.193
6	Weight of each arm	0.103 MT

stubs
75X75X6 = 3.76 mts
65X65X6=1.054 mts
50X50X5 =1.103 mtrs
45X45X5 = 3.883 mts
45X45X5=4.817 mtrs
Total height 14.6 mts
Depth of tower below ground level : 2.5 mts
Height of tower above ground level : 12.1 mts.

DATA-VIII

Extension of 3mtrs for Non-Galvanized K+3 Tower as per ASCI Standard

S. No	Description	Qty	Per Unit	Rate	Amount
	Material				
1	Supply of Non-Galvanised K+3 type tower as per Specification.	0.14	MT	54174.12	7477.89
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	24.96	KG	100.49	2508.67
3	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	0.14	MT	2175.80	300.34
b	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc,.	0.14	MT	1289.20	177.95
				Total:	**10464.85**
	Labour				
1	Fabrication of tower Parts as per Specification	0.140	MT	6352.50	889.35
2	Erection of tower parts completely as per specification including erection of insulators with all accessories, jumpering and bolts and nuts etc.,	0.140	MT	7507.50	1051.05
3	Transport of Material to site including loading and unloading	0.16	MT	2310.00	376.53

S. No	Description	Qty	Per Unit	Rate	Amount
4	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Labour charges for painting including scratching and cleaning of tower	0.140	MT	847.77	118.69
b	Labour charges for painting including scratching and cleaning of tower	0.140	MT	480.48	67.27
				Total:	**2502.89**

Tower details

1	Weight of K type tower including nuts&bolts	0.705 MT
2	Weight of 1 No. extension of 3 Mts	0.163 MT
3	Weight of K+3 tower	0.867
4	Weight of K+6 tower	1.03
5	Weight of K+9	1.193
6	Weight of each arm	0.103 MT

stubs 75X75X6 = 3.76 mts

65X65X6=1.054 mts

50X50X5 =1.103 mtrs

45X45X5 = 3.883 mts

45X45X5=4.817 mtrs

Total height 14.6 mts

Depth of tower below ground level : 2.4 mts

Height of tower above ground level : 12.2 mts.

DATA-IX

Extension of 3mtrs for Non-Galvanized L+3 Tower as per ASCI Standard

S. No	Description	Qty.	Per Unit	Rate	Amount
	Material				
1	Supply of Non-Galvanized L+3 type tower as per Specification	0.24	MT	54174.12	13001.79
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers. (MP SSR)	23.81	KG	100.49	2392.37
3	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	0.24	MT	2175.80	522.19
b	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc,.	0.24	MT	1289.20	309.41
				Total:	**16225.75**
	Labour				
1	Fabrication of tower Parts as per Specification	0.24	MT	6352.50	1524.60
2	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering,transport of meterial and bolts and nuts etc.,	0.24	MT	7507.50	1801.80
3	Transport of Material to site including loading and unloading	0.26	MT	2310.00	600.60

S. No	Description	Qty.	Per Unit	Rate	Amount
4	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Labour charges for painting including scratching and cleaning of tower	0.24	MT	847.77	203.46
b	Labour charges for painting including scratching and cleaning of tower	0.24	MT	480.48	115.32
				Total:	**4245.78**

Tower details

1	Weight of L type tower including nuts&bolts	0.9565 MT
2	Weight of 1 No. extension of 3 Mts	0.26325 MT
3	Weight of L+3 tower	1.219
4	Weight of L+6 tower	1.483
5	Weight of L+9	1.746
6	Weight of each arm	0.084 MT

stubs 90X90X8 = 4.256 mts

80X80X8=1.998 mts

65X65X6 =2.898 mtrs

50X50X5 = 1.274 mts

45X45X5=2.726 mtrs

Total height 13.15 mts

Depth of tower below ground level : 3.0 mts

Height of tower above ground level : 10.15mts.

DATA-X

Extension of 3mtrs for Non-Galvanized M+3 Tower as per ASCI Standard

S. No	Description	Qty.	Per Unit	Rate	Amount
	Material				
1	Supply of Non-Galvanised M+3 type tower as per Specification.	0.30	MT	54174.12	16312.00
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	30.23	KG	100.49	3,038
3	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	0.30	MT	2175.80	655
b	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc,.	0.30	MT	1289.20	388
				Total:	**20392.82**
	Labour				
1	Fabrication of tower Parts as per Specification	0.30	MT	6352.50	1913.00
2	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering,transport of meterial and bolts and nuts etc.,	0.30	MT	7507.50	2261.00
3	Transport of Material to site including loading and unloading	0.33	MT	2310.00	765.00

S. No	Description	Qty.	Per Unit	Rate	Amount
4	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Labour charges for painting including scratching and cleaning of tower	0.30	MT	847.77	255.00
b	Labour charges for painting including scratching and cleaning of tower	0.30	MT	480.48	145.00
				Total:	**5339.00**

Tower details

1	Weight of M type tower	1.29	MT
2	Weight of 1 No. extension of 3 Mts	0.335	MT
3	Weight of M+3 tower	1.626	MT
4	Weight of M+6 tower	1.962	MT
5	Weight of M+9	2.294	MT
6	Weight of **SIX** arms	0.091	MT

stubs (110X110X8) **110X110X10**= 4.56 mts

100X100X8=1.998 mts

80X80X8 =1.898 mtrs

65X65X6 = 2.274 mts

50X50X6=2.761 mtrs

Total height 13.5 mts

Depth of tower below ground level : 3.2 mts

Height of tower above ground level : 10.3 mts.

Cost Data for Erection of 5MVA Additional Power Transformer with 33 KV Bay Extension in 33/11 KV substation

Sl. No	Description of Material	Qty	Unit	Rate	Amount in Rs.
1	150 x 150 RSJ pole (8m)	0.6	MT	58,410.00	35046.00
2	100 x 50 mm MS channel	0.27	MT	49,324.00	13317
3	75 x 8mm flat for clamps & earthing	0.4	MT	56,433.50	22573.4
4	200 sqmm Panther conductor	0.02	KM	140,678.42	2813.57
5	Strain Insulator set with metal parts (each set consists 3 Nos 11 KV strain insulators)	6	Set	329	1975
5	Erection of 33 KV AB swithch	1	Each	33,189.15	33189.152
6	5 MVA Power Transformer	1	Each	3294736	3294736.46
7	Foundation of Power Transformer	1	LS	50000	50000
8	Miscelleneous items like fabrication of channels & pad clamps etc.		LS		5000
	Sub-Total				**3458651.38**
	3% Contingencies				103759.54
	3% S&H charges				103759.54
	Labour & Transport				41688.90
	GST at 18 % on L&T				7504.002
	10% Estt & General charges on material				345865.14
			Total		**4061228.50**
			Or Say Rs		**40,61,200**

COST ESTIMATE FOR ERECTION OF 11KV, 70 SQ MM COVERED CONDUCTOR

Sl. No	Description of Material	Qty	Unit	Rate in Rs.	Amount in Rs.
1	11KV X 70 Sqmm Covered Conductor	1	CKM	1,357,731	1,357,731
2	IPC	50	Nos.	1,176	58,811
3	Ties	100	Nos.	477	47,716
4	11KV Mid Span Jointing Kit	1	Sets	5,044	5,044
5	11KV Termination Kit	5	Sets	2,565	12,823
5	11KV tension insulator Hardware	50	Nos.	378	18,910
	Material value (in Rs.)				**1,501,033**
	3% Contingencies				45,031
	3% S&H charges				45,031
	Labour & Transport				197,200
	GST at 18 % on L&T				35,496
	10% Estt & General charges on material				150,103
			Total		**1,973,895**

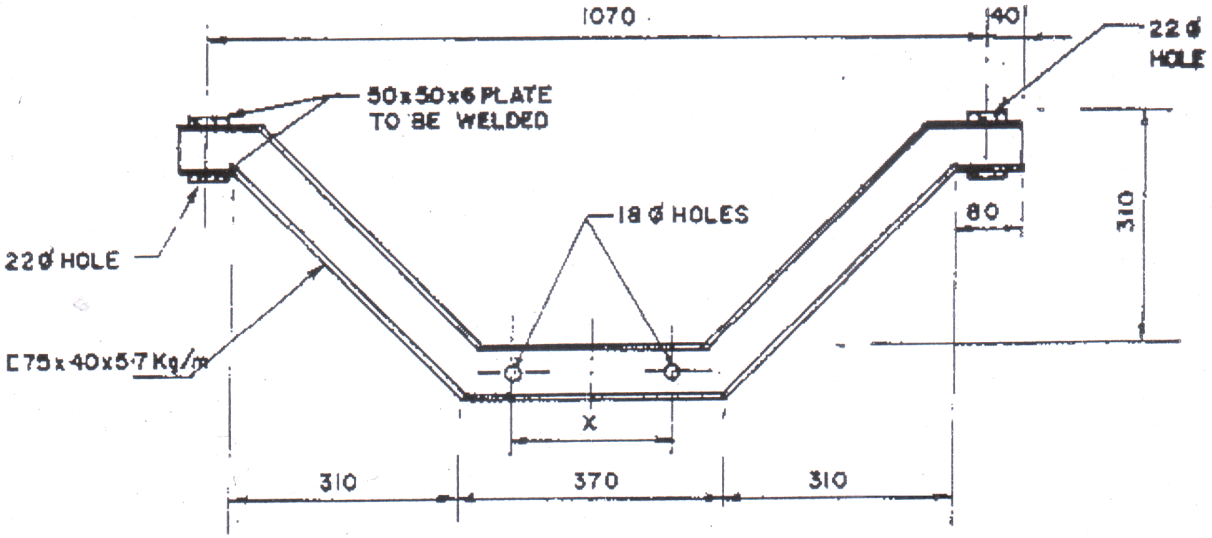
REC- CONSTRUCTION STANDARD NOS. OTHER THAN THE ITEMS INCLUDED IN THE 33 KV 11 KV & LT LINES ERECTION AND CENTRALISED MATERIAL

S. No.	Particulars	REC Construction Standard No./ Specification No.	Remarks/ Notes
1	1.53 Mts. Cross arm (Channel)	M-1/1981	33 KV line
2	Top clamp with cleat	M-4/1984	33 KV line
3	Back clamp	K-1/1972	33 KV line & 11 KV line
4	Base concreting	K-2/1972 (R-1987)	33 KV line & 11 KV line
5	Stay sets complete with concreting	G-1/1972	33 KV line & 11 KV line
6	Coil earthing	J-1/1972	33 KV line & 11 KV line
7	Pipe earthing	J-2/1972	33 KV line & 11 KV line
8	Concreting of poles	K-1/1972	All lines
9	8 M PSCC poles	15/1979	11 KV line
10	1.07 M Cross arm (Channel)	A-6/1972	11 KV line
11	Top clamp with cleat	A-7/1972	11 KV line
12	Bracing set with double cross arm	A-12/1972	H.T. line
13	Guy grip dead end	G-1/1972 & SP.No.25/1983	H.T. line
14	C.I. Knob	31/1983	L.T. lines
15	L.T. conductor dead end	G-2/1984	L.T. lines
16	Guy grip dead end	G-2/1984	L.T. lines
17	L.T. Spares	29/1983 (R-1987)	L.T. lines
18	Spool for shackle insulator tieing	D-6/1984	L.T. lines
19	D.P. Structure for distribution substation	F-1/1981 (R-1993)	L.T. lines
20	HT and LT conductor dead end fittings	Sp. No. 25/1983	All lines
21	Side tie for pin insulator tieing	Sp. No. 25/1983	All lines
22	Fibre Reinforced Plastic Cross Arms	40/1987	

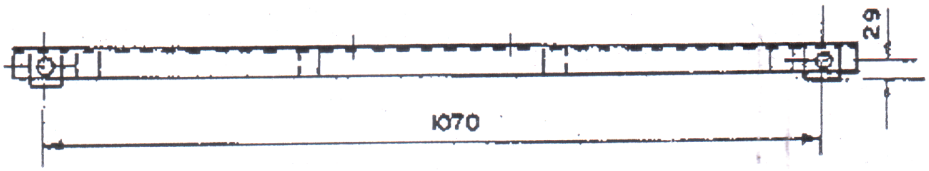
REC

CONSTRUCTION STANDARD

A-6



ELEVATION



PLAN

X :- -TO SUIT THE POLE

NOTE:-AS AN ALTERNATIVE, M.S.ANGLE CROSS-ARM (A-13) MAY BE USED IF CHANNEL SECTION AS PER THIS STANDARD IS NOT AVAILABLE

ALL DIMENSIONS ARE IN mm.

११ के.वी. लाईन

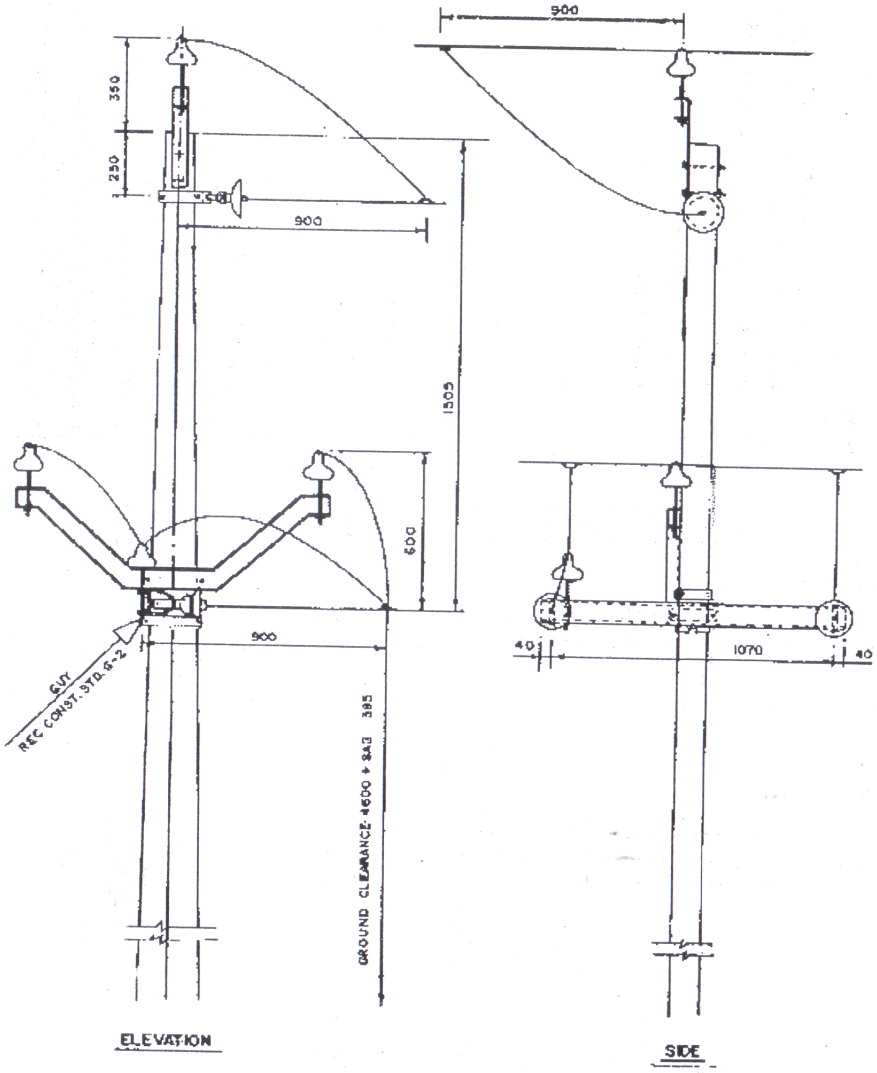
V-केची भुजा

11 KV LINES

V - CROSS ARM

SCALE :- N.T.S	SEPT. - 1972

REC
CONSTRUCTION STANDARD
A-II



BILL OF MATERIAL

P.C.C SUPPORT	8M LONG	1No.
CHANNEL I FOR V-CROSS ARM)	REFER REC CONST. STD. A-6	1 No.
CHANNEL(FOR HORIZONTAL CROSS ARM)	75X40-1150 (APPROX.)	1No.
11KV STRAIN INSULATORS WITH HARDWARE	—	3 Nos.
11KV PIN INSULATORS WITH PINS	—	4 Nos.
POLE TOP BRACKET	REFER REC. CONST. STD. A-7	1No.
GUY SET	REFER REC CONST. STD. G-2	1No.
BASE PLATE	REFER REC CONST. STD. K-1	1 No.
PIPE / ROD EARTHING	REFER REC CONST. STD. J-2	1No
BACK CLAMP (FOR V-CROSS ARM)	REFER REC CONST. STD. K-2	1No.
EARTHING MATERIAL, NUTS, BOLTS, CLAMPS ETC.	—	AS REQUIRED

NOTE:- MAXIMUM SPAN BETWEEN THE TAPPING POLE AND ADJACENT POLE OF THE BRANCH LINE = 50 METRES

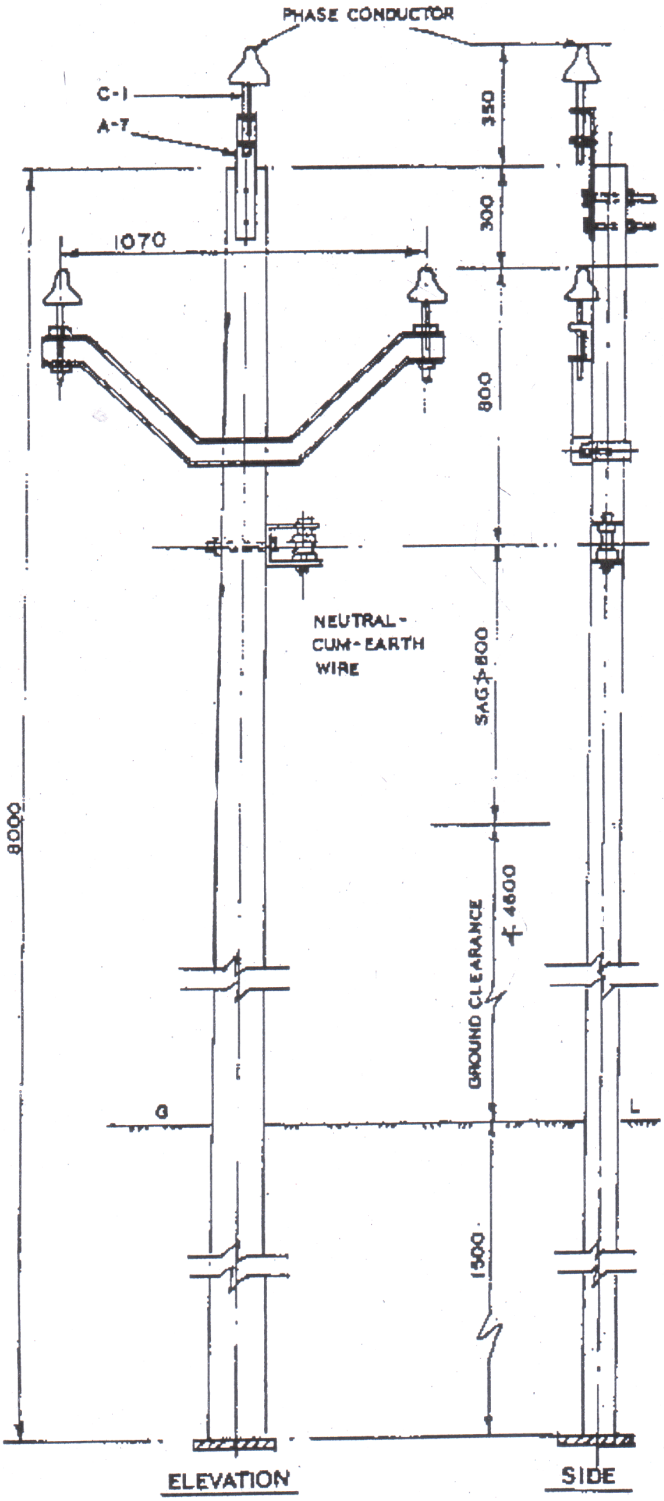
ALL DIMENSIONS ARE IN mm.

११ के. वी. लाईन
निकासी व्यवस्था एक खम्भे से निकास

11KV LINE
TAPPING ARRANGEMENT
SINGLE POLE TAPPING

SCALE: N.T.S | FEB. - 1979

REC
CONSTRUCTION STANDARD
A-16



BILL OF MATERIAL

P.C.C SUPPORT 8 M	1
POLE TOP BRACKET	1
V-CROSS ARM	1
11 KV PIN INSULATOR WITH PINS	3
SHACKLE INSULATOR	1
U-CLAMP WITH BOLT	1
EARTHING MATERIAL	1
BOLTS, NUTS, CLAMPS ETC.	AS REQD.
BOLTS 16 Ø	4
BASE PLATE	1

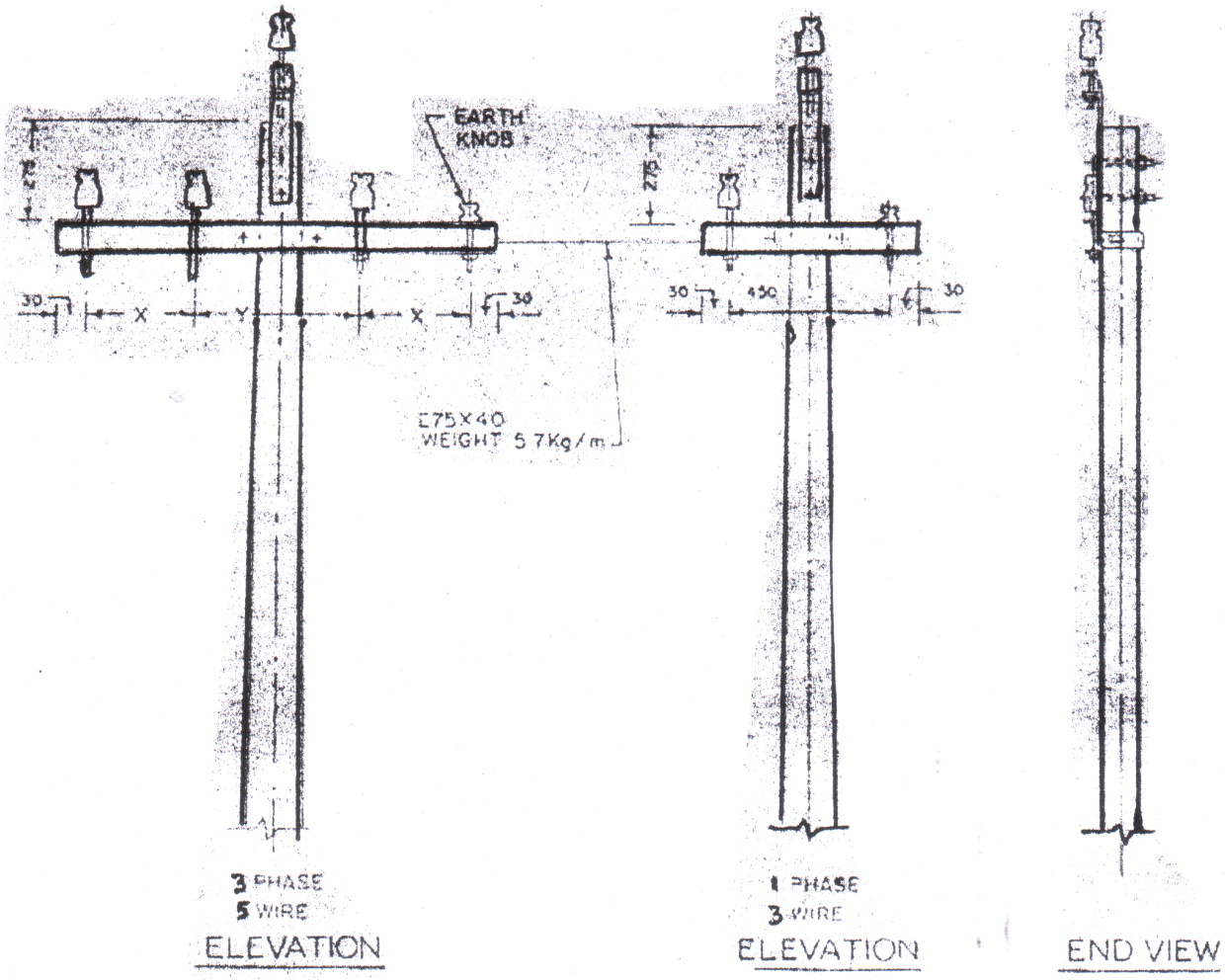
NOTES :-

1. IF THROUGH BOLT ARRANGEMENT FOR FIXING THE SHACKLE INSULATOR TO THE POLE IS NOT POSSIBLE ; SUITABLE POLE CLAMP MAY BE USED.
2. THE EARTH-CUM-NEUTRAL WIRE SHALL BE RUN ON LT SHACKLE INSULATORS

११ के.वी. 3-फेज लाईन व कन्डक्टर फारमेशन और क्लीयरेन्स-3फेज/सिंगल फेज कम्पोजिट सिस्टम फेज से न्यूट्रल
11 KV LINES
CONDUCTOR FORMATION AND CLEARANCES OF 11KV 3-PHASE LINE IN 3-PHASE/SINGLE PHASE COMPOSITE SYSTEM (PHASE - TO - NEUTRAL)

SCALE :- N.T.S | JULY, 1987

REC
CONSTRUCTION STANDARD
B-3



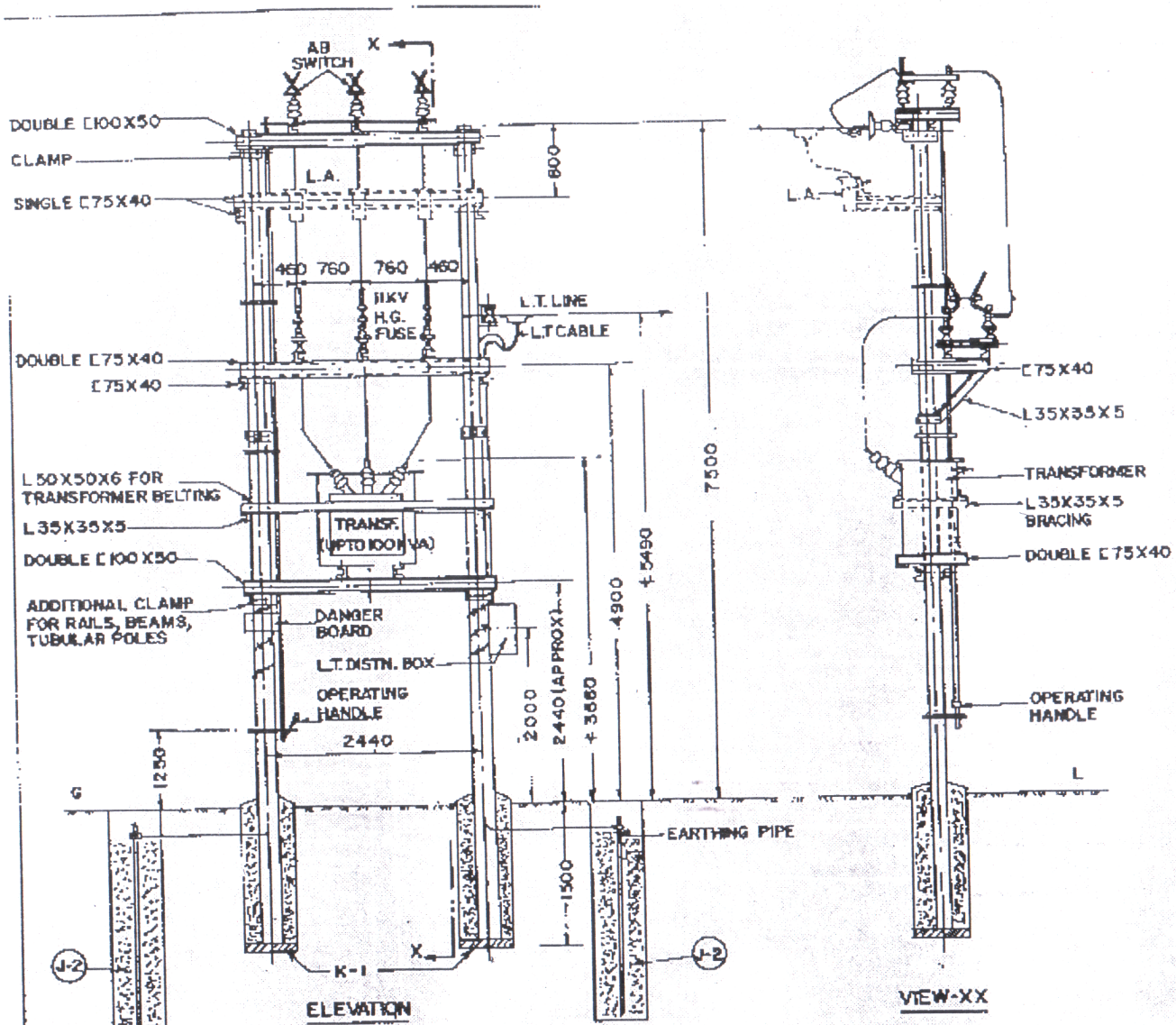
TANGENT LOCATION
MAXIMUM SPAN – 67 METRES

SAGS	HORIZONTAL SPACING	
	X	Y
UP TO 750	300	450
750 TO 1200	450	450

ALL DIMENSIONS ARE IN mm

४१५/२४० वो० लाईन
कन्डक्टर रचना व अंतराल
समाधार रचना
415/240V LINES
CONDUCTOR FORMATION AND
CLEARANCES
HORIZONTAL FORMATION

SCALE :-N.T.S | SEPT. – 1972



REC
CONSTRUCTION STANDARD
F-2

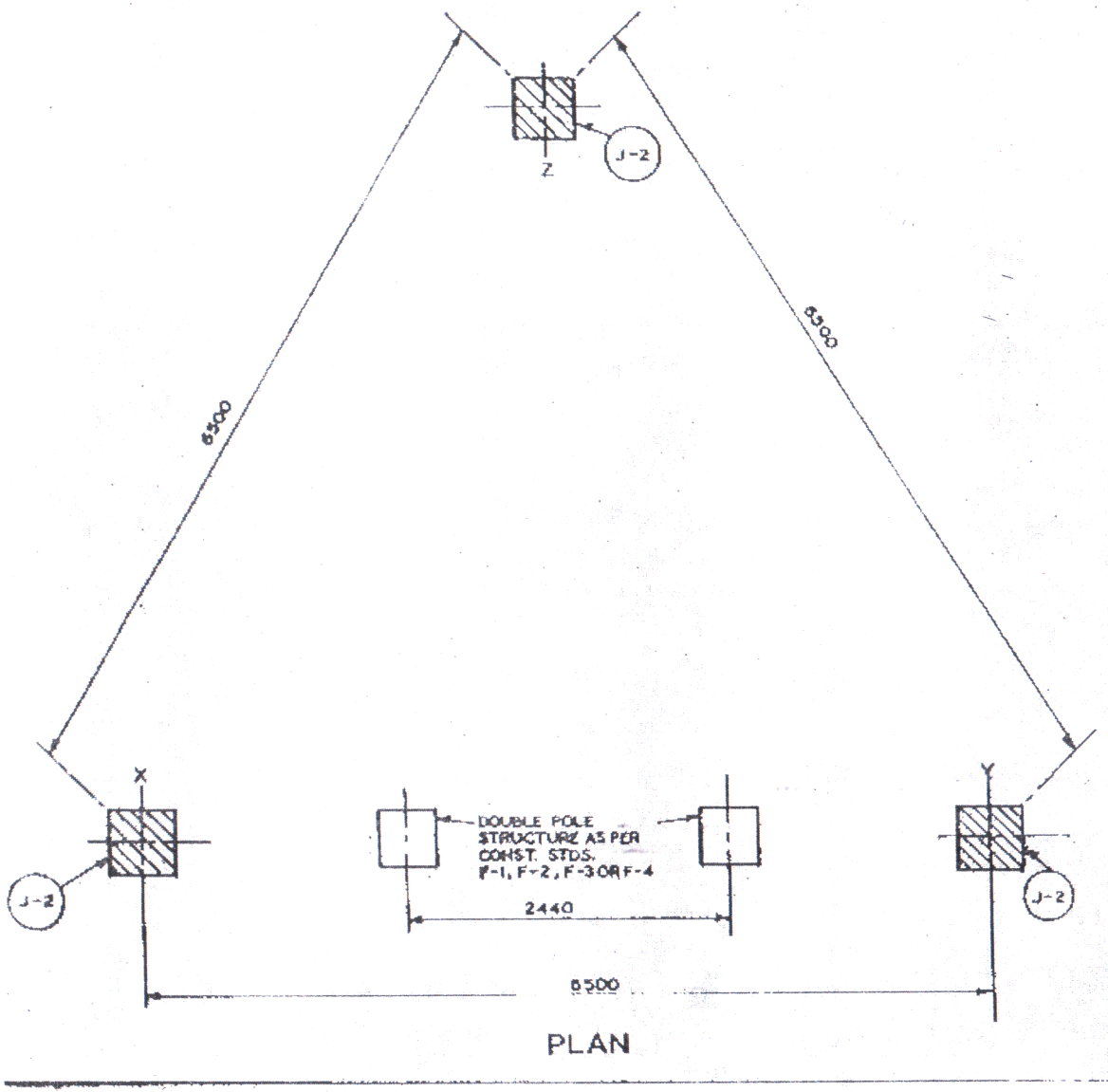
BILL OF MATERIAL

SUPPORTS	– 9 m.	2
CHANNELS	100X50 – 2800 (APPROX.)	4
CHANNELS	75 X 40 – 2800 (APPROX.)	2+1
CHANNELS	75X40 – X-ARM FOR SUPPORTING H.G. FUSE & L.A.	2+2
ANGLES	50X50X6 – 2800 (APPROX)	2
ANGLES	35X35X5 – 460 (APPROX)	2
ANGLES	35X35X5 – BRACING FOR SUPPORTING H.G. FUSE	2
	FOR SUPPORTING DISTRIBUTION BOX	1
DISTRIBUTION TRANSFORMER		1
AIR BREAK SWITCH (HORIZONAL TYPE)		1
H.G. FUSE UNIT-3 PHASE		1 SE
11 KV. LIGHTNING ARRESTERS		3
DISTRIBUTION BOX		1
EARTHING SET		AS REQD.
DANGER BOARD		1
CLAMPS, NUTS, BOLTS, BARBED WIRE ETC. AS REQD.		
L.T. CABLE		AS REQD.

११ के. वी./४३३-२५० वोल्ट
ह. वी. मिश्त और हर्न गैप फ्यूज सहित
वितरण उप स्टेशन
11KV/433-250V
DISTRIBUTION SUB-STATION
WITH A.B. SWITCH &
HORN GAP FUSES

SCALE:- N.T.S | 1972 / JAN.- 19

REC
CONSTRUCTION STANDARD
F-5



PLAN

NOTES :-

1. THE CONNECTIONS TO THE THREE - EARTH ELECTRODES SHOULD BE AS FOLLOWS :-
   - (a) TO ONE OF THE EARTH ELECTRODES ON EITHER SIDE OF DOUBLE POLE STRUCTURE (X OR Y).
     - (i) ONE DIRECT CONNECTION FROM THREE 11 KV LIGHTNING ARRESTERS.
     - (ii) ANOTHER DIRECT CONNECTION FROM THE L.T. LIGHTNING ARRESTERS, IF PROVIDED.
   - (b) TO EACH OF THE REMAINING TWO EARTH-ELECTRODES.
     - (i) ONE SEPARATE CONNECTION FROM THE NEUTRAL (ON THE MEDIUM VOLTAGE SIDE) OF THE TRANSFORMER
     - (ii) ONE SEPARATE CONNECTION FROM THE TRANS-FORMER BODY AND THE HANDLE OF THE 11 KV. AB SWITCH.
     - (iii) ONE SEPARATE CONNECTION FROM THE EARTHING TERMINAL OF THE POLES
2. 4 mm (8 S.W.G) G.I. WIRE SHOULD BE USED FOR EARTH LEADS.

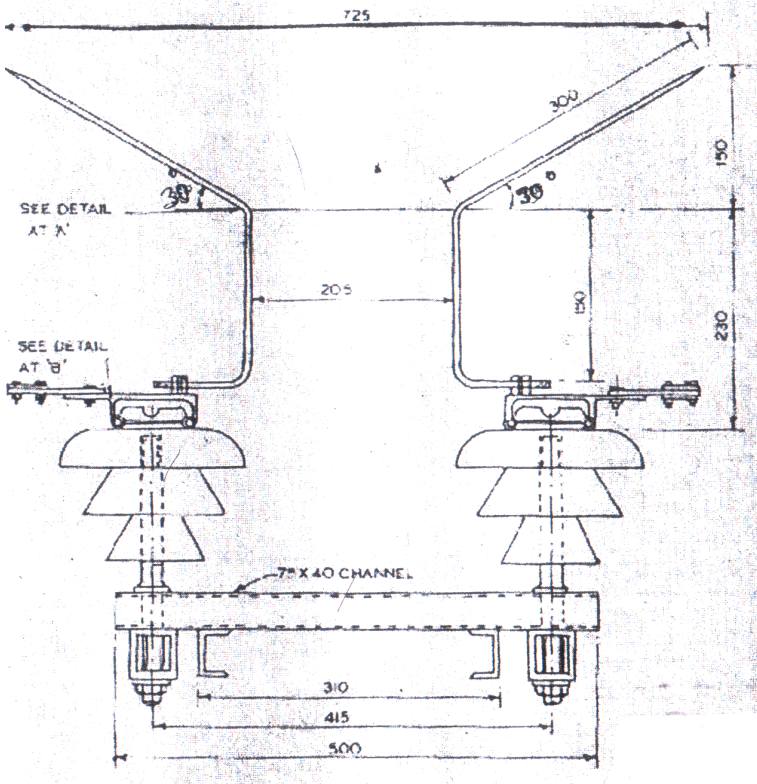
ALL DIMENSIONS ARE IN mm.

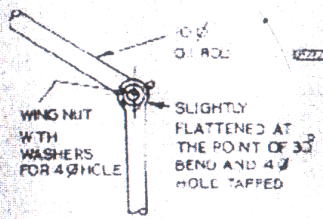
११ के. वी./४३३-२५० वोल्ट
वितरण उप-स्टेशन
अर्थिंग के गड्ढे और
कनेक्शन के प्रबन्ध

11 KV/433-250V
DISTRIBUTION SUB-STATION
LOCATION OF EARTH PITS
AND CONNECTIONS

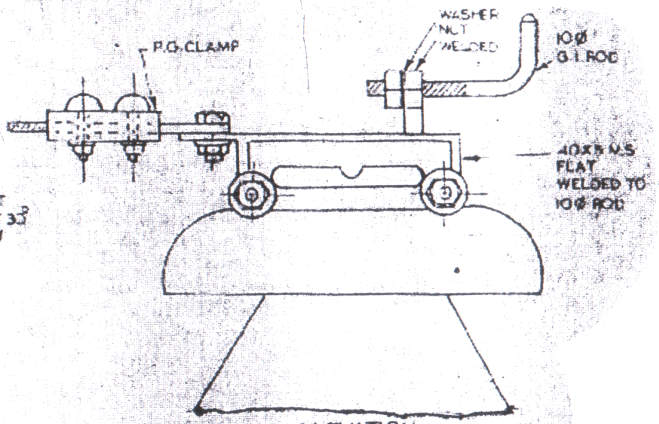
R-2	SCALE : N.T.S.	1993 / JAN., - 1993

REC
CONSTRUCTION STANDARD
F-6

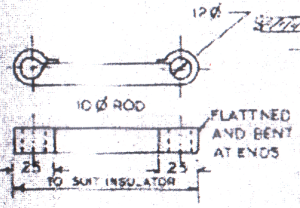




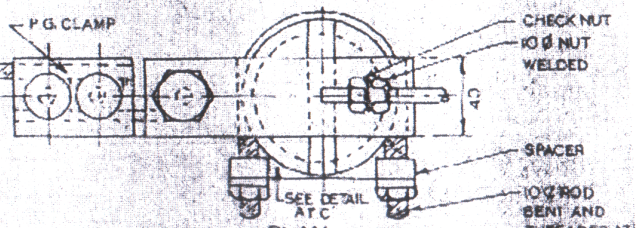
DETAIL AT A



ELEVATION



DETAIL OF SPACER AT 'C'



PLAN
DETAIL AT 'B'

ALL DIMENSIONS ARE IN mm.

११ के. वी. हार्न गैप फ्यूज़

11KV HORN GAP FUSES

SCALE:- N.T.S

REC
CONSTRUCTION STANDARD
F-8
(REVISED-1987)

RECOMMENDED TYPE AND SIZES OF MULTICORE CABLES

Distribution Transformer Centre Capacity in KVA	TYPE	Size (Nominal area of cross section)
25	PVC insulated and sheathed un-armoured four-core aluminium cable.	16 mm^2
63	PVC insulated and sheathed un-armoured four-core aluminium cable with reduced neutral conductor.	70 mm^2
	OR	
	PVC insulated and sheathed aluminium armoured three-core solid aluminium conductored cable.	70 mm^2
100	PVC insulated and sheathed un-armoured four-core aluminium cable with reduced neutral conductor.	120 mm^2
	OR	
	PVC insulated and sheathed aluminium armoured three-core solid aluminium conductored cable.	120 mm^2

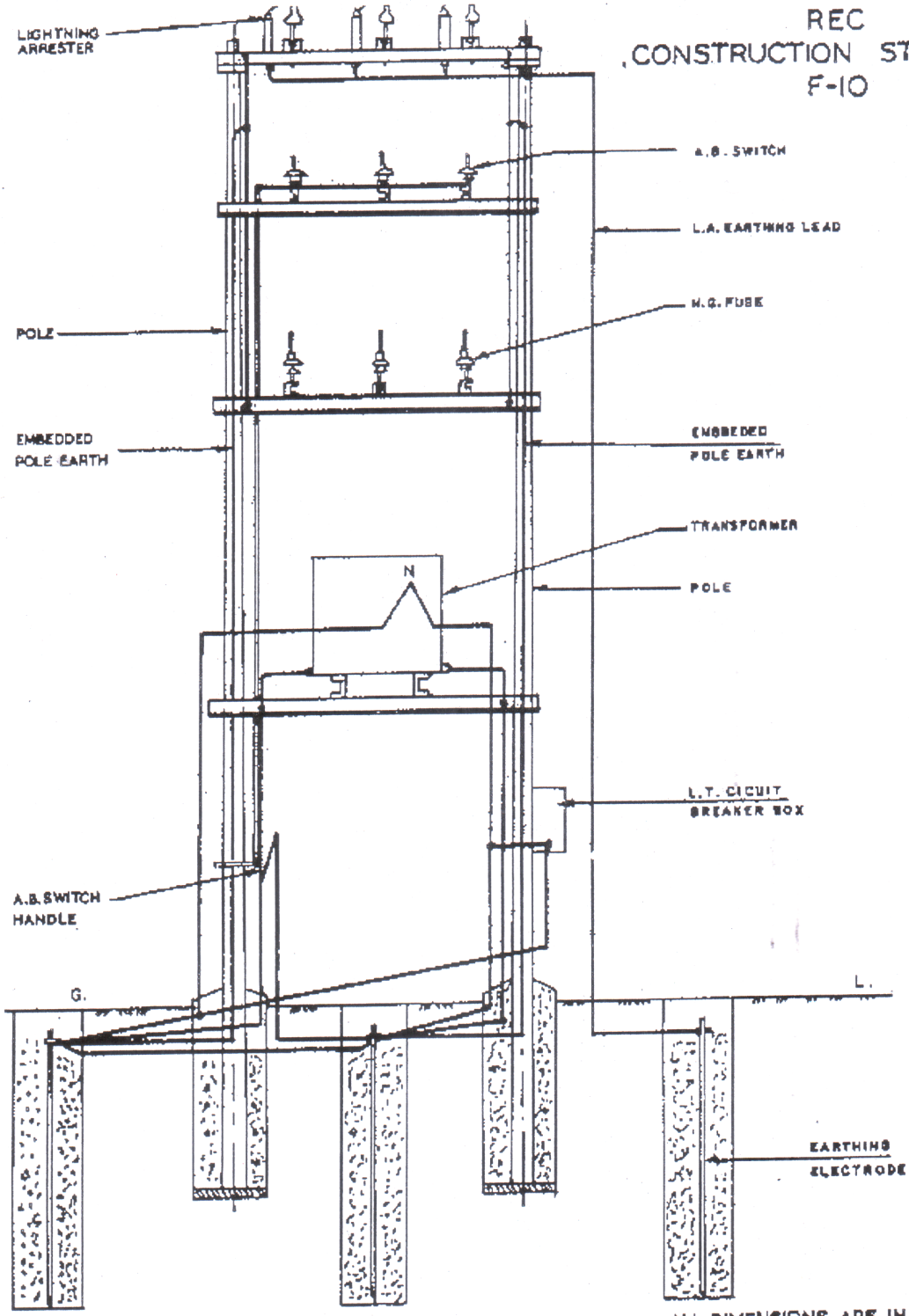
NOTE:
1. The cables would be laid in air.
2. In case of PVC armoured cables, aluminium armour shall serve as neutral for 63 and 100 KVA distribution transformer centres.
3. Size of reduced neutral conductor shall comply with the main-neutral conductor combination as per IS: 1554 (Part-I)-1976.
4. Type and size of single core cables which can be used for the same purpose are given in REC Construction Standard F-18.

वितरण उप-केन्द्र के लिए
एल॰ टी॰ बहुकोर केबिल (एल्यु॰)
संस्तुत प्रकार एवं आकार

L.T MULTICORE CABLES (ALUM.)
FOR DISTRIBUTION SUB-STATIONS
RECOMMENDED TYPE AND SIZES.

FEBRUARY - 1979

REC
CONSTRUCTION STANDARD
F-10



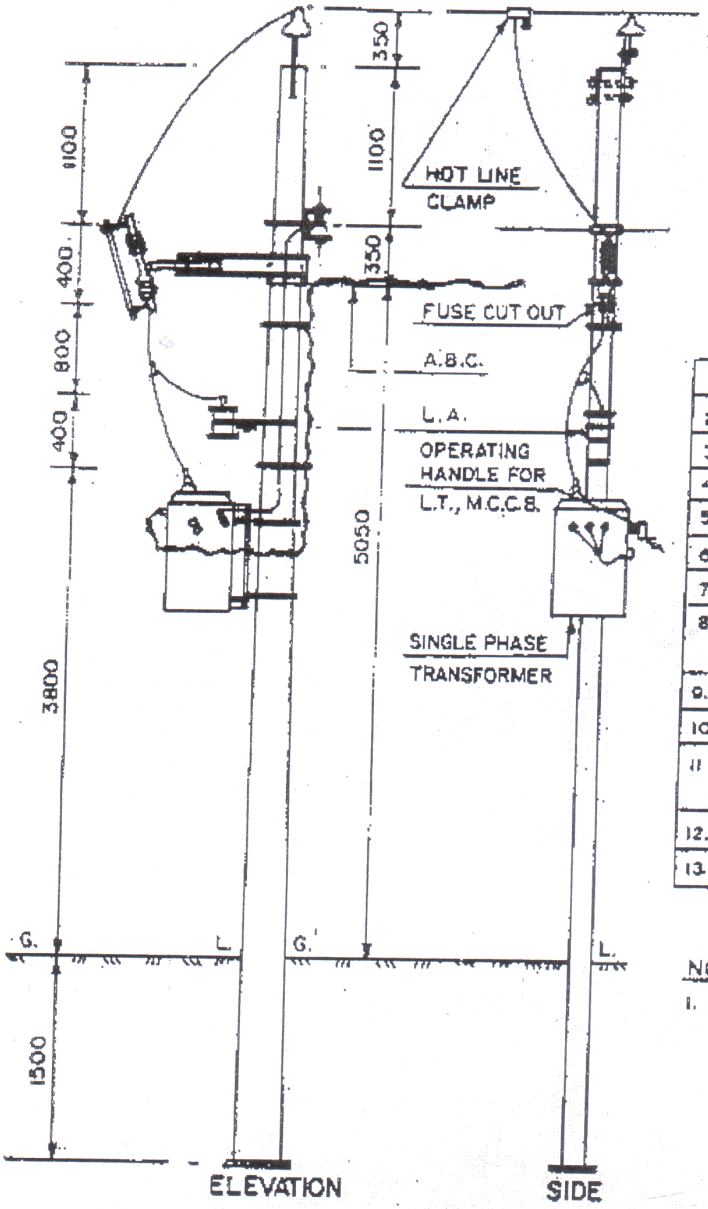
ALL DIMENSIONS ARE IN mm.

वितरण ग्रिड-स्टेशन के लिए
अर्थिंग व्यवस्था

EARTHING ARRANGEMENT FOR
DISTRIBUTION SUB-STATION

SCALE:- N.T.S | APRIL - 1983

REC
CONSTRUCTION STANDARD
F-13



BILL OF MATERIAL

1.	P.C.C. SUPPORT 8M	1
2.	POLE TOP BRACKET	1
3.	11 KV PIN INSULATOR WITH PIN	1
4.	SHACKLE INSULATOR	1
5.	U-CLAMP WITH BOLT	1
6.	L.A WITH FIXTURES	1
7.	FUSE CUT-OUT WITH FIXTURES	1
8	SINGLE PHASE TRANSFORMER WITH L.T MCCB AND FIXTURES	1
9.	A.B.C	AS REQD.
10.	POLE CLAMPS	4
11	EARTHING MATERIAL, NUTS, BOLTS, CLAMPS ETC.	AS REQD.
12.	HOTLINE CLAMP	1
13.	BASE PLATE	1

NOTE:-

1. THE TRANSFORMER MOUNTING DETAILS ARE GIVEN IN R.E.C CONSTRUCTION STANDARD 'F-14'

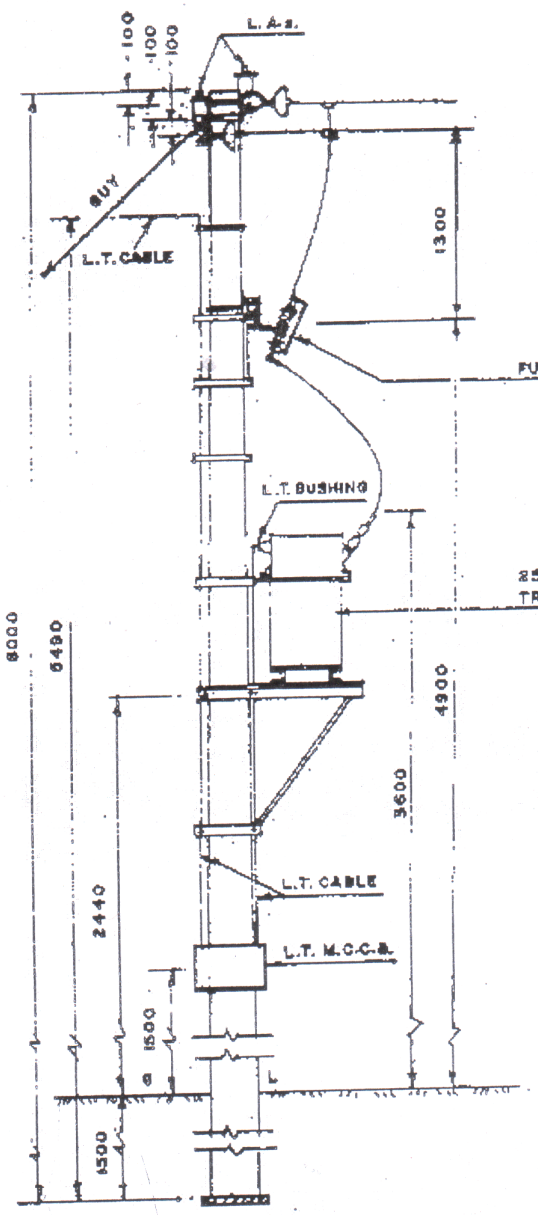
ALL DIMENSIONS ARE IN mm.

सिंगल फेज (फेज-से-न्यूट्रल) वितरण सब-स्टेशन की व्यवस्था

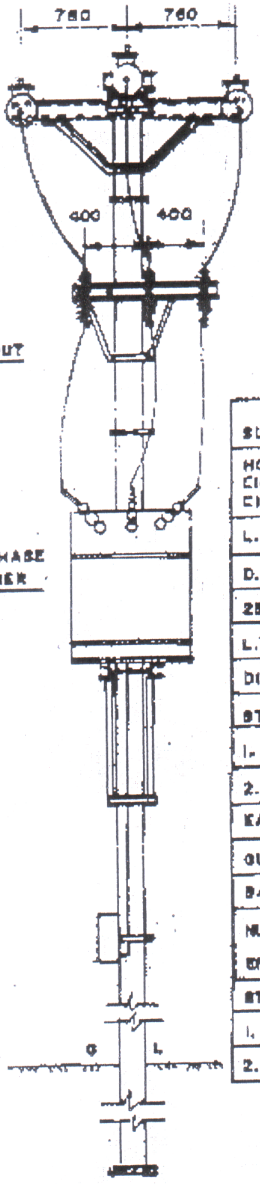
SINGLE PHASE (PHASE — TO — NEUTRAL) DISTRIBUTION SUB - STATION ARRANGEMENT

SCALE:- N.T.S | JULY, 1987

REC
CONSTRUCTION STANDARD
F-20



ELEVATION



SIDE VIEW

BILL OF MATERIALS

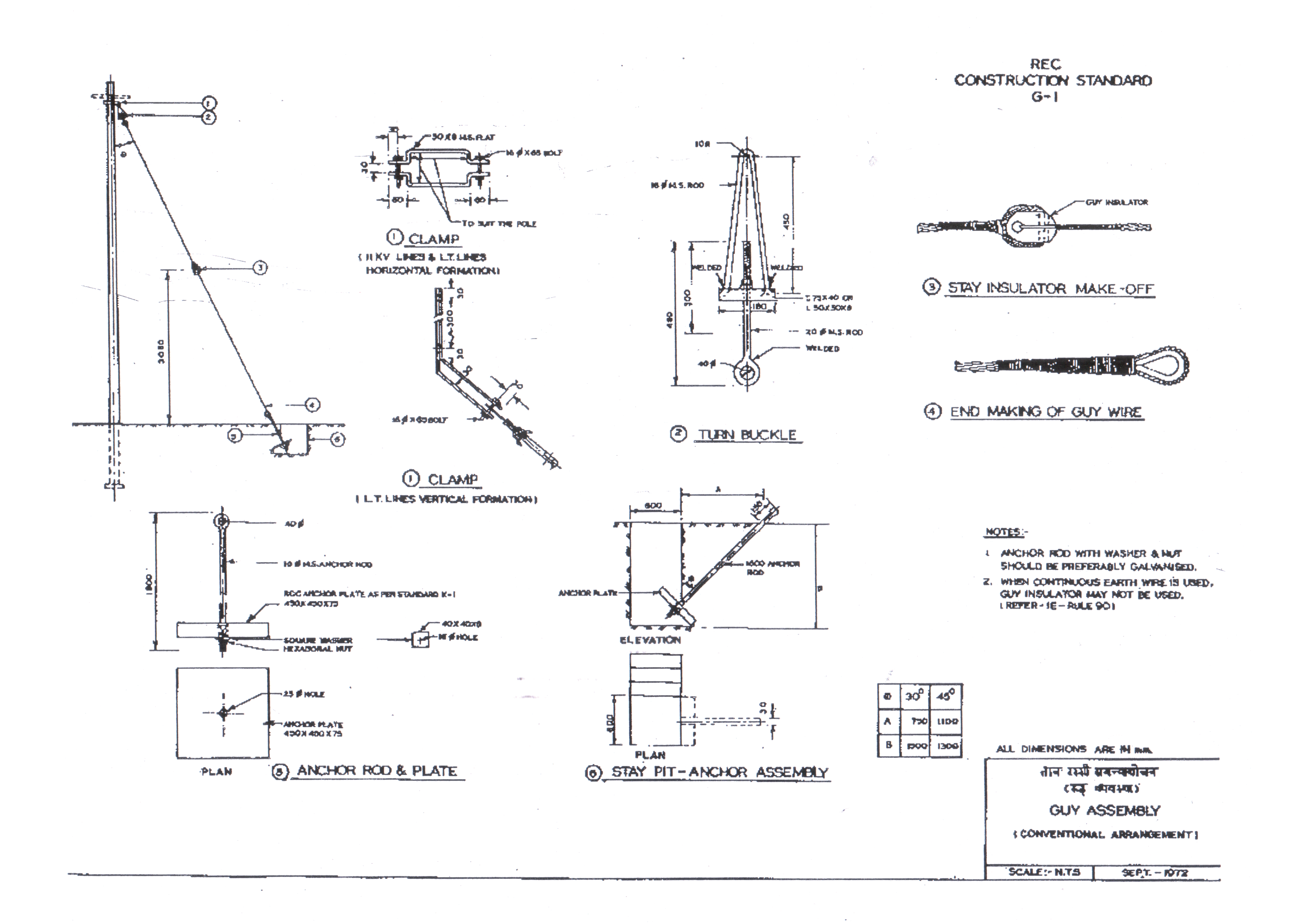
SUPPORT (8 M/200Kg)	1No.
HORIZONTAL CROSS ARM C100X50X6-150 C100X50X6-1800	1No. 1No.
L.A. WITH FITTINGS	3Nos.
D.O. FUSE WITH FITTINGS	3Nos.
25 KVA TRANSFORMER	1No.
L.T. M.C.C.B.	1No
DISC INSULATOR WITH FITTINGS	3Nos.
STRUCTURE FOR TRANS.MOUNTING:-	
1. C100X50X6-1000	2Nos.
2. L50X50X6-800	2Nos.
EARTHING MATERIAL	1No.
GUY SET	1SET
BASE PLATE	1No.
NUTS, BOLTS, POLE TOP CLAMPS Etc.	AS REQD.
STRUCTURE FOR D.O. FUSE MOUNTING:-	
1. C100X50X6-900	1No.
2. L50X50X6-400	2 Nos.

ALL DIMENSIONS ARE IN mm.

वितरण सब-स्टेशन
माउंटिंग व्यवस्था
सिंगल पोल पर २५ कै.वी.ए. ट्रांसफार्मर की

DISTRIBUTION SUB-STATION
MOUNTING ARRANGEMENT OF 25 KVA
TRANSFORMER ON SINGLE POLE

SCALE: N.T.S. OCT., 1987


REC
CONSTRUCTION STANDARD
G-1
1 CLAMP
(11 KV LINES & L.T. LINES HORIZONTAL FORMATION)
1 CLAMP
(L.T. LINES VERTICAL FORMATION)
2 TURN BUCKLE
3 STAY INSULATOR MAKE-OFF
GUY INSULATOR
4 END MAKING OF GUY WIRE
5 ANCHOR ROD & PLATE
6 STAY PIT-ANCHOR ASSEMBLY
ELEVATION
PLAN
ANCHOR PLATE
NOTES:-
1. ANCHOR ROD WITH WASHER & NUT SHOULD BE PREFERABLY GALVANISED.
2. WHEN CONTINUOUS EARTH WIRE IS USED, GUY INSULATOR MAY NOT BE USED. (REFER - IE - RULE 90)
θ | 30° | 45°
A | 750 | 1100
B | 1500 | 1300
ALL DIMENSIONS ARE IN mm.
GUY ASSEMBLY
(CONVENTIONAL ARRANGEMENT)
SCALE:- N.T.S
SEPT. - 1972

REC
CONSTRUCTION STANDARD
G-3

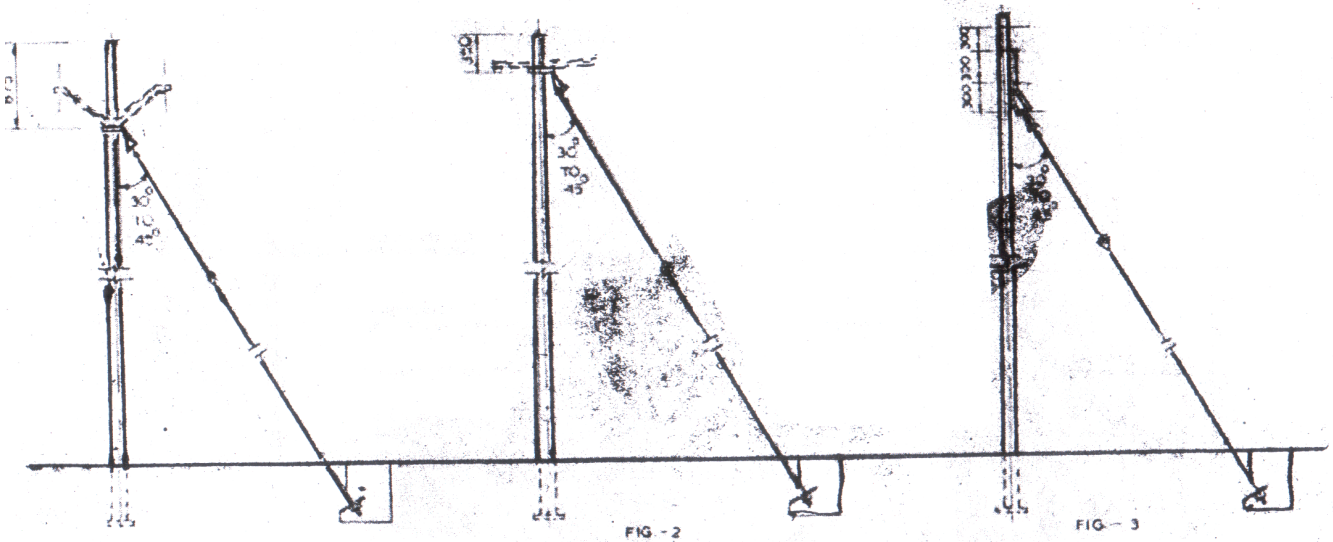
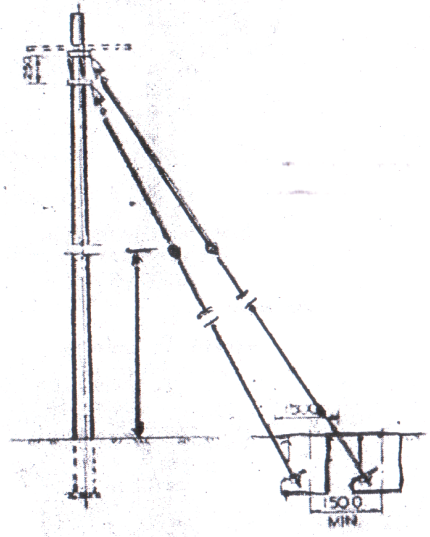


FIG - 2 SINGLE GUY

FIG - 3



DOUBLE GUY

NOTES :

1. SINGLE GUY ARRANGEMENT AS PER FIGURE 1, 2 & 3 CAN BE USED WHEN TOTAL TENSION TO BE TAKEN ON THE GUY DOES NOT EXCEED THE FOLLOWING LIMITS.

SIZE OF GUY WIRE for 70 Kgf/mm² QUALITY	MAXIMUM TENSION ON THE GUY
7/2.50 mm	920 KG
7/3.15 mm	1450 KG

2. IN THE DOUBLE GUY ARRANGEMENT, THE FOUNDATION OF THE GUYS SHOULD BE SO PLACED THAT ONE DOES NOT REDUCE THE STRENGTH OF THE OTHER. IN OTHER WORDS, THE SOIL WHICH RESISTS THE UP-LIFT SHOULD NOT BE DISTURBED WHILE DIGGING THE FOUNDATION FOR THE OTHER STAY.
3. FOR DETAILS OF COMPONENTS OF GUY ASSEMBLY, REFER G-1

ALL DIMENSIONS ARE IN mm

तान रम्मी व्यवस्था
एकल व द्वि तान रम्मी

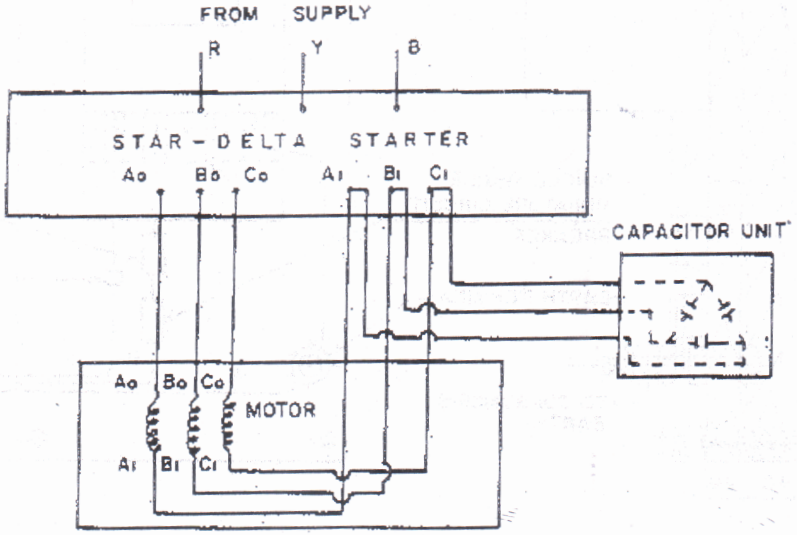
GUYING ARRANGEMENTS
SINGLE & DOUBLE GUY

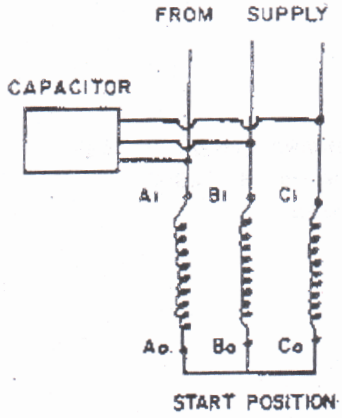
REC
CONSTRUCTION STANDARD
H-9

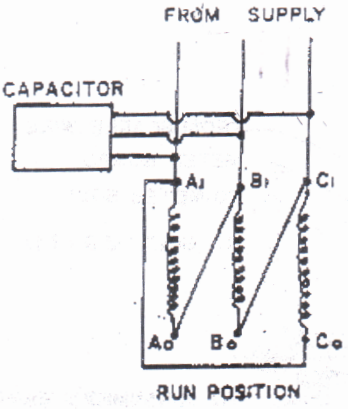
RECOMMENDED CAPACITOR RATINGS

MOTOR RATING	2·2KW(3H.P.)	3·7KW (5H.P.)	5·5KW(7·5H.P.)	7·5KW(10H.P.)
CAPACITOR RATING IN KVAR	1	2	3	4

CONNECTIONS OF A 3-TERMINAL CAPACITOR UNIT TO A MOTOR HAVING A START DELTA STARTER



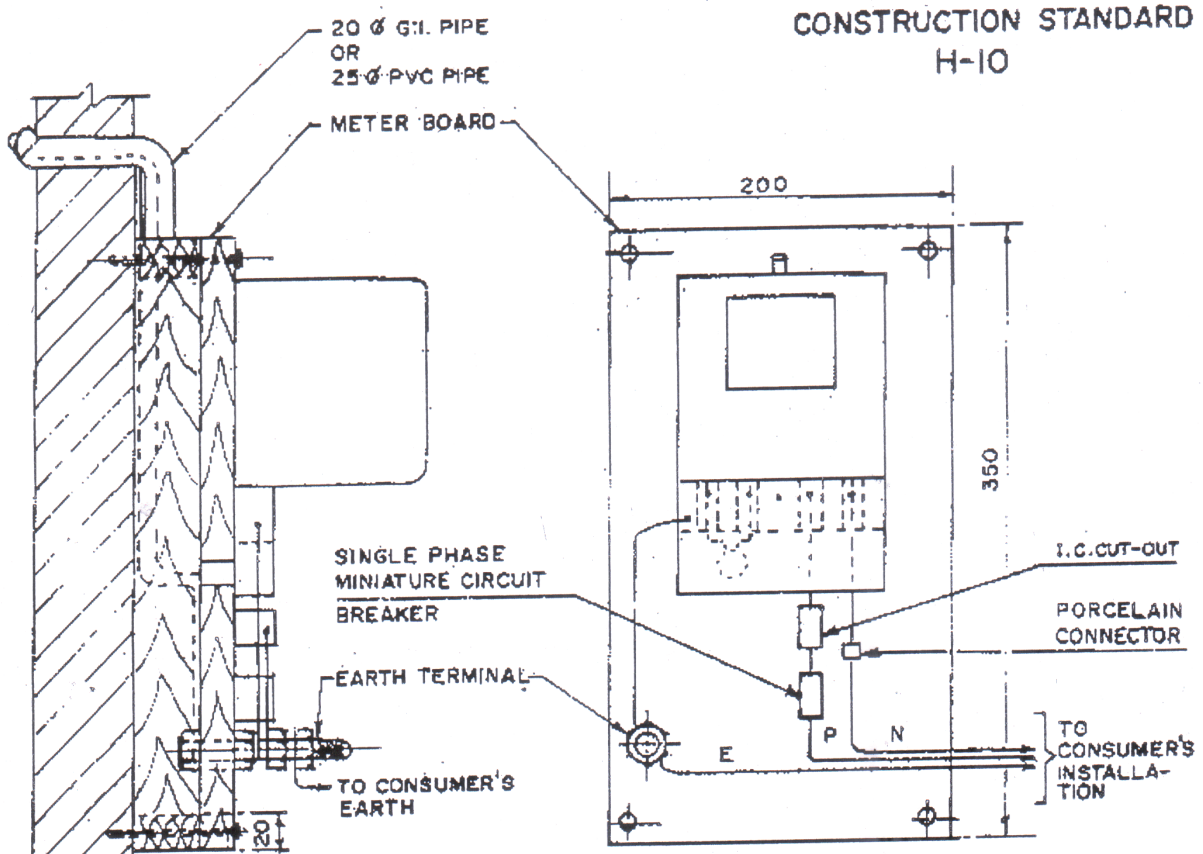




एल. टी. कैपेसिटर
कनेक्शनों की संस्तुत रेटिंग एवं पद्धति
L.T. CAPACITORS
RECOMMENDED RATINGS
AND MODE OF CONNECTIONS

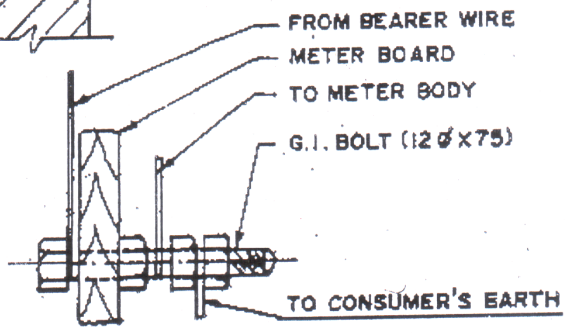
MARCH - 1974.

REC
CONSTRUCTION STANDARD
H-10



NOTE :-

METER BOARD CAN BE OF TEAK WOOD OR ANY SUITABLE HARD WOOD.



EARTH TERMINAL DETAILS

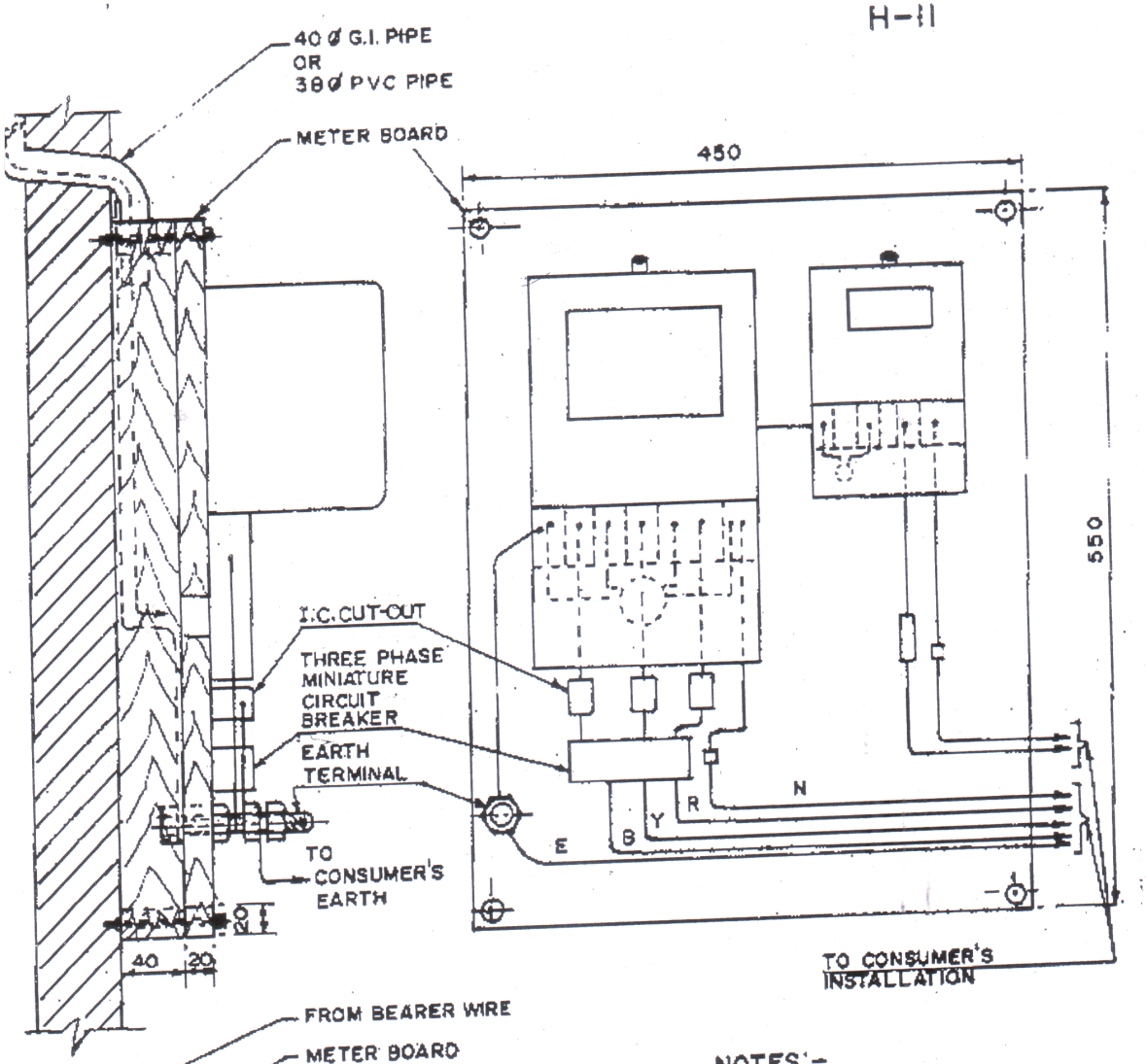
ALL DIMENSIONS ARE IN mm.

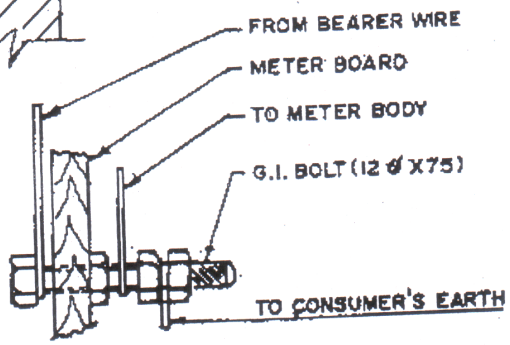
एम०सी०बी० कन्ट्रोल के साथ मार्बल
कनेक्शन सिंगल फेज मीटर
(अलग न्यूट्रल और अर्थ सहित)

SERVICE CONNECTIONS
SINGLE PHASE METER BOARD
WITH MCB CONTROL
(WITH SEPARATE NEUTRAL AND EARTH)

SCALE: N.T.S.	MAY, 1993

REC
CONSTRUCTION STANDARD
H-II





EARTH TERMINAL DETAILS

NOTES:-

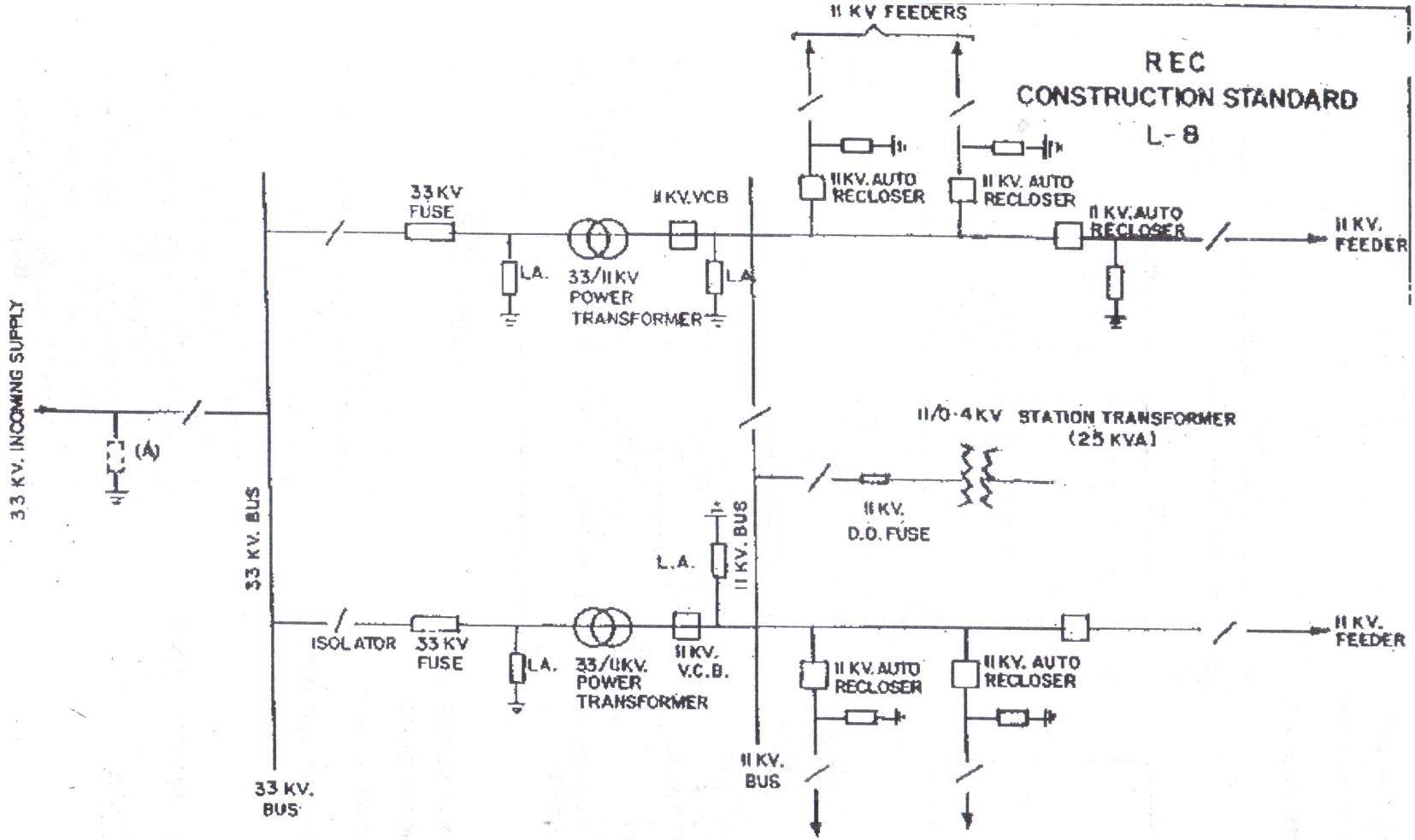
1. METER BOARD CAN BE OF TEAK WOOD OR ANY SUITABLE HARD WOOD.
2. WHERE ONLY A THREE PHASE METER IS TO BE USED, THE DIMENSIONS OF THE METER BOARD MAY BE 550X350

ALL DIMENSIONS ARE IN mm.

एम.सी.बी. कन्ट्रोल के साथ सर्विस कनेक्शन तीन फेज मीटर (अलग न्यूट्रल और अर्थ सहित)

SERVICE CONNECTIONS
THREE PHASE METER BOARD
WITH MCB CONTROL
(WITH SEPARATE NEUTRAL AND EARTH)

SCALE: N.T.S.	MAY, 1993.



NOTE

1 33 KV L.A. AT (A) NOT REQUIRED IN CASE ONLY FUSES ARE USED TO PROTECT THE 33/11KV POWER TRANSFORMER. IN CASE CIRCUIT BREAKERS ARE USED INSTEAD OF 33KV FUSES, THE 33KV L.A. AT (A) MAY BE USED TO PROTECT THE C.B. FROM SURGES.

2 CIRCUIT BREAKERS HAVE TO BE USED INSTEAD OF 33KV FUSES IN CASE OF POWER TRANSFORMER CAPACITY OF 5 MVA AND ABOVE AS PER I.E. RULES.

LEGEND

- ISOLATOR
- 33 KV H.R.C. OR EXPULSION TYPE FUSE
- LIGHTNING ARRESTER
- 33 KV. POWER TRANSFORMER
- 11 KV. V.C.B.
- 11 KV. AUTO RECLOSER
- 11 KV. D.O. FUSE
- 11/0·4 K.V. STATION TRANSFORMER

दो 33 के॰ वी॰ ट्रांसफार्मर के साथ
33/11 के॰ वी॰ कर्मचारी रहित किस्म के उप-स्टेशन
का एकल लाईन आरेख

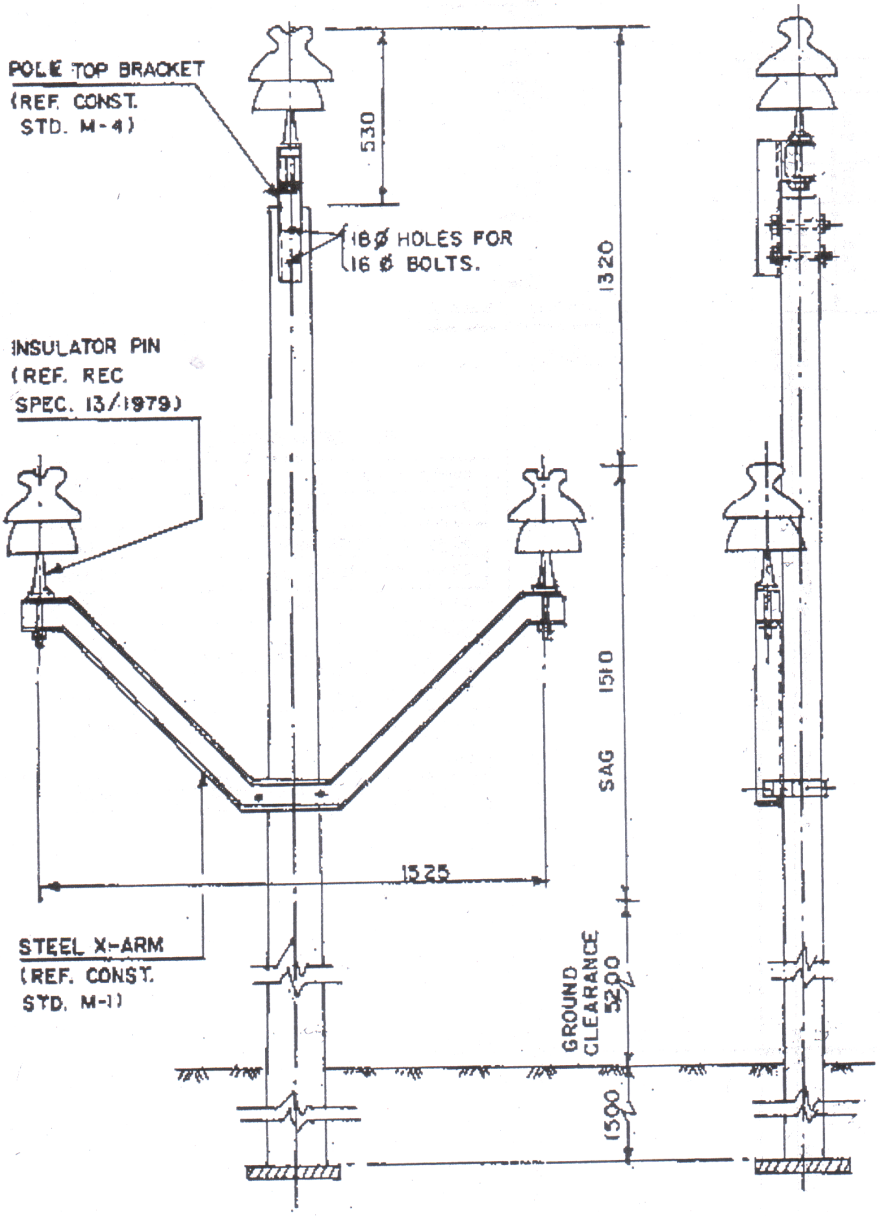
SINGLE LINE DIAGRAM
OF 33/11 KV. UNATTENDED TYPE
SUB-STATION WITH TWO 33/11KV. TRANSFORMERS

SCALE: N.T.S. | SEPT., 1997

R E C

CONSTRUCTION STANDARD

M - 3



BILL OF MATERIAL

9·0M SUPPORT	1
POLE TOP BRACKET	1
V- CROSS ARM (M.S.CHANNEL-100X50X6·4)	1
BACK CLAMP	1
BOLTS 16 Ø	4
33 KV PIN INSULATOR	3
33 KV PINS	3
EARTHING COMPLETE	1

TANGENT LOCATION

MAX. SPAN 125 M

(CROSS COUNTRY)

ALL DIMENSIONS ARE IN mm.

३३ कि॰ वी॰ लाईन

कन्डक्टर रचना एवं अन्तराल

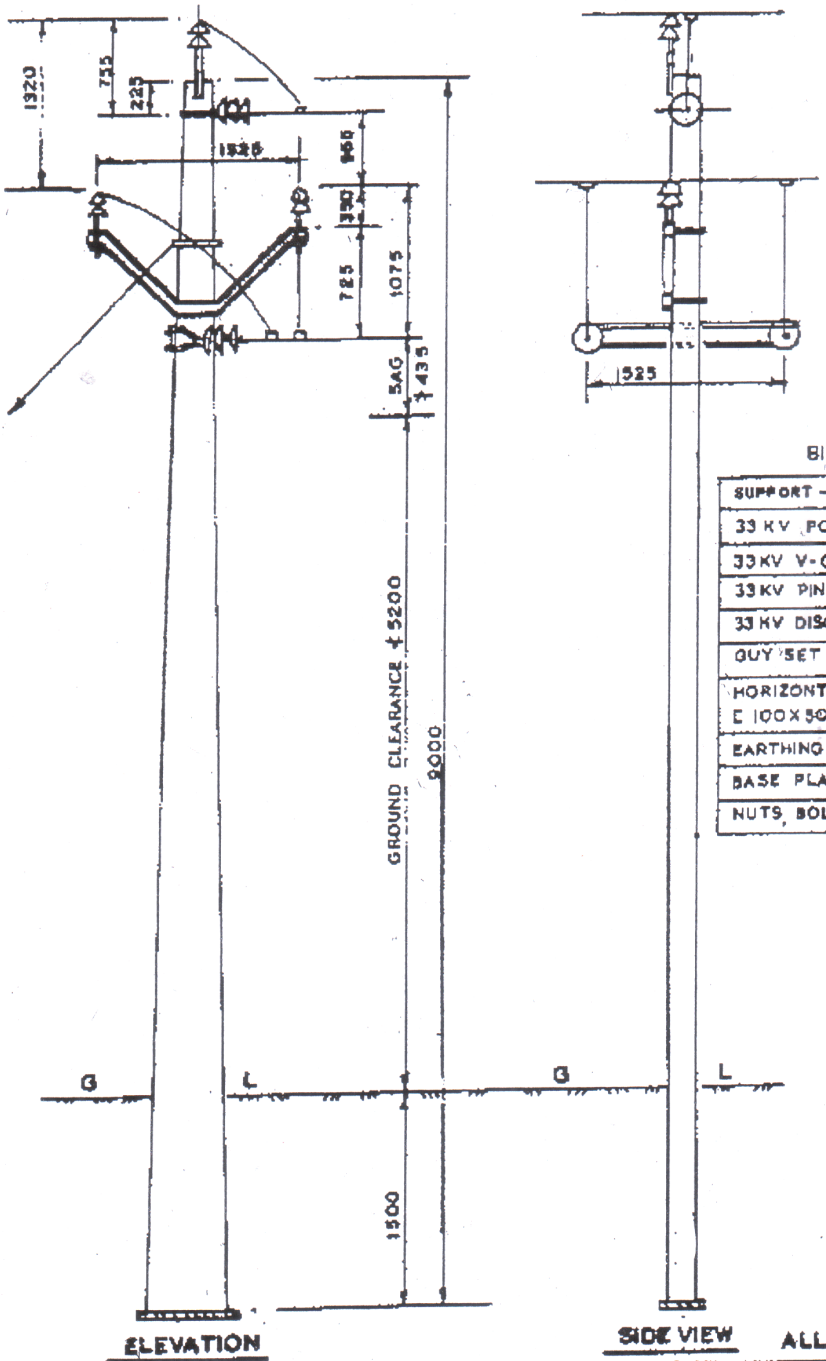
33KV LINE

CONDUCTOR FORMATION

AND CLEARANCES

SCALE:-N.T.S | APRIL - 1981.

REC
CONSTRUCTION STANDARD
M-10



ELEVATION

SIDE VIEW

BILL OF MATERIAL

SUPPORT – 9·0M	1NO.
33 KV POLE TOP BRACKET	1NO.
33 KV V-CROSS ARM	1NO
33 KV PIN INSULATOR	3NOS.
33 KV DISC INSULATORS	3 SETS
GUY SET	1NO.
HORIZONTAL CROSS ARM ISA 100X50X6.4	1NO.
EARTHING MATERIAL	AS REQD.
BASE PLATE	1NO
NUTS, BOLTS, POLE CLAMPS ETC.	AS REQD.

ALL DIMENSIONS ARE IN mm.

NOTE :- MAXIMUM SPAN BETWEEN THE TAPPING POLE AND ADJACENT POLE OF THE BRANCH LINE – 50 MTS.

33 के.वी. लाईन
टैपिंग व्यवस्था
सिंगल पोल टैपिंग

33 KV LINES
TAPPING ARRANGEMENT ON
SINGLE POLE

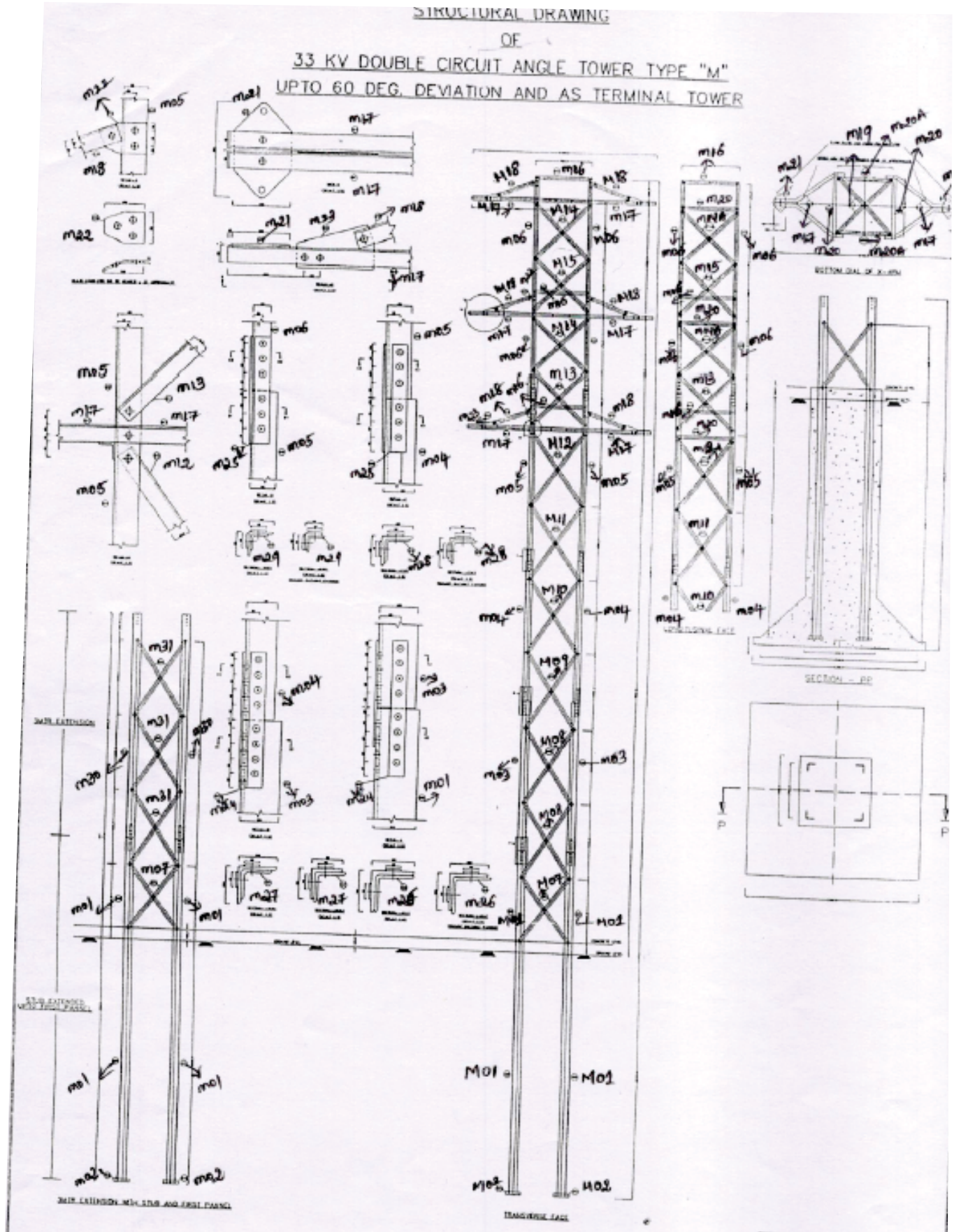
SCALE: N.T.S | OCT., 1967

STRUCTURAL DRAWING

OF

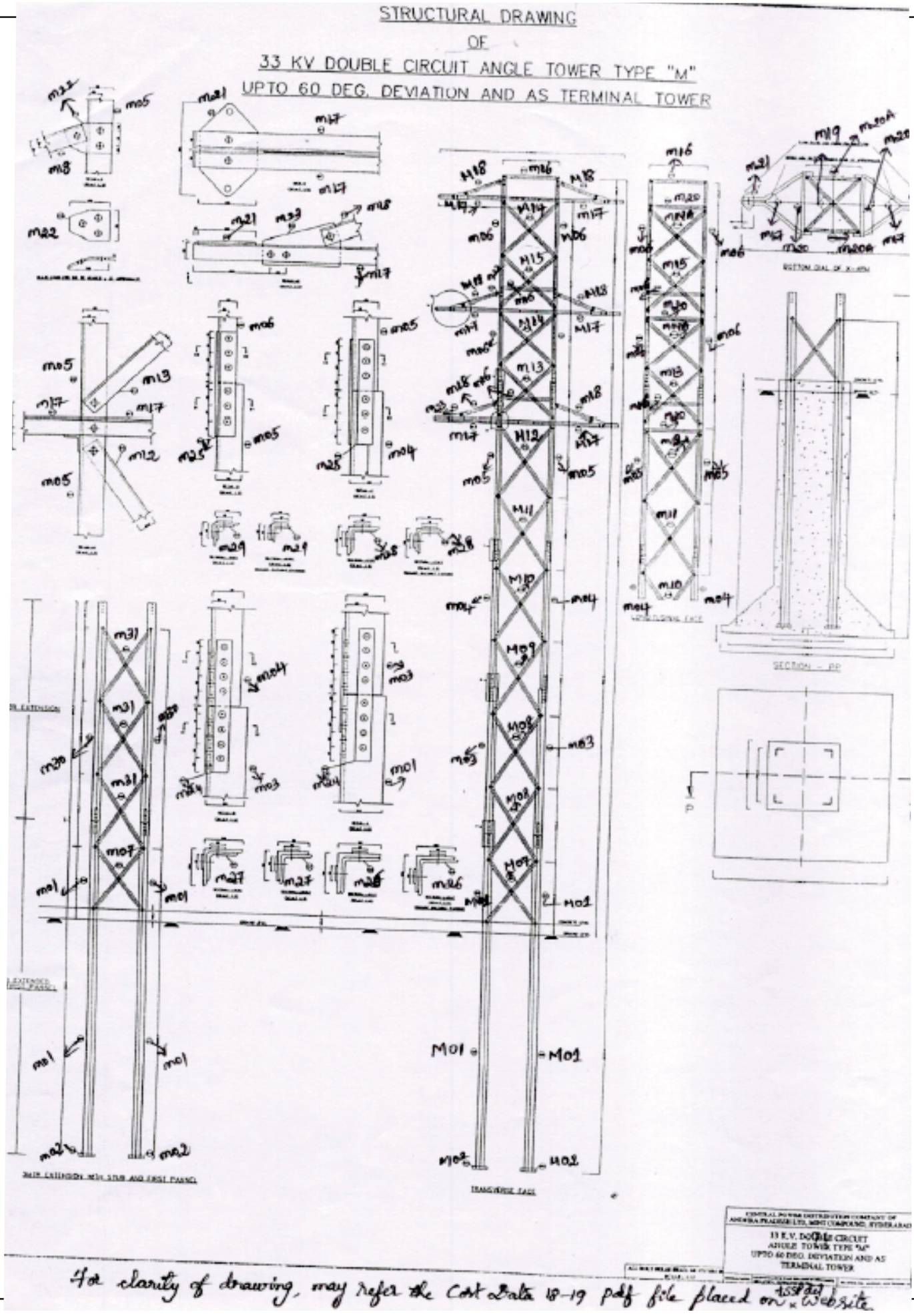
33 KV DOUBLE CIRCUIT ANGLE TOWER TYPE "M"

UPTO 60 DEG. DEVIATION AND AS TERMINAL TOWER



For clarity of drawing, may refer the Cost Data 18-19 pdf file placed on TSTRANSCO's Website

STRUCTURAL DRAWING
OF
33 KV DOUBLE CIRCUIT ANGLE TOWER TYPE "M"
UPTO 60 DEG. DEVIATION AND AS TERMINAL TOWER



For clarity of drawing, may refer the Cost Data 18-19 pdf file placed on ASSPDCL Website

BILL OF MATERIAL FOR 33 KV DOUBLE CIRCUIT TOWER TYPE ' M '

Sl. No.	PART DESCRIPTION	PART NO.	DIMENSIONS OF SECTION/PLATE B and	LENGTH/AREA (m/m)	QUANTITY (No's)	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)
	stub and cleats						
1	stub	M01	110x110x8	4.560m	4	13.4	244.416
2	cleats for stub	M02	45x45x5	0.200m	8	3.4	5.44
						sub total	249.856
	super structure of L type tower						
3	leg	M03	100x100x8	1.998m	4	12.1	96.703
4	leg	M04	80X80X8	1.898m	4	9.6	72.883
5	leg	M05	66x65x6	2.274m	4	5.8	52.575
6	leg	M06	45x45x5	2.761m	4	3.4	37.55
7	bracing	M07	45x45x5	1.098m	8	3.4	29.866
8	bracing	M08	45x30x5	1.222m	16	2.8	54.746
9	bracing	M09	45X30X5	1.230m	8	2.8	27.552
10	bracing	M10	45x30x5	1.238m	8	2.8	27.731
11	bracing	M11	45x30x5	1.224m	8	2.8	27.418
12	bracing	M12	45x30x5	1.200m	4	2.8	13.44
13	bracing	M12A	45x30x5	1.172m	4	2.8	13.126
14	bracing	M13	45x30x5	1.012m	8	2.8	22.669
15	bracing	M14	45x30x5	1.013m	8	2.8	22.691
16	bracing	M14A	45x30x5	0.999m	8	2.8	22.378
17	bracing	M15	45x30x5	1.019m	8	2.8	22.826
18	horizontal bracing	M16	45x30x5	0.750m	12	3.4	25.2
19	cross arms main member	M17	45x45x5	1.048m	12	2.8	42.758
20	cross arm tie member	M18	45x30x5	0.520m	12	2.8	17.472
21	cross arm plan member	M19	45x30x5	1.016m	6	2.8	17.069
22	belt member-langitudinal face	M20	45x30x5	0.750m	6	2.8	12.6
23	belt member-transverse face	M20A	45x30x5	0.740m	6	2.8	12.432
24	strain plate	M21	6 mm thick	0.038m'2	6	47.1	10.598
25	plate(b/w tie number &leg)	M22	6 mm thick	0.013m'2	12	47.1	7.235
26	plate(b/w tie number & main member)	M23	6 mm thick	0.020m'2	6	47.1	5.652
27	cover plate for leg joint	M24	6 mm thick	0.01448m'2	16	47.1	10.912
28	cover plate for leg joint	M25	6 mm thick	0.01128m'2	16	47.1	8.501
29	cleat	M26	100x100x8	0.362m	4	12.1	17.521
30	cleat	M27	80X80X8	0.362m	4	9.6	13.901
31	cleat	M28	65x65x6	0.282m	4	5.8	6.512
32	cleat	M29	45x45x5	0.282m	4	3.4	3.835
33	bolts and nuts for leg joints	NA	16 mm DIA	65mm	128	0.288	36.8
34	bolts and nuts for leg joints	NA	16 mm DIA	50mm	96	0.2997	25.603
35	bolts and nuts for other joints	NA	16 mm DIA	40mm	243	0.2467	59.948
36	spring washers	NA	3.5 mm thick	suitable for 16mm bolts bolts and nuts	467	0.009	4.203
37	flat washers for packing	NA	2 mm thick	suitable for 16mm bolts bolts and nuts	48	0.01	0.48
38	flat washers for packing	NA	1 mm thick	suitable for 16mm bolts bolts and nuts	48	0.005	0.24
						sub total	883.838
						grand total	1133.692

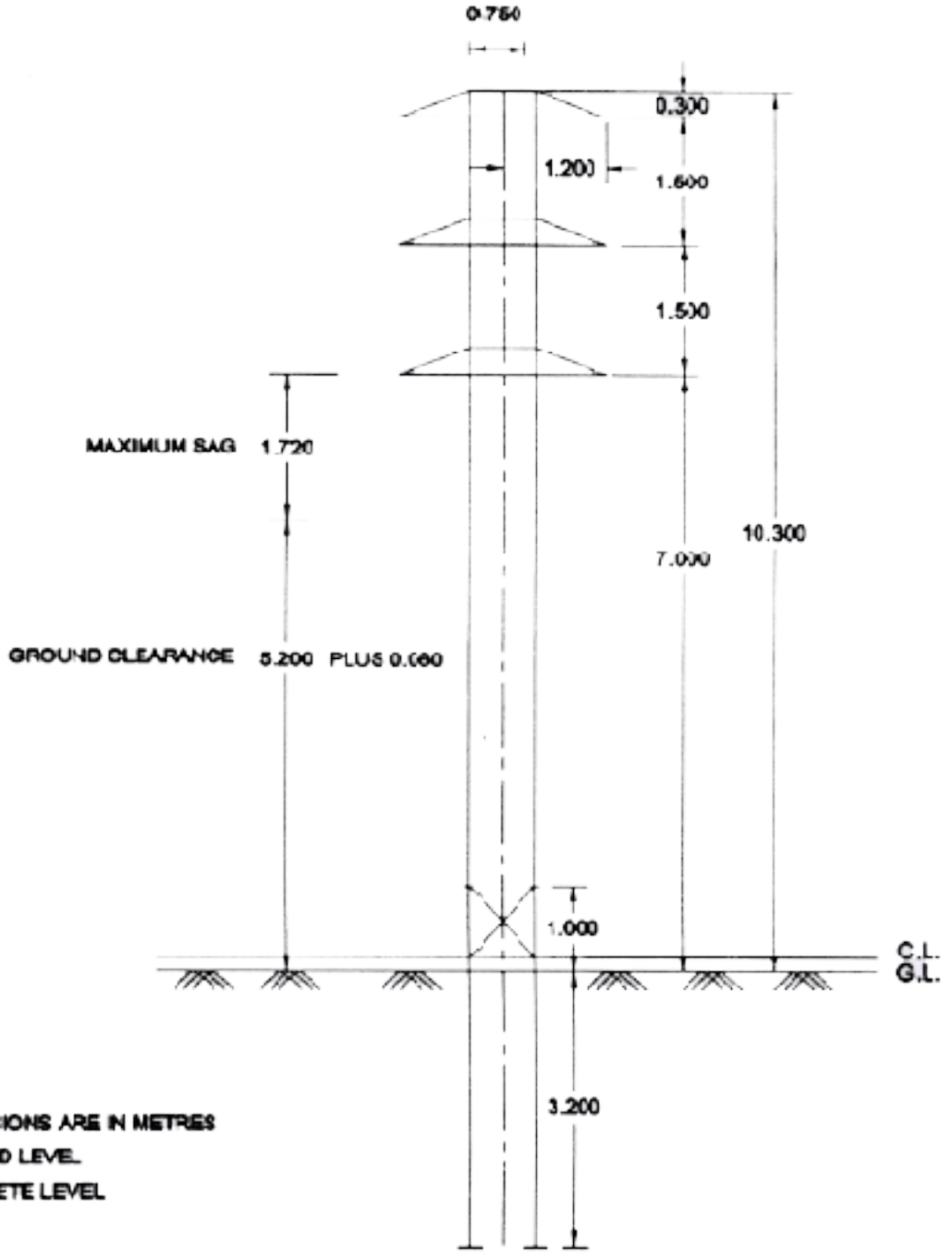
weight of normal tower type "M" :1133.692kgs

BILL OF MATERIAL FOR 3 M EXTENSION OF M TYPE TOWER

Sl. No.	PART DESCRIPTION	PART NO.	DIMENSIONS OF SECTION/PLATE B and N (mm)	LENGTH/AREA (m/m'2)	QUANTITY (No's)	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)
1	leg	M30	110x110x8	2.998m	4	13.4	160.693
2	bracing	M31	45x45x5	1.222m	24	3.4	99.715
3	cover plate	M24	6 mm thick	0.01448m	8	47.1	5.456
4	cleat	M26	100x100x8	0.362m	4	47.1	68.2
5	bolts and nuts	NA	16mm dia	65m	64	0.2875	18.4
6	bolts and nuts	NA	18 mm dia	40m	44	0.2467	10.855
7	spring washers	NA	3.5mm dia	suitable for 16 mm dia bolts and nuts	108	0.009	0.972
	Total						384.292

weight of 3M extension of "M" type tower::364.292

OUTLINE DIAGRAM OF 'M' TYPE TOWER

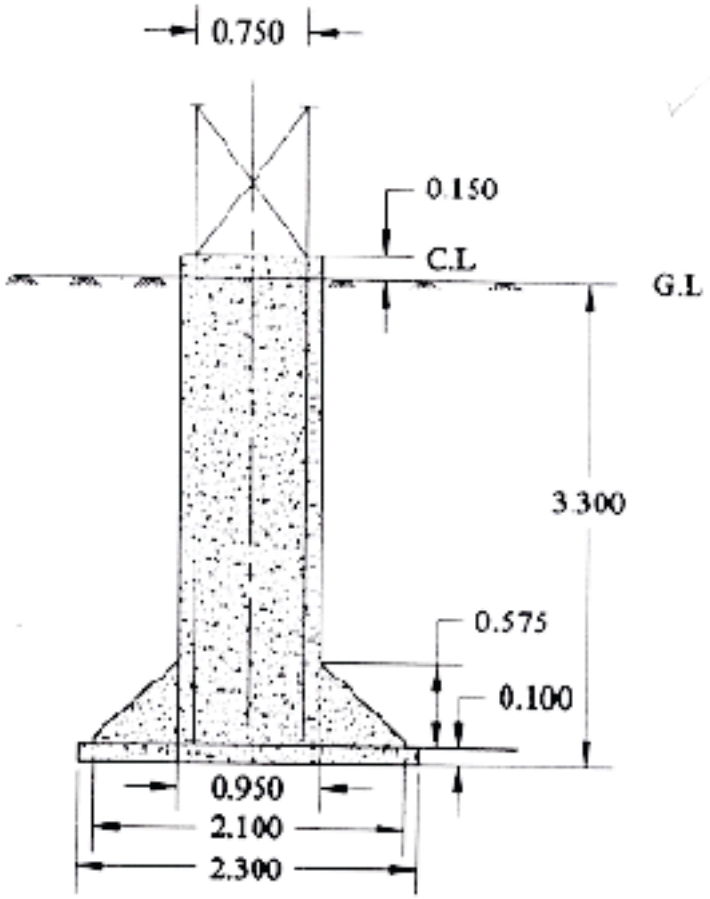


ALL DIMENSIONS ARE IN METRES
G.L. GROUND LEVEL
C.L. CONCRETE LEVEL

FIG - 11

Drawing No: APCPDCL-C.M-TOWERS-11

FOUNDATION DRAWING OF 33Kv D.C. TOWER TYPE 'M'

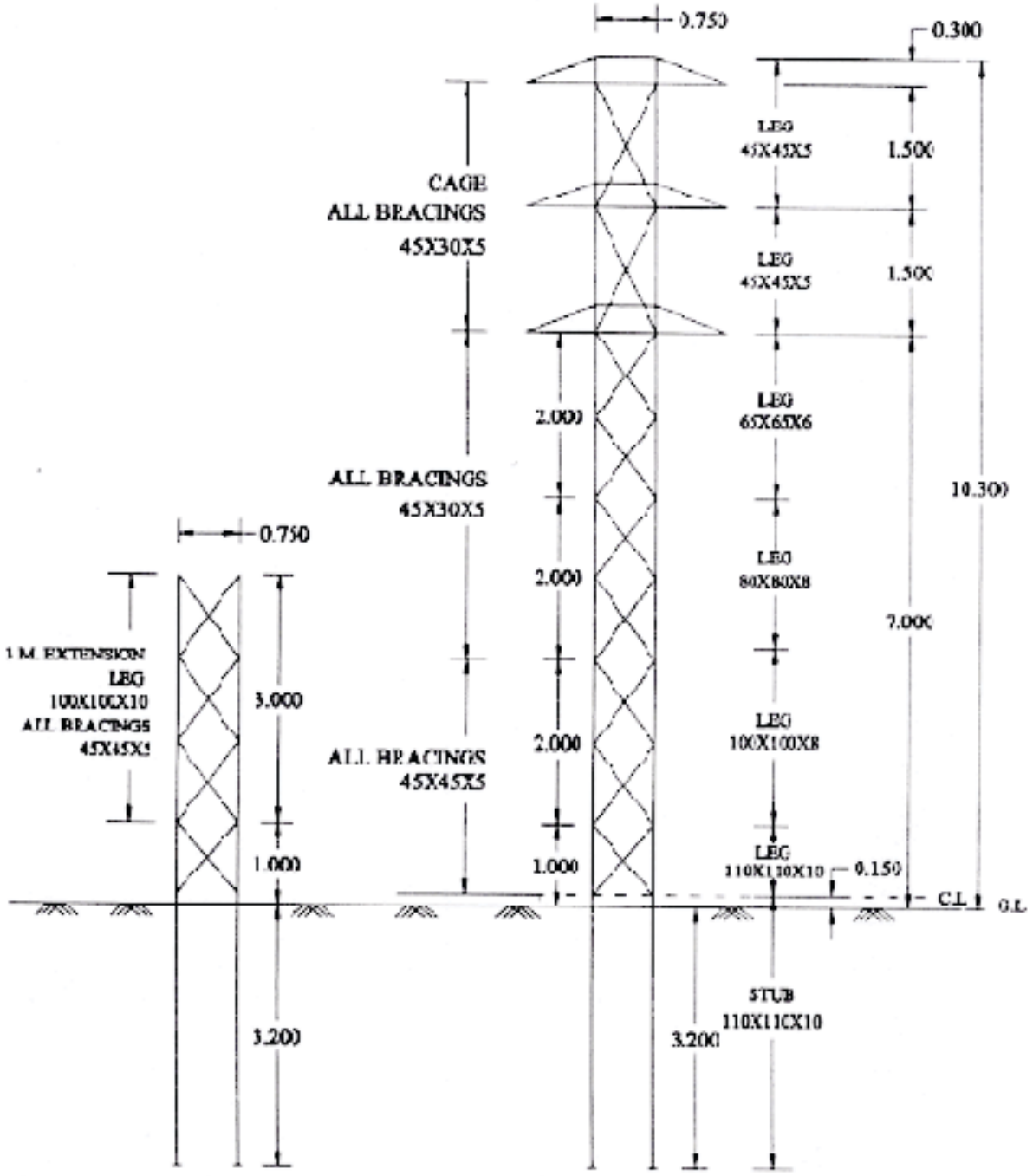


ALL DIMENSIONS ARE IN METRES.
FOUNDATION IS DESIGNED FOR NORMAL TOWER, PLUS 3M AND 6M EXTENSIONS.
STUBS EXTENDED UPTO FIRST PANEL.
SECTION : 110 X 110 X 10 MM.
DIAGONAL BRACINGS OF FIRST PANEL : 45 X 45 X 5 MM.
CLEATS WELDED TO STUBS AT BOTTUM : 45 X 30 X 5 MM, 200MM LONG TWO FOR EACH STUB.
ONE OF THE FOUR LEGS IS TO BE CONNECTED TO PIPE EARTHING PROVIDED SEPARATELY AT TOWER LOCATION.
VOLUME OF EXCAVATION = 22.308 CU.M(WORKING SPACE OF 150 MM ALL AROUND THE BOTTOM PAD)
VOLUME OF CONCRETE = 4.434 CU.M
THE FOUNDATION IS SUITABLE FOR NORMAL TOWER, PLUS 3M AND PLUS 6M EXTENSIONS.
THE FOUNDATION CAN BE ADOPTED FOR PLUS 9M AND PLUS 12M EXTENSIONS ERECTING THE TOWER AS A STRAIGHT LINE CUT POINT AND LIMITING THE SPAN TO 80M.

FIG - 14

Drawing No: APCPDCL-C.M-TOWERS-09

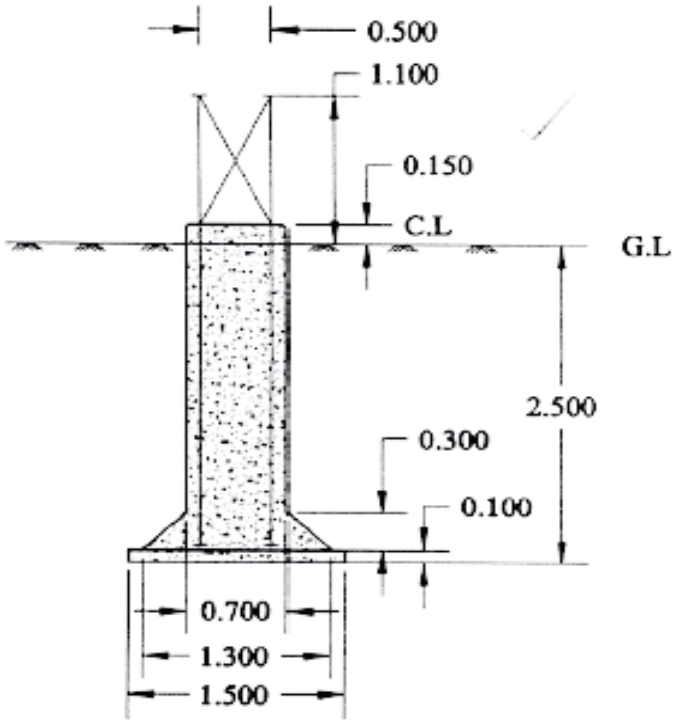
33KV DOUBLE CIRCUIT ANGLE TOWER TYPE 'M'
UPTO 60 DEGREES DEVIATION AND AS TERMINAL TOWER



ALL DIMENSIONS ARE IN METRES.
STEEL SECTIONS FOR LEG MEMBERS AND BRACINGS ARE INDICATED IN THE DRAWING
CROSS-ARM MAIN MEMBERS AND BELT MEMBERS ARE 45 X 45 X 5 MM. OTHER MEMBERS OF CROSS-ARMS ARE 45 X 30 X 5 MM.
ALL SECTIONS ARE IN M.M.
8NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR FIRST PANEL, 3M AND 6M EXTENSIONS.
8NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR SECOND AND THIRD PANELS.
6NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR FOURTH TO SEVENTH PANELS.
4NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR CAGE.
ALL DIAGONALS SHALL HAVE SINGLE BOLT CONNECTIONS.
ALL LEG MEMBERS ARE BUTT-JOINTED.

FIG - 13 Drawing No: ANCPDCL-C.M-TOWERS-13

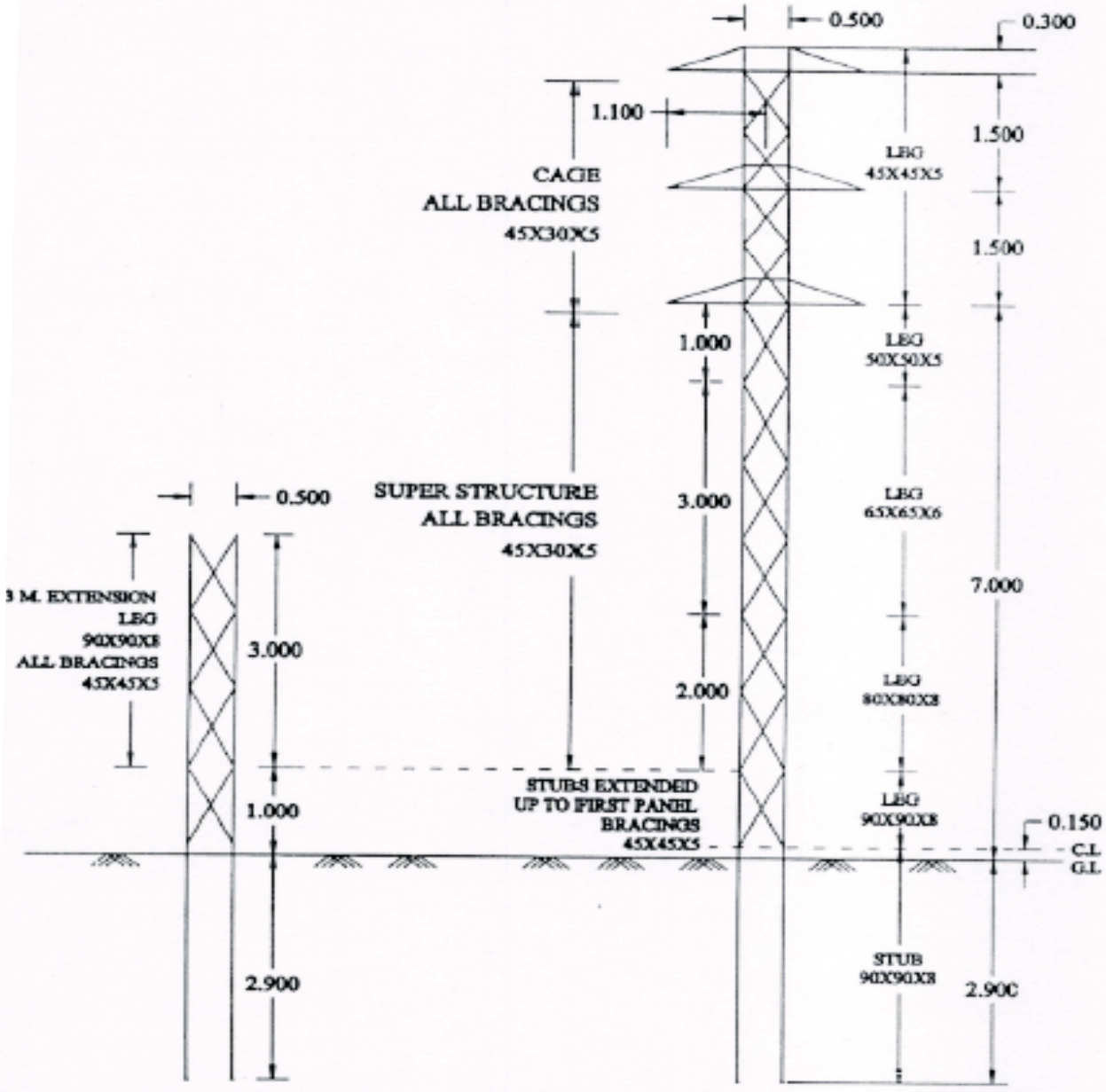
FOUNDATION DRAWING OF 33 Kv D.C. TOWER TYPE 'K'



ALL DIMENSIONS ARE IN METRES
FOUNDATION IS DESIGNED FOR NORMAL TOWER WITH 3M AND 6M EXTENSIONS
VOLUME OF EXCAVATION : 8.100 CU M(WORKING SPACE OF 150 MM ALL AROUND THE BOTTOM PAD)
VOLUME OF CONCRETE : 1.636 CU M
STUBS EXTENDED UPTO FIRST PANEL
SECTION : 75 X 75 X 6 MM
CLEATS : 45 X 30 X 5, 200MM LONG
TWO FOR EACH STUB
ONE OF THE FOUR LEGS IS TO BE CONNECTED TO PIPE EARTHING PROVIDED SEPARATELY.
THE FOUNDATION IS SUITABLE FOR NORMAL TOWER, PLUS 3M AND PLUS 6M EXTENSIONS.
THE FOUNDATION CAN BE ADOPTED FOR PLUS 9M AND PLUS 12M EXTENSIONS LIMITING THE SPAN TO 80M.

FIG - 04 **Drawing No: APCPDCL-C.M-TOWERS-04**

SINGLE LINE DIAGRAM OF 33Kv DOUBLE CIRCUIT ANGLE TOWER TYPE 'L' ANGLE OF DEVIATION : 20DEG



3M EXTENSION
OF L TYPE TOWER

ALL DIMENSIONS ARE IN METERS.
ALL SECTIONS ARE IN MM.
CROSS ARM MAIN MEMBERS AND DIAGONAL BRACINGS.
OF FIRST PANEL AND EXTENSIONS SHALL BE 45X45X5MM.
ALL OTHER MEMBERS OF CROSSARMS AND DIAGONAL BRACINGS OF TOWER SHALL BE 45X30X5 MM.
8NO.S 16MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR 3M. AND 6M. EXTENSIONS, FIRST, SECOND AND THIRD PANELS.
6NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR FOURTH TO SEVENTH PANELS.
4NO.S FOR CAGE.
ALL DIAGONALS SHALL HAVE SINGLE BOLT CONNECTIONS.
LEG MEMBERS SHALL BE BUTT-JOINTED

FIG - 08

Drawing No: APCPDCL-C.M-TOWERS-08