

# **SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED**



## **COST DATA FOR THE YEAR 2023-24**



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

O/o Chief General Manager Projects,  
4<sup>th</sup> Floor, Corporate Office, TSSPDCL,  
Mint Compound, Hyderabad -500 004.

**Memo No.CGM(P)/SE(P)/DE(RE)/D.No. 408/2023, Dt:19 - 06 - 2023.**

**Sub:** Projects – Approved Cost Data for the FY 2023-24- Communication - Reg.

\*\_\*\_\*

The Cost Data for FY 2023-24 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 2023-24 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 2023-24 is herewith enclosed. The soft copy is placed in 202/cgm-proj/Cost-data FY23-24. The cost data for FY2023-24 is also available on the TSSPDCL website i.e., [www.tssouthernpower.com](http://www.tssouthernpower.com).

This is issued with the concurrence of Chairman & Managing Director/TSSPDCL, vide Dt:16.06.2023.

**Encl:** As above.

  
Chief General Manager / Projects

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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.	SAP Agmt 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
<b>SUBHEAD - I : SUPPORTS AND FIXTURES, IRON, STEEL AND CEMENT</b>											
1 (a)	RS Joists 175 x 85 mm.	PM-2994/21, Dt: 10-12-2021	5100004550	MT	71956.40	60980.00	-	60980.00	10976.40	18	MST00032
(b)	RS Joists 150 x 150 mm.	PM-2994/21, Dt: 10-12-2021	5100004550	MT	71838.40	60880.00	-	60880.00	10958.40	18	MST00029
2	MS Channel 100 x 50mm.	PM-3632/22, Dt: 01-03-2023	5100005211	MT	66339.60	56220.00	-	56220.00	10119.60	18	MST00012
3	MS Channel 75 x 40 mm	Price matching dated 16-03-2023		MT	73554.12	58869.00	3465.00	62334.00	11220.12	18	MST00013
4	MS Angle 65 x 65 x 6 mm.	PM-3631/22, Dt: 01-03-2023	5100005210	MT	66339.60	56220.00	-	56220.00	10119.60	18	MST00003
5	MS Angle 50 x 50 x 6 mm	Price matching dated 16-03-2023		MT	72894.50	58310.00	3465.00	61775.00	11119.50	18	MST00002
6	MS Flat 75x 8 mm	PM-2987/21, Dt: 08-12-2021	5100004546	MT	70587.60	59820.00	-	59820.00	10767.60	18	MST00015
7	MS Flat 50 x 6 mm	Price matching dated 16-03-2023		MT	74435.58	59971.00	3110.00	63081.00	11354.58	18	MST00014
8	MS Rod 20 mm.	PM-3270/22, Dt: 19-05-2022	5100004836	MT	81520.30	64000.00	5085.00	69085.00	12435.30	18	MST00019
9	MS Rod 16 mm.	PM-3613/22, Dt: 16-02-2023	5100005212	MT	67283.60	57020.00	-	57020.00	10263.60	18	MST00018
10	GI Stay wire 7/3.15 mm.	PM-3489/22, Dt: 28-11-2022	5100005072	MT	92800.00	77844.07	800.00	78644.07	14155.93	18	WRS00006
11	GI Stay wire 7/2.5 mm	Extn PM-3307, Dt: 18-06-2022	5100004856	MT	87320.00	70500.00	3500.00	74000.00	13320.00	18	WRS00007
12	GI wire 4 mm	PM-3230/22, Dt: 16-04-2022	5100004783	MT	84960.00	72000.00	-	72000.00	12960.00	18	WRS00005
13	PSCC Pole (9.1 M) - 280 Kg WL	PM-3368/22, Dt: 06-08-2022	5100004921	Nos.	3540.00	2600.00	400.00	3000.00	540.00	18	PLS00004
14	PSCC Pole (8.0 M) - 140 Kg WL	PM-3671/22, Dt: 15-03-2023	5100005206	Nos.	1725.16	1300.00	162.00	1462.00	263.16	18	PLS00001
15	PSCC Poles (11 M) 365 Kgs	Extn PM-3603/22, Dt: 06-02-2023	5100005177	Nos.	6844.00	5000.00	800.00	5800.00	1044.00	18	PLS00013
16	15 M / 500 kgs Spun Poles	PM-3198/21-22, Dt: 31-03-2022	5100004775	Nos.	50000.00	42372.88	-	42372.88	7627.12	18	PLS00016
17	12.5 M / 350 kgs Spun Poles	PM-3175/21-22, Dt: 17-03-2022	5100004725	Nos.	19000.00	16101.70	-	16101.70	2898.31	18	PLS00015
<b>SUBHEAD - II : INSULATORS AND HARDWARE</b>											
1	33KV Polymer Pin Insulators With GI Pins	PM-3608/22-23, Dt: 14-02-2023	5100005185	Nos.	578.20	490.00	-	490.00	88.20	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)	Rpt PM-3474/22-23, Dt: 11-11-2022	5100005010	Sets	240.72	196.00	8.00	204.00	36.72	18	HWR00004
4	33 KV Polymer String Insulator (B&S)	PM-3475/22-23, Dt: 11-11-2022	5100005017	Nos.	410.00	330.03	17.43	347.46	62.54	18	INS30007
5	11KV Polymer Pin Insulators With GI Pins	PM-3320/22-23, Dt: 04-07-2022	5100004866	Nos.	209.56	168.79	8.80	177.59	31.97	18	INS10009
6	11 KV Post Insulator.	Rpt PM-3348/22-23, Dt: 01-08-2022	5100004928	Nos.	243.00	190.00	15.93	205.93	37.07	18	INS10008
7	11 KV String Hardware Fitting (C&T)	Rpt PM-3418/22-23, Dt: 15-10-2022	5100004968	Sets	121.54	99.00	4.00	103.00	18.54	18	HWR00002
8	11 KV Polymer String insulator (C&T)	Rpt PM-3514/22-23, Dt: 21-12-2022	5100005122	Nos.	208.14	167.66	8.73	176.39	31.75	18	INS10003
9	11 KV Solid Core Insulators	PM-3181/21-22, Dt: 21-03-2022	5100004722	Nos.	342.00	289.83	-	289.83	52.17	18	INS10006
10	LT Pin Insulators	Rpt PM-3351/22-23, Dt: 01-08-2022	5100004916	Nos.	26.50	22.46	-	22.46	4.04	18	INS00001
11	LT GI Pins	Extn PM-3605/22-23, Dt: 08-02-2023	5100005155	Nos.	44.84	35.50	2.50	38.00	6.84	18	HWR00015
12	LT Shackle Insulators	Rpt PM-3414/22-23, Dt: 10-10-2022	5100004964	Nos.	26.50	18.50	3.96	22.46	4.04	18	INS00002
13	LT Shackle Hardware (LT Metal Parts)	PM-3427/22-23, Dt: 22-10-2022	5100004992	Nos.	49.67	40.09	2.00	42.09	7.58	18	HWR00016
14	HT Guy Insulators	Rpt PM-3476/22-23, Dt: 17-11-2022	5100005013	Nos.	60.00	46.00	4.85	50.85	9.15	18	INS10005
15	LT Guy Insulators	PM-3431/22-23, Dt: 22-10-2022	5100004981	Nos.	35.05	24.30	5.40	29.70	5.35	18	INS00003
<b>SUBHEAD - III CONDUCTOR AND CABLES</b>											
1	ACSR Panther Conductor (200 sq mm).	PM-3249/22-23, Dt: 06-05-2022	5100004854	KM	230009.14	190423.00	4500.00	194923.00	35086.14	18	CDR00010
2	100 Sqmm AAA Conductor or 7/4.26 AAAC.	PM-3634/22-23, Dt: 04-03-2023		KM	78870.01	66438.99	400.00	66838.99	12031.02	18	CDR00004
3	55 Sqmm AAA Conductor or 7/3.15 AAAC/RABBIT	Extn.PM-3666/22-23, Dt: 09-03-2023		KM	41220.00	34432.20	500.00	34932.20	6287.80	18	CDR00003
4	34 Sqmm AAA Conductor or 7/2.50 AAAC/Weasel	PM-3397/22-23, Dt: 23-09-2022	5100004962	KM	26290.40	21980.00	300.00	22280.00	4010.40	18	CDR00002

Sl. No	Name of the Material	P.O. No.	SAP Agmt 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
<b>SUBHEAD - III (A) LT AERIAL BUNCHED CABLE</b>											
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
1	3 x 16+25 Sqmm Cable	PM-3208/21-22, Dt: 31-03-2022	5100004767	KM	69753.15	58362.84	750.00	59112.84	10640.31	18	CBA00006
2	3 x 70 + 1x16 +1x50 Sqmm XLPE AB, Cable	PM-3575/22-23, Dt: 11-01-2023	5100005186	KM	255350.15	212183.91	4214.52	216398.43	38951.72	18	CBA00004
<b>SUBHEAD - III (B) 33 &amp; 11 KV XLPE POWER CABLE</b>											
1	33 KV 3CX400 Sq.mm.	PM-3509/22-23, Dt: 13-12-2022	5100005104	KM	3035196.00	2572200.00	-	2572200.00	462996.00	18	CBX30001
2	11 KV 3x300 sq.mm	PM-3555/22-23, Dt: 30-12-2022	5100005141	KM	1451400.00	1180800.00	49200.00	1230000.00	221400.00	18	CBX10008
3	11 KV 3x185 sq.mm.	Extn.PM-3614/22-23, Dt: 17-02-2023		KM	1058460.00	856635.00	40365.00	897000.00	161460.00	18	CBX10007
<b>SUBHEAD - III (C) 11 KV AB Cable (Aluminum)</b>											
1	3x185+70 Sqmm.	PM-3189/21-22, Dt: 23-03-2022	5100004769	KM	1078004.34	897863.00	15700.00	913563.00	164441.34	18	CBA10006
<b>SUBHEAD - III (D) LT XLPE POWER CABLE</b>											
1	3 ½ Cx185 sq.mm.	LOI issued on 09-03-2022		KM	647820.00	549000.00	-	549000.00	98820.00	18	CBX00015
2	3 ½ Cx95 sq.mm	PM-3166/21-22, Dt: 10-03-2022	5100004718	KM	349575.00	296250.00	-	296250.00	53325.00	18	CBX00013
3	3 ½ Cx70 sq.mm	PM-3204/21-22, Dt: 31-03-2022	5100004773	KM	309573.00	262350.00	-	262350.00	47223.00	18	CBX00012
4	3 ½ Cx35 sq.mm	PM-1246/17, Dt: 20-07-2017.		KM	103756.46	86951.00	978.20	87929.20	15827.26	18	CBX00020
5	1x120 sq mm	PM-3664/22-23, Dt: 09-03-2023		KM	100900.01	83508.48	2000.00	85508.48	15391.53	18	CBX00004
<b>SUBHEAD - III (E) L.T.P.CONTROL CABLE</b>											
1	2x2.5 sq.mm Copper	PM-3538/22-23, Dt: 29-12-2022	5100005109	KM	53867.00	45650.00	-	45650.00	8217.00	18	CBP00001
2	4x2.5 sq.mm Copper.	PM-3541/22-23, Dt: 29-12-2022	5100005111	KM	90281.80	76510.00	-	76510.00	13771.80	18	CBP00002
3	10x2.5 sq.mm Copper.	PM-3559/22-23, Dt: 30-12-2022	5100005132	KM	215792.50	182875.00	-	182875.00	32917.50	18	CBP00006
<b>SUBHEAD - IV : POWER TRANSFORMERS &amp; TRANSFORMER OIL</b>											
1	5 MVA PTR	Draft POs sent to CGM/Fin		Nos.	6606820.00	5599000.00	-	5599000.00	1007820.00	18	PTR00006
2	8 MVA PTR	PM-3662/22-23, Dt: 09-03-2023		Nos.	8366200.00	7090000.00	-	7090000.00	1276200.00	18	PTR00008
3	12.5 MVA PTR	PM-3663/22-23, Dt: 09-03-2023		Nos.	10962200.00	9290000.00	-	9290000.00	1672200.00	18	PTR00020
4	Transformer Oil (New)	PM-3531/22-23, Dt: 28-12-2022	5100005123	KL	128879.60	109220.00	-	109220.00	19659.60	18	OFO10006
<b>SUBHEAD - IV (A) : DISTRIBUTION TRANSFORMERS</b>											
1	3-Phase 63 KVA (CSP) (AI) BIS EE LEVEL 2 (Star-2)	PM-3551/22, Dt: 30-12-2022	5100005075	Each	136585.83	114750.70	1000.00	115750.70	20835.13	18	DTC30128
2	3-Phase 100 KVA (CSP) (AI) BIS EE LEVEL 2 (Star-2)	PM-3517/22, Dt: 23-12-2022	5100005056	Each	192238.83	162499.00	415.26	162914.26	29324.57	18	DTC30137
3	3-Phase 160 KVA (CSP) (AI) BIS EE LEVEL 2 (Star-2)	PM- 3565/22, Dt: 03-01-2023	5100005095	Each	391464.00	329630.15	2119.00	331749.15	59714.85	18	DTC30135
4	3-ph 315 KVA DTR Copper BIS EE Level-2 (Star-2)	PM-3616/22, Dt: 17-02-2023	5100005160	Each	1055000.00	887167.80	6900.00	894067.80	160932.20	18	DTC30127
5	3-ph 25 KVA DTR AI BIS EE Level-2 (Star-2)	PM-3573/22, Dt: 09-01-2023	5100005120	Each	75498.44	63481.73	500.00	63981.73	11516.71	18	DTC30126
6	3-ph 500 KVA DTR Copper BIS EE Level-2 (Star-2)	PM-3515/22, Dt: 21-12-2022	5100005053	Each	1440000.00	1217372.98	2966.00	1220338.98	219661.02	18	DTC30136
7	1-Phase 25 KVA (CSP) (Aluminium) Level-1	PM-3522/21, Dt: 04-06-2021.	5100005061	Each	95500.00	79932.20	1000.00	80932.20	14567.80	18	DTC10009
<b>SUBHEAD - V : SWITCH CONTROL AND PROTECTIVE GEAR</b>											
1	33 KV 24V DC HV VCB with CRPs & CTs 400-200-100/1-1-1A	PM-1948/19, Dt: 02-05-2019	5100003525	Nos.	395604.44	325700.00	958.00	335258.00	60346.44	18	BRK30031
2	33 KV 24V DC VCB with CRPs & CTs ratio 400-200-100/1-1A	PM-3675/22 Dt: 16-03-2023	5100005217	Nos.	493500.00	408950.34	9270.00	418220.34	75279.66	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	5100003820	Nos.	313448.12	258200.00	7434.00	265634.00	47814.12	18	BRK10009
4	11KV 24V LV VCBs with CTs & Panel (600-300/1-1A)	PM-3657/22 Dt: 06-03-2023	5100005216	Nos.	344000.00	284325.42	7200.00	291525.42	52474.58	18	BRK10014
5	11KV, 24V DC feeder VCBs with CRPs & CTs of Ratio 400-200-100/1-1A	PM-3533/22, Dt: 29-12-2022	5100005087	Nos.	336220.94	277733.00	7200.00	284933.00	51287.94	18	BRK10015
6	33 KV PT (Single Phase) 10VA Burden 0.2 Class	PM-3612/23 Dt: 16-02-2023	5100005170	Nos.	24038.96	19100.00	1272.00	20372.00	3666.96	18	ITR30061
7	33 KV PT (Single Phase) 100VA Burden 0.2 Class	PM-1651/18, Dt: 13-06-2018	5100003267	Nos.	21712.00	17900.00	500.00	18400.00	3312.00	18	ITR30058

Sl. No	Name of the Material	P.O. No.	SAP Agmt 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
8	11 KV 3 Ph PTs with 50VA Burden 0.2 Class accuracy	PM-2212/19, Dt: 20-12-2019	5100003786	Nos.	19849.96	15852.00	970.00	16822.00	3027.96	18	ITR10065
9	33 KV 800A (Conv.) DB AB Switches with solid core insulators	PM-3609/22, Dt: 14-02-2023	5100005182	Nos.	47977.36	40200.00	458.78	40658.78	7318.58	18	ABS30004
10	11 KV 800 Amps (Conventional) AB Switch with post type insulators	PM-3237/21-22, Dt: 22-04-2022	5100004791	Nos.	29491.74	24993.00	-	24993.00	4498.74	18	ABS10015
11	11 KV 400 Amps (Conventional) SB AB Switch with post type porcelain insulators	R&E PM-2104/19, Dt: 16-09-2019	5100003680	Nos.	8248.20	6990.00	-	6990.00	1258.20	18	ABS10008
12	11 KV 200A (TT) AB Switches with porcelain type solid core insulators	PM-3387/22, Dt: 15-09-2022	5100004982	Nos.	12331.00	10450.00	-	10450.00	1881.00	18	ABS10002
13	30 KV 10 KA Metal Oxide Lightning Arresters (station type)	RptPM-2950/21, Dt: 13-10-2021	5100004468	Nos.	3191.90	2705.00	-	2705.00	486.90	18	LAS00004
14	9 KV 10 KA Metal Single Phase Lightning Arrester (station type)	RptPM-2918/20 Dt: 13-10-2021	5100004466	Nos.	1527.51	1294.50	-	1294.50	233.01	18	LAS00002
15	11 KV HG Fuse set with insulators	PM-3491/22, Dt: 03-12-2022	5100005037	Nos.	2800.00	2372.88	-	2372.88	427.12	18	HGF10002
16	24 V, 40 AH Batteries with Chargers (Conventional)	PM-3210/21 Dt: 31-03-2022	5100004739	Nos.	28565.76	22317.00	-	22317.00	6248.76	28	BAT00074
17	24 V, 40 AH Chargers (Conventional)	PM-3581/22 Dt: 12-01-2023	5100005130	Nos.	15100.46	12797.00	-	12797.00	2303.46	18	BAT00075
18	12 V 42 AH SMF VRLA Batteries	Ext.PM-3371/22, Dt: 12-8-2022	5100004991	Nos.	4352.00	3400.00	-	3400.00	952.00	28	BAT00056
19	220V 80 AH Battery charger & DCDB	PM - 2623/20 Dt: 01-03-2021	5100004254	Nos.	391612.50	331875.00	-	331875.00	59737.50	18	BAT00072
20	220 V, 80 AH SMF Batteries	RptPM-3107/21-22 Dt: 08-02-2022	5100004655	Nos.	221760.00	173250.00	-	173250.00	48510.00	28	BAT00023
21	11 KV 2 MVAR Capacitor banks with associated equipment	PM-1382/17 Dt: 10-11-2017		Nos.	724070.00	613618.64	-	613618.64	110451.36	18	CPT10009
(a)	Type A (along with installation)	PM-1382/17 Dt: 10-11-2017	5100003203	Nos.	799000.00	677118.64	-	677118.64	121881.36	18	CPT10009
(b)	Type B with 40 Mtrs HT UG cable	PM-2672 Dt: 15-12-2008		Nos.	895869.07	-	-	-	-	-	
(c)	Type C Indoor Type with HT UG cable	PM-3518, Dt: 29-02-2012		Nos.	1295000.00	-	-	-	-	-	CPT10014
22	Sectionalizers	PM-671 Dt: 04-03-2016		Nos.	487782.24	Procured specially for SCADA DMS project					SBR00599
23	Auto - Reclosures	PM-671 Dt: 04-03-2016		Nos.	855193.83	Procured specially for SCADA DMS project					
24	11KV 3 Way RMU with FRTU	Ext.PM- 3124/21, Dt:10-02-2022	5100004654	Nos.	583982.00	494900.00	-	494900.00	89082.00	18	BRK10022
25	11KV 5 Way RMU with FRTU	Ext.PM- 3124/21, Dt: 10-02-2022	5100004654	Nos.	925990.84	784738.00	-	784738.00	141252.84	18	BRK10023
26	33 KV Indoor twin feeder control panel	PM-579/15, Dt: 30-11-2015	5100002118	Nos.	385643.32	324299.00	2517.37	326816.37	58826.95	18	BRK30014
27	33/11 KV Indoor switch gear (8 feeders)	PM-3263/22-23 Dt: 11-05-2022	5100004804	Nos.	21100500.00	17373179.66	508600.00	17881779.66	3218720.34	18	BRK30020
28	33 KV CTs of ratio 600-300/1-1A 0.2S Class of Accuracy	PM-3047/21, Dt: 13-01-2022	5100004583	Nos.	33040.00	28000.00	-	28000.00	5040.00	18	ITR30068
29	11KV 5 Way RMU (Conventional)	Rpt PM-3590/22, Dt: 17-01-2023	5100005093	Nos.	957334.00	797800.00	13500.00	811300.00	146034.00	18	BRK00002
30	11 KV 3 Way RMU (Conventional)	RptPM-3590/22 Dt: 17-01-2023	5100005150	Nos.	573716.00	476700.00	9500.00	486200.00	87516.00	18	BRK00001
31	33 KV 220V DC 1600A feeder VCB without CRPs & CTs of ratio 400-200-100/1-1-1A	PM-2512/20, Dt: 29-12-2020	5100004064	Nos.	342000.00	280830.51	9000.00	289830.51	52169.49	18	BRK30032
32	30 KV 10 KA Lightning Arresters (line type)	PM-2649/20, Dt: 10-03-2021	5100004202	Nos.	2205.42	1869.00	-	1869.00	336.42	18	LAS00003
33	33KV CTs 25/1 0.2s class for HT meters	PM-3658/22, Dt: 06-03-2023	5100005223	Nos.	27671.00	22800.00	650.00	23450.00	4221.00	18	ITR30055
34	11KV CTs 900-450/1-1-0.577A	PM-3304/22-23, Dt: 17-06-2022	5100004930	Nos.	25700.40	21780.00	-	21780.00	3920.40	18	ITR10077
35	11KV 220V feeder VCB with CTs w/o CRP & IED	PM-3187/21-22, Dt: 23-03-2022	5100004729	Nos.	227070.00	185232.20	7200.00	192432.20	34637.80	18	BRK10028

**SUBHEAD - VI : METERS AND METERING EQUIPMENT**

<b>I HT Metering</b>											
1	HT Trivector Meter of class 0.2S	PM-3599/22 Dt: 25-01-2023	5100005152	Nos.	7350.00	6228.81	-	6228.81	1121.19	18	
<b>II 11 KV Metering (11 KV CT PT Sets)</b>											
1	10/5 (0.2S class)	RptPM-3577/22, Dt: 11-01-2023	5100005125	Nos.	61171.20	49356.00	2484.00	51840.00	9331.20	18	ITR10049
2	20/5 (0.2S class)	PM-3138/21, Dt: 22-02-2022	5100004682	Nos.	59500.00	47939.73	2484.00	50423.73	9076.27	18	ITR10048
3	40/5 (0.2S class)	PM-3498/22, Dt: 05-12-2022	5100005049	Nos.	58410.00	45500.00	4000.00	49500.00	8910.00	18	ITR10047
4	5/5A (0.2s class)	PM-2321/21 Dt: 23-05-2020		Nos.	41860.50	34780.00	695.00	35475.00	6385.50	18	ITR10076
5	60/5A (0.2s class)	PM-3232/22 Dt: 18-04-2022	5100004753	Nos.	45559.80	36000.00	2610.00	38610.00	6949.80	18	ITR10046
<b>III LT Meters</b>											

Sl. No	Name of the Material	P.O. No.	SAP Agmt 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
1	LT Trivector meter (without CTs & Meter box) 100/5A (with DLMS) - Cat- C with IRDA port	PM-3680/22 Dt: 17-03-2023	5100005213	Nos.	1791.00	1485.80	32.00	1517.80	273.20	18	MTE30042
2	LT TVR Meters Cl. 0.5 (Including Box & 4 CTs) 200/5A for DTR Metering (for AGL DTRs)	PM-3486/22-23, Dt: 26-11-2022		Nos.	7679.59	6508.13	-	6508.13	1171.46	18	MTE30048
3	LT TVR Meters Cl. 0.5S (Including Box & 3 CTs) 50/5A for AGL DTRs	PM-1691/18, Dt: 21-07-2018		Nos.	5758.40	4880.00	-	4880.00	878.40	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.	5758.40	4880.00	-	4880.00	878.40	18	MTE30024
<b>IV Single phase electronic meter</b>											
1	Single Phase 5-30A Meters With PP box & IRDA port	PM-3583/22 Dt: 13-01-2023	5100005136	Nos.	904.51	748.53	18.00	766.53	137.98	18	MTE10023
2	Single Phase 5-30A Meters Without PP box & IRDA port	PM-3583/22 Dt: 13-01-2023	5100005136	Nos.	665.10	550.64	13.00	563.64	101.46	18	MTE10024
<b>V Three phase Electronic meters</b>											
1	Three Phase 10-40A Meters with IRDA Port with PP Box	PM-3132/21, Dt: 18-02-2022	5100004679	Nos.	1674.00	1385.64	33.00	1418.64	255.36	18	MTE30038
2	Three Phase 10-40A Meters with IRDA Port without PP Box	PM-3132/21, Dt: 18-02-2022	5100004679	Nos.	1350.00	1132.07	12.00	1144.07	205.93	18	MTE30047
<b>VI Testing equipments &amp; others</b>											
1	LT ERS Field Testing Kit (Along with accessories)	PM-1865/18, Dt: 07-01-2019		Each	174067.11	147000.00	514.50	147514.50	26552.61	18	TEQ10016
2	ERS Testing kits of accuracy 0.02 Class	Rpt PM-3131/21, Dt: 16-02-2022		Nos.	1300000.10	1096713.00	4982.00	1101695.00	198305.10	18	TEQ10082
3	Fully Automatic Master Test benches	PM-2484/20, Dt: 25-11-2020		Nos.	11659860.00	9822000.00	59237.29	9881237.29	1778622.71	18	TEQ10030
4	Hand held computers	PM-2802 Dt: 09-10-2009		Each	5273.83	-	-	-	-	-	OMT10026
5	Integrated Spot Billing Machines	PM-2985/21-22, Dt: 01-12-2021	5100004534	Nos.	10500.01	8,898.31	-	8898.31	1,601.70	18	OMT10083
6	CMRI	PM-2052/19 Dt: 30-07-2019		Nos.	22355.10	18945.00	-	18945.00	3410.10	18	OMT10014
7	LT distribution box (SMC)	PM-3380/22-23, Dt: 07-09-2022	5100004936	Nos.	9180.40	7780.00	-	7780.00	1400.40	18	BXS00047
<b>SUBHEAD - VII : VCB &amp; PTR SPARES</b>											
1	IDMT (3 O/L+E/L) Numerical Relay 24V DC	PM-3626/22-23 Dt: 22-02-2023	5100005176	Nos.	11400.00	9661.02	-	9661.02	1738.98	18	SBR00177
2	IDMT Static Relay (3 O/L+1 E/L) 220 V DC Relays	Ext PM-3485/22 Dt: 26-11-2022	5100005034	Nos.	26727.00	22650.00	-	22650.00	4077.00	18	SBR00216
<b>SUBHEAD - VIII : COMPUTERS/LAPTOPS</b>											
1	Desktop Computers(Make HP)	PM-3413/22, Dt: 07-10-2022	5100004970	Nos.	59488.52	50414.00	-	50414.00	9074.52	18	CAH00011
2	Desktop Computers(Make DELL)	Rpt PM-1429/17, Dt: 11-12-2017		Nos.	37978.30	32185.00	-	32185.00	5793.30	18	CAH00011
3	Desktop Computers(Make ACER)	Rpt PM-1428/17, Dt: 11-12-2017		Nos.	37978.30	32185.00	-	32185.00	5793.30	18	CAH00011
4	Printers Dot Matrix Printers: (80 Column)	PM-1882/18, Dt: 13-03-2019		Nos.	8206.90	6955.00	-	6955.00	1251.90	18	CAH00016
5	Dot Matrix Printers: (132 Column)	PM-1882/18, Dt: 13-03-2019		Nos.	11398.80	9660.00	-	9660.00	1738.80	18	CAH00288
6	Laser Jet Printer	PM-3322/22, Dt: 05-07-2022	5100004867	Nos.	10794.64	9148.00	-	9148.00	1646.64	18	CAH00004
7	Transformer winding resistance kit	PM-2729, Dt: 23-04-2009		Nos.	121540.00	100000.00	3000.00	103000.00	18540.00	18	TEQ10033
8	Transformer Turns Ratio Test Kit	PM-2729, Dt: 23-04-2009		Nos.	133340.00	110000.00	3000.00	113000.00	20340.00	18	TEQ10034
9	Tan Delta and Capacitance Test Kit	PM-2729, Dt: 23-04-2009		Nos.	572300.00	480000.00	5000.00	485000.00	87300.00	18	TEQ10035
10	Transformer Oil Resistivity Test kit	PM-2729, Dt: 23-04-2009		Nos.	357540.00	300000.00	3000.00	303000.00	54540.00	18	TEQ10036
11	Digital Earth Clamp Testers	PM-3180, Dt: 06-10-2010		Nos.	63592.56	53892.00	-	53892.00	9700.56	18	TEQ10073
12	High Voltage Detectors	PM-3180, Dt: 06-10-2010		Nos.	17211.07	14585.65	-	14585.65	2625.42	18	TEQ10074
13	9KV 10KA LAS (Line type) Porcelain	PM-3105/21, Dt: 08-02-2022	5100004614	Nos.	619.50	525.00	-	525.00	94.50	18	LAS00001
14	Three phase portable analyzers	PM-2833, Dt: 10-11-2009		Nos.	404740.00	340000.00	3000.00	343000.00	61740.00	18	TEQ10067
15	Circuit Breaker Time interval Meter with PC download software	PM-2834, Dt: 10-11-2009		Nos.	88500.00	75000.00	-	75000.00	13500.00	18	TEQ10068
16	Dissolved Gas Analyzer(DGA) with water PPM Kit (Model-Transport-X)	PM-2835, Dt: 10-11-2009		Nos.	3148240.00	2668000.00	-	2668000.00	480240.00	18	TEQ10069
17	RGVY 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
18	RGVY Polycarbonate Meter Boxes along with accessories	PM-3076, Dt: 06-09-2010		Nos.	282.02	239.00	-	239.00	43.02	18	BXS00049
19	Digital Clamp Meters	PM-3286, Dt: 06-04-2011		Nos.	2745.57	2270.00	56.75	2326.75	418.82	18	OMT10050



Sl. No	Name of the Material	P.O. No.	SAP Agmt 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
20	Single phase Variacs	PM-3286, Dt: 06-04-2011		Nos.	15723.50	13000.00	325.00	13325.00	2398.50	18	TEQ10075
21	Electronic Insulated Testers/Meggers	PM-3286, Dt: 06-04-2011		Nos.	79461.20	65690.00	1650.00	67340.00	12121.20	18	TEQ10076
22	Ratio Test Kits	PM-3287, Dt: 06-04-2011		Nos.	105374.00	87300.00	2000.00	89300.00	16074.00	18	TEQ10079
23	Capacitance Meters	PM-3287, Dt: 06-04-2011		Nos.	30975.00	24250.00	2000.00	26250.00	4725.00	18	TEQ10080
24	Portable Relay Test Kits	PM-3288, Dt: 06-04-2011		Nos.	531000.00	450000.00	-	450000.00	81000.00	18	TEQ10077
25	Time interval Meter	PM-3289, Dt: 06-04-2011		Nos.	20650.00	17500.00	-	17500.00	3150.00	18	TEQ10078
26	Earth Tester (0-20-200-2000Ω)	PM-3290, Dt: 06-04-2011		Nos.	4743.60	3920.00	100.00	4020.00	723.60	18	OMT10074
27	Primary Injection Kit	PM-3291, Dt: 06-04-2011		Nos.	90034.00	75300.00	1000.00	76300.00	13734.00	18	TEQ10081
28	33KV, 3CX400 Sq.mm XLPE UG Cable Straight through heat shrinkable jointing kits	PM-2368/20, Dt:25-06-2020		Nos.	28498.18	23673.00	478.00	24151.00	4347.18	18	SCB10113
29	Integrated Spot Billing Machines With GSM/GPRS Modems	PM-2722/21-22, Dt: 27-04-2021	5100004316	Nos.	16150.00	13686.44	-	13686.44	2463.56	18	OMT10094
<b>ADDITIONAL ITEMS</b>											
1	11KV 400 Amps (Conventional) DB AB Switch with Post type insulators	PM-3545/22, Dt: 29-12-2022	5100005115	Nos.	21238.94	15000.00	2999.10	17999.10	3239.84	18	ABS10009
2	11KV, 220V DC Feeder VCBs with CRPs & CTs of ratio 400-200-100/1-1A (with Feeder Protection IED relays)	PM-3532/22 Dt: 29-12-2022	5100005089	Nos.	407699.99	338308.47	7200.00	345508.47	62191.52	18	BRK10019
3	11KV, 220V DC LV VCBs with CRPs & CTs of ratio 600-300/1-1A (with Trans. Prot. IED relays)	PM-3008/21 Dt: 17-12-2021	5100004556	Nos.	494000.00	411444.07	7200.00	418644.07	75355.93	18	BRK10020
4	33KV, 220V DC Feeder VCBs with CRPs & CTs of ratio 400-200-100/1-1A (with IEDs)	Rpt PM-3154/21, Dt: 26-02-2022	5100004686	Nos.	486499.84	401242.00	11046.00	412288.00	74211.84	18	BRK30037
5	11 KV Solid Core Insulators for HG Fuses	PM-3133/21-22, Dt: 19-02-2022		Nos.	210.00	177.97	-	177.97	32.03	18	INS10007
6	33 KV CTs 50/1 for HT Metering (0.2s class)	Rpt PM-3602/22 Dt:02-02-2023	5100005147	Nos.	27066.84	22938.00	-	22938.00	4128.84	18	ITR30057
7	33 KV CTs 400-200-100/1-1A for HT Metering (0.2s class)	Rpt PM-1606/18, Dt:17-05-2018	5100003138	Nos.	21234.10	17520.00	475.00	17995.00	3239.10	18	ITR30067
8	11KV CTs of ratio 600-300/1-1A, 0.2S class	PM-2765, Dt: 17-05-2021	5100004319	Nos.	20121.95	17052.50	-	17052.50	3069.45	18	ITR10071
9	11KV CTs of ratio 400-200/1-1A, 0.2S class	PM-3598/23 Dt: 25-01-2023	5100005159	Nos.	23954.00	19700.00	600.00	20300.00	3654.00	18	ITR10072
10	11KV CTs of ratio 600-300/1-1-0.577A, 0.2S class	PM-2771/20, Dt: 28-05-2021	5100004327	Nos.	25514.55	21622.50	-	21622.50	3892.05	18	ITR10075
11	1Ph 10-60A Ele meter with PP box	PM-299/14, Dt: 13-02-2015		Nos.	1025.77	846.96	22.34	869.30	156.47	18	MTE10007
12	LT TVR Meters (4 CTs-0.5S)-DLMS protocol	PM-1288/17, Dt: 06-09-2017		Nos.	5923.60	4900.00	120.00	5020.00	903.60	18	MTE30026
13	LTCT Mts (4CTs-0.5S) 400/5A DLMS Protocol	PM-4211/13, Dt: 31-12-2013		Nos.	6706.90	5454.00	229.81	5683.81	1023.09	18	MTE30036
14	LT TVR 100/5A PP 0.5S (CAT-C) DLMS&IRDA	PM-3487/22-23, Dt: 26-11-2022	5100005052	Nos.	7679.59	6448.13	60.00	6508.13	1171.46	18	MTE30040
15	LT TVR 50/5A 0.5S Cat-C meter w/o box	PM-862/16, Dt: 01-09-2016		Nos.	2057.38	1725.30	18.24	1743.54	313.84	18	MTE30041
16	LT TVR 200/5A 4CTs0.5s DLMS (w/o CTs & box)	PM-3676/22-23, Dt: 17-03-2023	5100005214	Nos.	1791.00	1485.80	32.00	1517.80	273.20	18	MTE30043
17	LT TVR 200/5A 3CT 0.5S DLMS (w/o CTs & box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018		Nos.	1774.72	1504.00	-	1504.00	270.72	18	MTE30044
18	LT TVR 100/5A 3CT 0.5S DLMS (w/o CTs & box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018		Nos.	1774.72	1504.00	-	1504.00	270.72	18	MTE30045
19	LT TVR 50/5A 3CT 0.5S DLMS (w/o CTs & box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018		Nos.	1774.72	1504.00	-	1504.00	270.72	18	MTE30046
20	11KV 1 MVAR Capacitor Banks	PM-1382/17 Dt: 10-11-2017		Nos.	699000.00	592372.88	-	592372.88	106627.12	18	CPT10016
21	ERS Testing kits 0.05 accuracy	PM-2289/19 Dt: 30-01-2020		Nos.	1300000.10	1096713.00	4982.00	1101695.00	198305.10	18	TEQ10087
22	LT XLPE cable 1C x 150 Sq.mm	PM-3159/21-22 Dt: 03-03-2022		KM	129800.00	108000.00	2000.00	110000.00	19800.00	18	CBX00021
23	LT XLPE cable 1C x 185 Sq.mm	PM-3161/21-22 Dt: 03-03-2022		KM	173106.00	145200.00	1500.00	146700.00	26406.00	18	CBX00022
24	LT 3 ½ Cx240 sq.mm.	PM-1277/17, Dt: 28-08-2017		KM	577546.29	484001.00	5445.01	489446.01	88100.28	18	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	1540747
2	33 KV DC Line	75	365	12 M RS Joist	50	21	100 sqmm AAAC	2045624
3	33 KV Line	75	365	11 M PSCC	60	17	100 sqmm AAAC	885795
4	33 KV DC Line	75	365	11 M PSCC	40	26	100 sqmm AAAC	1557535
5	33 KV Line	75	280	9.1 Mtr.PSCC	80	14	100 sqmm AAAC	693635
6	33 KV Line	75	280	9.1 Mtr.PSCC	65	16	100 sqmm AAAC	709551
7	11 KV line	75	140	9.1 Mtr.PSCC	60	18	55 sqmm AAAC	544078
8	11 KV line	75	140	9.1 Mtr.PSCC	60	18	34 sqmm AAAC	479046
9	11 KV line	75	140	8 Mtr.PSCC	60	18	55 sqmm AAAC	478223
10	11 KV line	75	140	8 Mtr.PSCC	60	18	34 sqmm AAAC	413149
11	11 KV line	75	140	RSJoist Poles	50	21	55 sqmm AAAC	834360
12	6.3 KV line	75	140	8 Mtr.PSCC	90	11	34 sqmm AAAC	175782
13	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x55+2x34sqmmAAA	436338
14	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	45	23	3x55+2x34sqmmAAA	495341
15	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	5x34sqmm AAA	382563
16	LT 3 Ph.4 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x55+1x34sqmmAAA	396465
17	LT 3 Ph.4 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	4x34sqmm AAA	343471
18	LT 1 Ph. 3 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x34 sqmm AAA	283881
19	LT 1 Ph. 2 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	2x34 sqmm AAA	242089
20	L.T.AB Cable	75	140	8 Mtr.PSCC	65	16	3x16+25sqmm	260904
21	L.T.AB Cable	75	140	8 Mtr.PSCC	65	16	2x16+25sqmm	211790
22	Conversion of 1Ph 2 W/L to 3 Ph 4 W/L	75	140	8 Mtr.PSCC	65	16	2x55xqmm	136799
22	Erection of 100 KVA CSP CRGO Distribution Transformer							351395
23	Erection of 63 KVA CSP Distribution Transformer							286836
24	Erection of 63 KVA CSP CRGO core Distribution Transformer on plinth							258205
25	Erection of 63 KVA CSP CRGO core Distribution Transformer on structure							250202
26	Erection of 100 KVA CSP CRGO core Distribution Transformer on column plinth							337179
27	Erection of 25 KVA, 3- Phase CRGO core Distribution Transformer							131663
28	Erection of 25 KVA, 3-Phase, 11 KV/433 V /250 V CRGO Conventional Transformer							143234
29	Erection of 25 KVA, Single Phase, 6.3 KV/0-240 V C.S.P. CRGO Transformer							129785
30	Erection of 15 KVA Single Phase 6.3 KV/0-240 V CSP CRGO Distribution Transformer							48900

31	Release of poly phase Agl. Service erected on support	5290
32	Release of 1 ph Domestic & non-domestic service (Electronic meter)	2485
33	Release of 3 ph. Domestic & non-domestic service (Electronic meter)	4577
34	Release of poly phase Indl.service below 20 HP (Electronic meter)	5239
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)	263031
37	Release of Street light service (1 -ph electronic meter)	2980
38	Erection of L.T. C.T. Operated Electronic trajectory meter on LV side of DTR	10407
39	Erection of 33/11 KV Sub-station with 2 x 8 MVA power transformer & 6 Nos. 11 KV feeders ( without 11 KV 2 MVAR capacitor Bank)	36525332
40	Erection of 33/11 KV Sub-station with 2 x 8 MVA power transformer & 6 Nos. 11 KV feeders ( with 11 KV 2 MVAR capacitor Bank)	38229523
41	Erection of 33/11 KV Sub-station (Indoor substation) with 2x8 MVA power transformer & 6 Nos. 11 KV feeders ( without 11 KV 2 MVAR capacitor Bank)	60326250
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)	27584408
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)	28498435
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)	18752425
45	11 KV Bay extension in existing 33/11 KV Sub-stations with girder poles	124746
46	11 KV Bay extension in existing 33/11 KV Sub-stations with PSCC poles	84998
47	33KV Bay Extension at 33/11 kV Sub-station	186528
48	33KV Bay Extension at 132/33KV SS	988501
49	Erection of 11 KV VCB at 33/11 kV Sub-station	467699
50	Erection of 33KV VCB at 132/33KV SS	1438015
51	Erection of 2MVAR Capacitor Bank	1068078
52	Enhancement of PTR Capacity	5993415
53	Laying of 11 KV, 3 core 300 Sq.mm UG Cable	3096534
54	Laying of 33 KV, 3 core 400 Sq.mm UG Cable	4417744
55	Erection of M+3 tower	205250
56	Erection of L+3 tower	148933
57	Erection of K+3 tower	112547
58	Extension of 3Mtrs for K+3 Towers as per ASCI Standard	16683
59	Extension of 3Mtrs for L+3 Towers as per ASCI Standard	26735
60	Extension of 3Mtrs for M+3 Towers as per ASCI Standard	33690
61	Erection of additional 5 MVA PTR in existing 33/11 KV Sub-station	7960385
62	Erection of 11KV 70 Sq mm Covered Conductor	1973895
63	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 type 11mtrs Pole with 175x85mm of 450Kgs	21	32,380	Each	679,980
2	1.53 M Channel / 'V' Cross Arm (100x50mm)	21	1,653	Each	34,721
3	Top Clamp with cleat(75x8mm)	20	486	Each	9,729
4	Back Clamp	20	206	Each	4,111
5	Stay Set complete	12	1,628	Each	19,531
6	Bracing Set with double cross arm	1	10,613	Set	10,613
7	100 Sq.mm AAA Conductor	3.06	78,870	K.M.	241,342
8	33KV Polymer Pin Insulators With GI Pins	63	578	Each	36,427
9	Strain Insulators set ( 3x 11 KV B&S Insulator with 33 KV Hard ware fitting))	12	410	Set	4,920
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	117,773
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	21,189
<b>Total Cost of Material</b>					<b>1,180,336</b>

3% storage & handling charges on items (1) to (9)	31,241
3% Contingencies on Materials	35,410
Labour & Transport	148,921
GST at 18 % on L&T	26,806
10% Estt. & Genl. Charges on Materials	118,034
<b>Total</b>	<b>1,540,747</b>

**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 type 12mtrs Pole with 150 x 150 mm of 500Kgs	21	35,919	Each	754,303
2	1.53 M Channel / 'V' Cross Arm	60	1,653	Each	99,204
3	Back Clamp	60	206	Each	12,333
4	Stay Set complete	12	1,628	Each	19,531
5	Double Bracing Set with double cross arm	1	14,947	Set	14,947
6	100 Sq.mm AAA Conductor	6.12	78,870	K.M.	482,684
7	33KV Polymer Pin Insulators With GI Pins	108	578	Each	62,446
8	Strain Insulators set ( 3x 11 KV B&S Insulator with 33 KV Hardware fitting)	24	410	Set	9,840
9	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	117,773
10	Misc. Items like coil earthing, pipe earthing, danger, bolts & nuts, etc	L.S		L.S	21,189
<b>Total Cost of Material</b>					<b>1,594,250</b>

3% storage & handling charges on items (1) to (8)	43,659
3% Contingencies on Materials	47,828
Labour & Transport	169,883
GST at 18 % on L&T	30,579
10% Estt. & Genl. Charges on Materials	159,425
<b>Total</b>	<b>2,045,624</b>

**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.**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	11 M PSCC Pole	17	6844	Each	116,348
2	1.53 M Channel / 'V' Cross Arm	17	1653	Each	28,108
3	Top Clamp with cleat	16	486	Each	7,783
4	Back Clamp	17	206	Each	3,494
5	Stay Set complete	12	1628	Each	19,531
6	Bracing Set with double cross arm	1	10613	Set	10,613
7	100 Sq.mm AAA Conductor	3.06	78870	K.M.	241,342
8	33KV Polymer Pin Insulators With GI Pins	48	578	Each	27,754
9	Strain Insulators set ( 3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	410	Set	4,920
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	135,005
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	6,050
<b>Total Cost of Material</b>					<b>600,948</b>

3% storage & handling charges on items (1) to (9)	13,797
3% Contingencies on Materials	18,028
Labour & Transport	163,498
GST at 18 % on L&T	29,430
10% Estt. & Genl. Charges on Materials	60,095
<b>Total</b>	<b>885,795</b>

**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.**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	11 M PSCC Pole	26	6,844	Each	177,944
2	1.53 M Channel / 'V' Cross Arm	72	1,653	Each	119,045
3	Back Clamp	75	206	Each	15,416
4	Stay Set complete	12	1,628	Each	19,531
5	Double Bracing Set with double cross arm	1	14,947	Set	14,947
6	100 Sq.mm AAA Conductor	6.12	78,870	K.M.	482,684
7	33KV Polymer Pin Insulators With GI Pins	156	578	Each	90,199
8	Strain Insulators set ( 3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	24	410	Set	9,840
9	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	162,301
10	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	6,655
<b>Total Cost of Material</b>					<b>1,098,562</b>

3% storage & handling charges on items (1) to (8)	27,888
3% Contingencies on Materials	32,957
Labour & Transport	244,299
GST at 18 % on L&T	43,974
10% Estt. & Genl. Charges on Materials	109,856
<b>Total</b>	<b>1,557,535</b>



**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	3,540	Each	49,560
2	1.53 M Channel / 'V' Cross Arm	14	1,653	Each	23,148
3	Top Clamp with cleat	12	486	Each	5,838
4	Back Clamp	13	206	Each	2,672
5	Stay Set complete	12	1,628	Each	19,531
6	Bracing Set with double cross arm	1	10,613	Set	10,613
7	100 Sq.mm AAA Conductor	3.06	78,870	K.M.	241,342
8	33KV Polymer Pin Insulators With GI Pins	39	578	Each	22,550
9	Strain Insulators set ( 3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	410	Set	4,920
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	100,350
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	5,500
<b>Total Cost of Material</b>					<b>486,024</b>

3% storage & handling charges on items (1) to (9)	11,405
3% Contingencies on Materials	14,581
Labour & Transport	112,732
GST at 18 % on L&T	20,292
10% Estt. & Genl. Charges on Materials	48,602
<b>Total</b>	<b>693,635</b>

**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	3,540	Each	56,640
2	1.53 M Channel / 'V' Cross Arm	16	1,653	Each	26,454
3	Top Clamp with cleat	15	486	Each	7,297
4	Back Clamp	15	206	Each	3,083
5	Stay Set complete	10	1,628	Each	16,276
6	Bracing Set with double cross arm	1	10,613	Set	10,613
7	100 Sq.mm AAA Conductor	3.06	78,870	K.M.	241,342
8	33KV Polymer Pin Insulators With GI Pins	45	578	Each	26,019
9	Strain Insulators set ( 3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	410	Set	4,920
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	94,273
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	5,500
<b>Total Cost of Material</b>					<b>492,417</b>

3% storage & handling charges on items (1) to (9)	11,779
3% Contingencies on Materials	14,773
Labour & Transport	119,780
GST at 18 % on L&T	21,560
10% Estt. & Genl. Charges on Materials	49,242
<b>Total</b>	<b>709,551</b>

**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.**  
**SCC 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	3,540	Each	63,720
2	1.07 M Channel / 'V' Cross Arm	18	981	Each	17,656
3	Top Clamp with cleat	16	369	Each	5,900
4	Back Clamp	17	98	Each	1,659
5	Stay Set complete	10	1,396	Each	13,959
6	Bracing Set with double cross arm	1	8,639	Set	8,639
7	55 Sq.mm AAA Conductor	3.06	41,220	K.M.	126,133
8	11 KV Pin Insulator with Pin	54	210	Each	11,316
9	Strain Insulator with metal parts	12	208	Each	2,498
10	Concreting of Pole, Stay sets & Base concreting			L.S	88,465
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>343,945</b>

3% storage & handling charges on items (1) to (9)	7,544
3% Contingencies on Materials	10,318
Labour & Transport	125,319
GST at 18 % on L&T	22,557
10% Estt. & Genl. Charges on Materials	34,394
<b>Total</b>	<b>544,078</b>

**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	3,540	Each	63,720
2	1.07 M Channel / 'V' Cross Arm	18	981	Each	17,656
3	Top Clamp with cleat	16	369	Each	5,900
4	Back Clamp	17	98	Each	1,659
5	Stay Set complete	10	1,396	Each	13,959
6	Bracing Set with double cross arm	1	8,639	Set	8,639
7	34 Sq.mm AAA Conductor	3.06	26,290	K.M.	80,447
8	11 KV Pin Insulator with Pin	54	210	Each	11,316
9	Strain Insulator with metal parts	12	208	Each	2,498
10	Concreting of Pole, Stay sets & Base concreting			L.S	88,465
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>298,259</b>

3% storage & handling charges on items (1) to (9)	6,174
3% Contingencies on Materials	8,948
Labour & Transport	115,118
GST at 18 % on L&T	20,721
10% Estt. & Genl. Charges on Materials	29,826
<b>Total</b>	<b>479,046</b>

**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.**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	8 M PSCC Pole	18	1,725	Each	31,053
2	1.07 M Channel / 'V' Cross Arm	18	981	Each	17,656
3	Top Clamp with cleat	16	369	Each	5,900
4	Back Clamp	17	98	Each	1,659
5	Stay Set complete	10	1,396	Each	13,959
6	Bracing Set with double cross arm	1	8,639	Set	8,639
7	55 Sq.mm AAA Conductor	3.06	41,220	K.M.	126,133
8	11 KV Pin Insulator with Pin	54	210	Each	11,316
9	Strain Insulator with metal parts	12	208	Each	2,498
10	Concreting of Pole, Stay sets & Base concreting			L.S	88,465
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>311,278</b>

3% storage & handling charges on items (1) to (9) 6,564

3% Contingencies on Materials 9,338

Labour & Transport 101,623

GST at 18 % on L&T 18,292

10% Estt. & Genl. Charges on Materials 31,128

**Total 478,223**

**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	1,725	Each	31,053
2	1.07 M Channel / 'V' Cross Arm	18	981	Each	17,656
3	Top Clamp with cleat	16	369	Each	5,900
4	Back Clamp	17	98	Each	1,659
5	Stay Set complete	10	1,396	Each	13,959
6	Bracing Set with double cross arm	1	8,639	Set	8,639
7	34 Sq.mm AAA Conductor	3.06	26,290	K.M.	80,447
8	11 KV Pin Insulator with Pin	54	210	Each	11,316
9	Strain Insulator with metal parts	12	208	Each	2,498
10	Concreting of Pole, Stay sets & Base concreting			L.S	88,465
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>265,592</b>

3% storage & handling charges on items (1) to (9)	5,194
3% Contingencies on Materials	7,968
Labour & Transport	91,387
GST at 18 % on L&T	16,450
10% Estt. & Genl. Charges on Materials	26,559
<b>Total</b>	<b>413,149</b>

**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	14,391	Each	302,217
2	1.07 M Channel / 'V' Cross Arm	21	981	Each	20,599
3	Top Clamp with cleat	20	369	Each	7,376
4	Back Clamp	21	98	Each	2,049
5	Stay Set complete	10	1,396	Each	13,959
6	Bracing Set with double cross arm	1	8,639	Set	8,639
7	55 Sq.mm AAA Conductor	3.06	41,220	K.M.	126,133
8	11 KV Pin Insulator with Pin	54	210	Each	11,316
9	Strain Insulator with metal parts	12	208	Each	2,498
10	Concreting of Pole, Stay sets & Base concreting			L.S	100,080
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>598,866</b>

3% storage & handling charges on items (1) to (9)	14,844
3% Contingencies on Materials	17,966
Labour & Transport	121,014
GST at 18 % on L&T	21,783
10% Estt. & Genl. Charges on Materials	59,887
<b>Total</b>	<b>834,360</b>

**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.**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	8 M PSCC Pole	11	1,725	Each	18,977
2	Top Clamp with cleat	11	369	Each	4,057
3	Back Clamp	10	98	Each	976
4	Stay Set complete	4	1,396	Each	5,584
5	34 Sq.mm AAA Conductor	1.02	26,290	K.M.	26,816
6	11 KV Pin Insulator with Pin	10	210	Each	2,096
7	Strain Insulator with metal parts	4	208	Each	833
8	Concreting of Pole, Stay sets & Base concreting			L.S	35,386
9	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	2,100
<b>Total Cost of Material</b>					<b>96,825</b>

3% storage & handling charges on items (1) to (7) 1,780

3% Contingencies on Materials 2,905

Labour & Transport 54,737

GST at 18 % on L&T 9,853

10% Estt. & Genl. Charges on Materials 9,682

**Total 175,782**



**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	1,725	Each	27,603
2	LT 3 Phase cross arms	18	464	Each	8,346
3	LT top fitting	18	200	Each	3,602
4	Back Clamp	18	84	Each	1,511
5	Stay Set complete	6	1,396	Each	8,376
6	55 Sq.mm AAA Conductor	3.06	41,220	KM	126,133
7	34 Sq.mm AAA Conductor	2.04	26,290	KM	53,632
8	Shackle Insulator with metal parts	16	76	Each	1,216
9	LT pin insulator with pin	56	71	Each	3,976
10	C.I. Knob	16	10	Each	160
11	Concreting of Pole, Stay sets & Base concreting			L.S	53,079
12	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>291,634</b>

3% storage & handling charges on items (1) to (10) 7,037

3% Contingencies on Materials 8,749

Labour & Transport 84,538

GST at 18 % on L&T 15,217

10% Estt. & Genl. Charges on Materials 29,163

**Total 436,338**

**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	1,725	Each	39,679
2	LT 3 Phase cross arms	24	464	Each	11,128
3	LT top fitting	24	200	Each	4,802
4	Back Clamp	24	84	Each	2,015
5	Stay Set complete	6	1,396	Each	8,376
6	55 Sq.mm AAA Conductor	3.06	41,220	KM	126,133
7	34 Sq.mm AAA Conductor	2.04	26,290	KM	53,632
8	Shackle Insulator with metal parts	16	76	Each	1,216
9	LT pin insulator with pin	84	71	Each	5,964
10	C.I. Knob	23	10	Each	230
11	Concreting of Pole, Stay sets & Base concreting			L.S	64,694
12	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>321,869</b>

3% storage & handling charges on items (1) to (10) 7,595

3% Contingencies on Materials 9,656

Labour & Transport 105,114

GST at 18 % on L&T 18,920

10% Estt. & Genl. Charges on Materials 32,187

**Total 495,341**

**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	1,725	Each	27,603
2	LT 3 Phase cross arms	18	464	Each	8,346
3	LT top fitting	18	200	Each	3,602
4	Back Clamp	18	84	Each	1,511
5	Stay Set complete	6	1,396	Each	8,376
6	34 Sq.mm AAA Conductor	5.1	26,290	KM	134,079
7	Shackle Insulator with metal parts	16	76	K.M.	1,216
8	LT pin insulator with pin	56	71	Each	3,976
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	53,079
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>245,948</b>

3% storage & handling charges on items (1) to (9)	5,666
3% Contingencies on Materials	7,378
Labour & Transport	83,878
GST at 18 % on L&T	15,098
10% Estt. & Genl. Charges on Materials	24,595
<b>Total</b>	<b>382,563</b>

**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	1,725	Each	27,603
2	LT 3 Phase cross arms	18	464	Each	8,346
3	Back Clamp	18	84	Each	1,511
4	Stay Set complete	6	1,396	Each	8,376
5	55 Sq.mm AAA Conductor	3.06	41,220	K.M.	126,133
6	34 Sq.mm AAA Conductor	1.02	26,290	K.M.	26,816
7	Shackle Insulator with metal parts	12	76	Each	912
8	LT pin insulator with pin	42	71	Each	2,982
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	53,079
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>259,918</b>

3% storage & handling charges on items (1) to (9)	6,085
3% Contingencies on Materials	7,798
Labour & Transport	81,926
GST at 18 % on L&T	14,747
10% Estt. & Genl. Charges on Materials	25,992
<b>Total</b>	<b>396,465</b>

**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	1,725	Each	27,603
2	LT 3 Phase cross arms	18	464	Each	8,346
3	Back Clamp	18	84	Each	1,511
4	Stay Set complete	6	1,396	Each	8,376
5	34 Sq.mm AAA Conductor	4.08	26,290	K.M.	107,265
6	Shackle Insulator with metal parts	12	76	Each	912
7	LT pin insulator with pin	42	71	Each	2,982
8	C.I. Knob	16	10	Each	160
9	Concreting of Pole, Stay sets & Base concreting			L.S	53,079
10	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>214,234</b>

3% storage & handling charges on items (1) to (8)	4,715
3% Contingencies on Materials	6,427
Labour & Transport	81,926
GST at 18 % on L&T	14,747
10% Estt. & Genl. Charges on Materials	21,423
<b>Total</b>	<b>343,471</b>

**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	1,725	Each	27,603
2	LT 1 Phase cross arms	18	237	Each	4,261
3	LT top fitting	18	200	Each	3,602
4	Back Clamp	18	84	Each	1,511
5	Stay Set complete	4	1,396	Each	5,584
6	34 Sq.mm AAA Conductor	3.06	26,290	K.M.	80,447
7	Shackle Insulator with metal parts	8	76	Each	608
8	LT pin insulator with pin	28	71	Each	1,988
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	41,194
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4,000
<b>Total Cost of Material</b>					<b>170,958</b>

3% storage & handling charges on items (1) to (9) 3,773

3% Contingencies on Materials 5,129

Labour & Transport 73,666

GST at 18 % on L&T 13,260

10% Estt. & Genl. Charges on Materials 17,096

**Total 283,881**

**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	1,725	Each	27,603
2	LT 1 Phase cross arms	18	237	Each	4,261
3	Back Clamp	18	84	Each	1,511
4	Stay Set complete	4	1,396	Each	5,584
5	34 Sq.mm AAA Conductor	2.04	26,290	K.M.	53,632
6	Shackle Insulator with metal parts	4	76	Each	304
7	LT pin insulator with pin	14	71	Each	994
8	C.I. Knob	16	10	Each	160
9	Concreting of Pole, Stay sets & Base concreting			L.S	41,194
10	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	2,900
<b>Total Cost of Material</b>					<b>138,143</b>

3% storage & handling charges on items (1) to (8)	2,821
3% Contingencies on Materials	4,144
Labour & Transport	70,481
GST at 18 % on L&T	12,687
10% Estt. & Genl. Charges on Materials	13,814
<b>Total</b>	<b>242,089</b>

**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	1,725	Each	27,603
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	1,396	Set	5,584
5	L.T. A.B. Cable 3 x 16 + 25 Sq.mm	1.02	69,753	K.M.	71,148
6	Insulated Connectors with covers	56	105	Each	5,880
7	Concreting of Pole, Stay sets & Base concreting			L.S	41,194
8	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	3,000
<b>Total Cost of Material</b>					<b>155,809</b>

3% storage & handling charges on items (1) to (6) 3,348

3% Contingencies on Materials 4,674

Labour & Transport 69,061

GST at 18 % on L&T 12,431

10% Estt. & Genl. Charges on Materials 15,581

**Total 260,904**



**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	1,725	Each	27,603
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	1,396	Set	5,584
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	41,194
8	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	3,000
<b>Total Cost of Material</b>					<b>114,240</b>

3% storage & handling charges on items (1) to (6)	2,101
3% Contingencies on Materials	3,427
Labour & Transport	68,303
GST at 18 % on L&T	12,295
10% Estt. & Genl. Charges on Materials	11,424
<b>Total</b>	<b>211,790</b>

**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	41,220	KM	84,089
2	LT 3 phase X arms	17	464	Each	7,882
3	Back Clamps	17	84	Each	1,427
4	Shackle Insulators with metal parts	12	76	Each	914
5	Pin Insulators with pins	45	71	Each	3,210
6	Stay sets complete	6	1,396	Each	8,376
<b>Total Cost of Material</b>					<b>105,898</b>

3% storage & handling charges on items (1) to (6)	3,177
3% Contingencies on Materials	3,177
Labour & Transport	14,300
Dismantling Charges	1,000
GST at 18 % on L&T	2,574
10% Estt. & Genl. Charges on Materials	10,590
<b>Total</b>	<b>140,716</b>

**Less Credits**

1	Single Phase cross arms (scrap)	51	11	Kg	561
2	Original Erection charges				2200
3	Dismantling charges				1100
4	Original Estt & Genl Charges				56
	<b>Total</b>				<b>3917</b>
	<b>Or Say</b>				<b>3917</b>
	Net Cost		Gross - Less		<b>136,799</b>

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

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

<b>S. No.</b>	<b>Particulars</b>	<b>Cost of Material (Rs.)</b>	<b>Labour &amp; Transport (Rs.)</b>
1	11 KV/433 V 100 KVA CSP TRANSFORMER (Aluminium)	192,239	8,932
2	Erection of 11 KV AB Switch (200A)	12,331	2,264
3	D.P. Structure	20,184	18,173
4	Erection of 11 K.V. H.G. Fuse set	2,800	903
5	Installation of L.T.H.G. Fuse sets including connections	1,345	383
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	21,096	1,008
7	Installation of HT Lightening Arresters	1,859	1,515
8	C.I. Pipe earthing (3 Nos.)	12,804	4,442
	<b>Total Cost of Material</b>	<b>264,658</b>	<b>37,620</b>

3% Storage & handling charges	7,940
3% Contingencies on Materials	7,940
Labour & Transport	37,620
GST at 18 % on L&T	6,772
10% Estt. & General charges on Materials	26,466
<b>Total Cost in Rs.</b>	<b>351,395</b>

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

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

<b>S. No.</b>	<b>Particulars</b>	<b>Cost of Material (Rs.)</b>	<b>Labour &amp; Transport (Rs.)</b>
1	11 KV/433 V 63 KVA CSP Distribution Transformer (Aluminium)	136,586	8,932
2	Erection of 11 KV AB Switch (200A)	12,331	2,264
3	D.P. Structure	20,184	18,173
4	Erection of 11 K.V. H.G. Fuse set	2,800	903
5	Installation of L.T.H.G. Fuse sets including connections	1,345	383
6	Metering arrangement with CTs including cable connections and cleat arrangement	21,096	1,008
7	Installation of HT Lightning Arresters	1,859	1,515
8	C.I. Pipe earthing (3 Nos.)	12,804	4,442
	<b>Total Cost of Material</b>	<b>209,005</b>	<b>37,620</b>

3% Storage & handling charges	6,270
3% Contingencies on Materials	6,270
Labour & Transport	37,620
GST at 18 % on L&T	6,772
10% Estt. & General charges on Materials	20,900
<b>Total Cost in Rs.</b>	<b>286,836</b>

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

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

<b>S. No.</b>	<b>Particulars</b>	<b>Cost of Material (Rs.)</b>	<b>Labour &amp; Transport (Rs.)</b>
1	11 KV/433 V 63 KVA Distribution Transformer (Aluminium)	136,586	8,932
2	Erection of 11 KV AB Switch (200A)	12,331	2,264
3	Plinth for distribution transformer (5'x4'x8')		13,750
4	Erection of 11 K.V. H.G. Fuse set	2,800	903
5	Installation of L.T.H.G. Fuse sets including connections	1,345	383
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	21,096	1,008
7	Installation of HT Lightning Arresters	1,859	1,515
8	C.I. Pipe earthing (3 Nos.)	12,804	4,442
	<b>Total Cost of Material</b>	<b>188,821</b>	<b>33,197</b>

3% Storage & handling charges 5,665

3% Contingencies on Materials 5,665

Labour & Transport 33,197

GST at 18 % on L&T 5,975

10% Estt. & General charges on Materials 18,882

**Total Cost in Rs. 258,205**

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

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

<b>S. No.</b>	<b>Particulars</b>	<b>Cost of Material (Rs.)</b>	<b>Labour &amp; Transport (Rs.)</b>
1	11 KV/433 V 63 KVA CSP Distribution Transformer (Aluminium)	136,586	8,932
2	Erection of 11 KV AB Switch (200A)	12,331	2,264
3	Erection of structure for mounting of transformer	6,210	863
4	Erection of 11 K.V. H.G. Fuse set	2,800	903
5	Installation of L.T.H.G. Fuse sets including connections	1,345	383
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	21,096	1,008
7	Installation of HT Lightening Arresters	1,859	1,515
8	C.I. Pipe earthing (3 Nos.)	12,804	4,442
	<b>Total Cost of Material</b>	<b>195,031</b>	<b>20,310</b>

3% Storage & handling charges 5,851

3% Contingencies on Materials 5,851

Labour & Transport 20,310

GST at 18 % on L&T 3,656

10% Estt. & General charges on Materials 19,503

**Total Cost in Rs. 250,202**

**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)	192,239	8,932
2	Erection of 11 KV AB Switch (200A)	12,331	2,264
3	Construction of RCC Column type DTR Plinth of size 1'X1'X10',topslab 4'x4'x6" & beam size 4'X8'X8"		25,968
4	Erection of 11 K.V. H.G. Fuse set	2,800	903
5	Installation of L.T.H.G. Fuse sets including connections	1,345	383
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	21,096	1,008
7	Installation of HT Lightening Arresters with earth connection	1,859	1,515
8	C.I. Pipe earthing (3 Nos.)	12,804	4,442
	<b>Total Cost of Material</b>	<b>244,474</b>	<b>45,415</b>

3% Storage & handling charges 7,334

3% Contingencies on Materials 7,334

Labour & Transport 45,415

GST at 18 % on L&T 8,175

10% Estt. & General charges on Materials 24,447

**Total Cost in Rs. 337,179**

**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)**

<b>S. No.</b>	<b>Particulars</b>	<b>Cost of Material (Rs.)</b>	<b>Labour &amp; Transport (Rs.)</b>
1	11 KV/433V/250 V 25 KVA 3-Ph Distribution Transformer (Copper)	65,524	8,932
2	Erection of 11 KV AB Switch (200A)	12,331	2,264
3	Erection of 11 KV HG Fuse set	2,800	903
4	Mounting arrangements for Transformer	6,210	550
5	Installation of L.T.H.G. Fuse sets including connecti	1,345	383
6	C.I. Pipe earthing (2 Nos.)	8,536	2,962
7	Misc. items (like bolts & nuts, washers etc.)	500	
<b>Total Cost of Material</b>		<b>97,246</b>	<b>15,994</b>

3% Storage & handling charges	2,902
3% Contingencies on Materials	2,917
Labour & Transport	15,994
GST at 18 % on L&T	2,879
10% Estt. & General charges on Materials	9,725
<b>Total Cost in Rs.</b>	<b>131,663</b>



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

<b>S. No.</b>	<b>Particulars</b>	<b>Cost of Material (Rs.)</b>	<b>Labour &amp; Transport (Rs.)</b>
1	11 KV/433V/250 V 25 KVA 3-Ph Conventional Distribution Transformer (Aluminium)	75,498	8,932
2	Erection of 11 KV AB Switch (200A)	12,331	2,264
3	Erection of 11 KV HG Fuse set	2,800	903
4	Mounting arrangements for Transformer	6,210	550
5	Installation of L.T.H.G. Fuse sets including connecti	1,345	383
6	C.I. Pipe earthing (2 Nos.)	8,536	2,962
7	Misc. items (like bolts & nuts, washers etc.)	500	
<b>Total Cost of Material</b>		<b>107,220</b>	<b>15,994</b>

3% Storage & handling charges	3,202
3% Contingencies on Materials	3,217
Labour & Transport	15,994
GST at 18 % on L&T	2,879
10% Estt. & General charges on Materials	10,722
<b>Total Cost in Rs.</b>	<b>143,234</b>

**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**

<b>S. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	25 KVA Oil Immersed Single Phase 6.3 KV/0-240 V CSP CRGO core Transformer (Copper)	1	95,500	Each	95,500
2	Mounting arrangements for Transformer	1	3,335	Set	3,335
3	C.I. Pipe earthing	2	4,268	Each	8,536
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
<b>Total Cost of Material</b>					<b>108,871</b>

3% Storage & handling charges on items 1 to 3 3,221

3% Contingencies on Materials 3,266

Labour & Transport 3,000

GST at 18 % on L&T 540

10% Estt. & General charges on Materials 10,887

**Total Cost in Rs. 129,785**

**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 Transformer	1	3,335	Set	3,335
3	C.I. Pipe earthing	2	4,268	Each	8,536
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
<b>Total Cost of Material</b>					<b>39,140</b>

3% Storage & handling charges on items 1 to 3	1,132
3% Contingencies on Materials	1,174
Labour & Transport	3,000
GST at 18 % on L&T	540
10% Estt. & General charges on Materials	3,914
<b>Total Cost in Rs.</b>	<b>48,900</b>

**REC - CONSTRUCTION STANDARD SPECIFICATION No. H6 & H8/1981**  
**COST DATA FOR RELEASE OF POLY PHASE AGRICULTURAL SERVICE ERECTED**  
**ON SUPPORT**

<b>S. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	Three Phase 10-40A Meters with IRDA Port with PP Box	1	1,674	Each	1,674
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
<b>Total Cost of Material</b>					<b>3,916</b>

3% Contingencies on Materials 117

Labour & Transport 733

GST at 18 % on L&T 132

10% Estt. & General charges on Materials 392

**Total Cost in Rs. 5,290**

**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	905	Each	1	905			905
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
<b>Total Cost of Material</b>					<b>1,156</b>		<b>520</b>	<b>1,676</b>

3% Contingencies on Materials	35	16	50
Labour & Transport	160	340	500
GST at 18 % on L&T	29	61	90
10% Estt. & General charges on Materials	116	52	168
<b>Total Cost in Rs.</b>	<b>1,495</b>	<b>989</b>	<b>2,485</b>

**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		Chargeable to Consumers		Amount in Rs.
				Qty.	Amount	Qty.	Amount	
1	3 Phase Electronic Energy Meter (10 A - 40 A) with PP Box	1674	Each	1	1,674			1,674
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
<b>Total Cost of Material</b>					<b>2,344</b>		<b>914</b>	<b>3,258</b>

3% Contingencies on Materials	70	27	98
Labour & Transport	320	440	760
GST at 18 % on L&T	58	79	137
10% Estt. & General charges on Materials	234	91	326
<b>Total Cost in Rs.</b>	<b>3,026</b>	<b>1,551</b>	<b>4,577</b>

**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		Chargeable to Consumers		Amount in Rs.
				Qty.	Amount	Qty.	Amount	
1	3-Phase (10 - 40 A) Electronic meter housed in a PP box	1674	Each	1	1,674			1,674
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
<b>Total Cost of Material</b>					<b>2,444</b>		<b>1,399</b>	<b>3,843</b>

3% Contingencies on Materials	73	42	115
Labour & Transport	320	440	760
GST at 18 % on L&T	58	79	137
10% Estt. & General charges on Materials	244	140	384
<b>Total Cost in Rs.</b>	<b>3,139</b>	<b>2,100</b>	<b>5,239</b>

**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		Chargeable to Consumers		Amount in Rs.
				Qty.	Amount	Qty.	Amount	
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
<b>Total Cost of Material</b>					<b>6,528</b>		<b>1,399</b>	<b>7,927</b>

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
<b>Total Cost in Rs.</b>	<b>7,755</b>	<b>2,100</b>	<b>9,855</b>



**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	20,184	Each	2	40,367	2	36,345
2	11 KV 400 Amps conventional type AB switch	8,248	Each	2	16,496	2	6,400
3	11 KV HG Fuse set	2,800	Each	2	5,600	2	1,806
4	3x35 sq.mm 11 KV XLPE cable	318	Mts.	30	9,540	30	13,020
5	End termination suitable for 35 sq.mm XLPE (Cable outdoor type)	1,375	Each	4	5,500	4	6,912
6	G.I. earthing (3 Nos. GI Pipe)	4,531	Nos.	1	4,531	1	4,442
7	11 KV CT PT 10-20/5	61,171	Each	1	61,171	1	1,138
8	HT Trivector Meter (Clause 0.2 S)	7,350	Each	1	7,350	1	1,000
9	Special type box for Trivector meter	5,500	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
<b>Total Cost of Material</b>					<b>156,056</b>		<b>73,464</b>

3% Contingencies on Materials	4,682
Labour & Transport	73,464
GST at 18 % on L&T	13,223
10% Estt. & General charges on Materials	15,606
<b>Total Cost in Rs.</b>	<b>263,031</b>

**COST DATA FOR STREET LIGHT SERVICE CONNECTION (SINGLE PHASE)**

<b>S. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	1 Phase (5-20A) Electronic Meter housed in a PP box	1	905	Each	905
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
<b>Total Cost of Material</b>					<b>2,106</b>

3% Contingencies on Materials 63

Labour & Transport 600

GST at 18 % on L&T 108

10% Estt. & General charges on Materials 211

**Total Cost in Rs. 2,980**

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

<b>Sl. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Unit</b>	<b>Rate per (in Rs.)</b>	<b>Amount (in Rs.)</b>
1	LT 3-Phase class 0.5S Accuracy CT Operated Energy Meter Housed in a box with 3 Nos. CTs	1	Each	5,758	5,758
2	3.5 Core 95 LT XLPE Cable (for 10 meters) to LT side of DTR with cleat wiring.	LS			1,974
<b>Total</b>					<b>7,732</b>

3% Contingencies 232

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. 1,415

GST at 18 % on L&T 255

10% Estt. & Genl. Charges 773

**Total Cost in Rs. 10,407**

**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)**

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 a)	Lands and Rights	LS	As per local conditions		
b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	13.65
<b>3 Station Auxillaries</b>					
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	51.25
b)	Yard lighting	8	0.072	Each	0.58
c)	Fire fighting Equipment	2	0.646	Each	1.29
d)	P&T Phone and wireless set	LS		LS	0.05
4 a)	Foundations for structures, PTRs & breakers plinth	LS		LS	3.40
b)	Foundations for 33KV and 11KV VCB plinth and structure poles	LS		LS	6.95
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	13	0.718	MT	9.34
<b>8 Transformers</b>					
a)	33/11kv 8 MVA Power Transformer	2	83.662	Each	167.32
b)	11kv / 433 v 25 kva 3-ph Stn. Transformer (CSP copper)	1	0.755	Each	0.75
<b>9 Circuit Breakers (including trivector meters)</b>					
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	3.362	Each	20.17
c)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
<b>10 Control Circuit Panels</b>					
a)	AC Supply Panel	1	0.420	Each	0.42
b)	Alaram Panel	1	0.425	Each	0.43
<b>11 Instrument Transformers</b>					
a)	33KV PT (single unit)	3	0.217	Each	0.65
b)	11kv P.T (3 Phase)	1	0.198	Each	0.20
<b>12 Lightning Arrestors</b>					
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
<b>13 Isolating Switches</b>					
a)	33KV 800A AB Switch (Double Breaker)	3	0.480	Each	1.44
b)	11KV 800A AB Switch (Double Breaker)	3	0.295	Each	0.88
c)	11KV 400A AB Switch (Double Breaker)	12	0.082	Each	0.99
d)	11KV 200A AB Switch	1	0.123	Each	0.12
e)	11KV HG fuse Switch	3	0.028	Each	0.08
f)	33KV Horn Gap Fuse Set (1XNT)	2	0.064	Each	0.13
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	3.916	Each	3.92
16	3ph LT CT operated meter 100/5A for energy audit	1	0.077	Nos	0.08
17	LT 3 1/2 x185 sq.mm XLPE Cable	80	0.006	M	0.52
18	LT 1C 120sq.mm cable	40	0.001	M	0.04
19	Distribution box	1	0.092	Each	0.09
20	Earthing of Power Transformer VCBs,AB Swiches,Strucutres with 75x8mm GI Flat			LS	1.98
<b>Sub Total</b>					<b>300.62</b>

3% Contingencies on items 7 to 19	6.56
1% T&P Charges on items No. 7 to 19	2.19
10% Erection and transport and commissioning charges on items 7 to 19	21.88
GST at 18% on L&T	3.94
10% Establishment and General Charges	30.06
<b>Grand Total</b>	<b>365.25</b>

**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)**

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 a)	Lands and Rights	LS	As per local conditions		
b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	13.65
<b>3 Station Auxillaries</b>					
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	51.25
b)	Yard lighting	8	0.072	Each	0.58
4 a)	Foundations for structures, PTRs & breakers plinth	LS		LS	3.40
b)	Foundations for 33KV and 11KV VCB plinth and structure poles	LS		LS	6.95
c)	Fire fighting Equipment	2	0.646	Each	1.29
d)	P&T Phone and wireless set	LS		LS	0.05
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	20	0.718	MT	14.37
<b>8 Transformers</b>					
a)	33/11kv 8 MVA Power Transformer	2	83.662	Each	167.32
b)	11kv / 433 v 25 kva 3-ph Stn. Transformer	1	0.755	Each	0.75
<b>9 Circuit Breakers (including trivector meters)</b>					
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	3.362	Each	20.17
c)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
<b>10 Control Circuit Panels</b>					
a)	AC Supply Panel	1	0.420	Each	0.42
b)	Alaram Panel	1	0.425	Each	0.43
<b>11 Instrument Transformers</b>					
a)	33KV PT (single unit)	3	0.217	Each	0.65
b)	11kv P.T (3 Phase)	1	0.198	Each	0.20
<b>12 Lightning Arrestors</b>					
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
<b>13 Isolating Switches (Double Breaker)</b>					
a)	33KV 800A AB Switch (Double Breaker)	3	0.480	Each	1.44
b)	11KV 800A AB Switch (Double Breaker)	3	0.295	Each	0.88
c)	11KV 400A AB Switch (Double Breaker)	12	0.082	Each	0.99
d)	11KV 200A AB Switch	1	0.123	Each	0.12
e)	11KV HG fuse Switch	3	0.028	Each	0.08
f)	33KV Horn Gap Fuse Set (1XNT)	2	0.064	Each	0.13
14	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.45
15	2MVAR 11KV Capacitor Bank along with Associated Equipment (Type A)	1	8.518	Each	8.52
16	220 Volts 80 AH Battery Set including Battery Charger and DC DB	1	3.916	Each	3.92
17	3ph LT CT operated meter 100/5A for energy audit	1	0.077	Nos	0.08
18	LT 3 1/2 x185 sq.mm XLPE Cable	80	0.006	M	0.52
19	LT 1C 120sq.mm cable	40	0.001	M	0.04
20	Distribution box	1	0.092	Each	0.09
21	Earthing of Power Transformer VCBs,AB Switthes,Strucutres with 75x8mm GI Flat			LS	1.98
<b>Sub Total</b>					<b>314.17</b>

3% Contingencies on items 7 to 20	6.97
1% T&P Charges on items No. 7 to 20	2.32
10% Erection and transport and commissioning charges on items 7 to 20	23.24
GST at 18% on L&T	4.18
10% Establishment and General Charges	31.42
<b>Grand Total</b>	<b>382.30</b>

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

Sl. No.	PARTICULARS	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 a)	Lands and rights	LS	As per local conditions		
b)	Plantation of Trees	LS	0.150	LS	0.15
<b>2 Civil Works</b>					
a)	Construction of Control room	LS	69.240	LS	69.24
b)	Compound wall, Gate,levelling of site and Borewell	LS	13.350	LS	13.35
c)	special foundations				
d)	Laying of Cable Trench	LS	7.100	LS	7.10
e)	Electrification and sanitation arrangements	LS	2.450	LS	2.45
f)	Construction of Transformer plinth	LS	3.550	LS	3.55
<b>3 Station Auxillaries</b>					
a)	Yard lighting	6	0.072	E	0.43
b)	Spreading of Metal	LS	0.310	LS	0.31
c)	Telephone (P &T) and wireless set	LS	1.375	LS	1.38
	Miscellenous items like Rubber Mats, Earth rods, Helmets, Gloves,	LS	1.100	LS	1.10
d)	Furniture, T&P etc				
e)	Fire fighting Equipment,				
i)	High Pressure Carbon Water Mist&CAFS 9L	1	3.813	Each	3.81
ii)	Composite Fire Extinguisher-HDPE 9L Foam	1	0.646	Each	0.65
4	Foundations for breakers etc.	LS	0.660	LS	0.66
5	Bus bar arrangements	LS	2.750	LS	2.75
6	Control cables	LS	1.100	LS	1.10
<b>7 Power and Distribution Transformers</b>					
a)	33/11 KV, 8 MVA Power Transformers	2	83.662	Each	167.32
b)	25KVA 11/04KV Station Transformer	1	0.755	Each	0.75
<b>8 Indoor switch gear &amp; Control panels</b>					
	33 KV, 25 KVA, 1250 A, 8 Panels SF-6, GIS Switch gear consisting of				
a)	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.				
	11 KV, 20 KVA, 1250 A ,14 panels SF6 GIS switch gear consisting the	1	211.005	Each	211.00
b)	following equipments				
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	0.425	Each	0.43
10	AC Panel	1	0.420	Each	0.42
11	220 Volts, 200 AH, Battery with trickle charger	1	3.916	Each	3.92
12	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.45
<b>13 Earthing Arrangements</b>					
a)	MS Flat75x8 mm for providing earthing matting complete	2	0.706	MT	0.58
b)	MS Flat 50x6 mm for earthing the equipment	2	0.744	MT	0.58
c)	Earthing electrodes & GI pipes	LS	0.902	LS	0.90
14	3ph LT CT operated meter 100/5A for energy audit	1	0.077	Nos	0.08
15	LT 3 1/2 x185 sq.mm XLPE Cable	80	0.006	M	0.52
16	LT 1C 120sq.mm cable	40	0.001	M	0.04
17	Distribution box	1	0.092	Each	0.09
18	RS Joist 175x85/150x150(Girder poles) for base of switch gear	1.5	0.720	MT	1.08
<b>Sub Total</b>					<b>496.19</b>

3% Contingencies on Items 7 To 18	11.65
10% Transport, Erection and Commissioning charges on items 7 To 18	38.82
GST at 18% on L&T	6.99
10% Establishment and General Charges	49.62

**Grand Total 603.26**

**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)**

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 a)	Lands and Rights	LS	As per local conditions		
b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
	<b>3 Station Auxillaries</b>				
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	28.15
b)	Yard lighting	8	0.072	Each	0.58
c)	Fire fighting Equipment	2	0.646	Each	1.29
d)	P&T Phone and wireless set	LS		LS	0.05
4 a)	Foundations for structures, PTRs & breakers plinth	LS		LS	3.10
b)	Foundations for 33KV and 11KV VCB plinth and structure poles	LS		LS	6.95
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	4.5	0.718	MT	3.23
8	9.1 meters PSCC poles	30	0.035	Each	1.06
	<b>9 Transformers</b>				
a)	33/11kv 5 MVA Power Transformer	2	66.068	Each	132.14
b)	3-Phase 25 KVA (CSP) (AI)	1	0.755	Each	0.75
	<b>10 Circuit Breakers (including trivector meters)</b>				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=5)	5	3.362	Each	16.81
b)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
	<b>11 Control Circuit Panels</b>				
a)	AC Supply Panel	1	0.420	Each	0.42
b)	Alaram Panel	1	0.425	Each	0.43
	<b>12 Instrument Transformers</b>				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
	<b>13 Lightning Arrestors</b>				
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
	<b>14 Isolating Switches</b>				
a)	33KV 800A AB Switch (Double Break)	3	0.480	Each	1.44
b)	11KV 800A AB Switch (NT X 1+1) (Double Break)	3	0.295	Each	0.88
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	0.064	Each	0.13
15	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.40
16	24 Volts 40 AH Battery Set including Battery Charger	7	0.286	Each	2.00
17	2MVAR 11KV Capacitor Bank along with Associated Equipment	1	8.518	Each	8.52
18	3ph LT CT operated meter 100/5A for energy audit	1	0.077	Nos	0.08
19	LT 3 1/2 x185 sq.mm XLPE Cable	80	0.006	M	0.52
20	LT 1C 120sq.mm cable	40	0.001	M	0.04
21	Distribution box	1	0.092	Each	0.09
22	Earthing of Power Transformer VCBs,AB Switches,Strucutres with 75x8mm GI Flat			LS	1.98
<b>Sub Total</b>					<b>233.67</b>

3% Contingencies on items 7 to 21	5.31
1% T&P Charges on items No. 7 to 21	1.77
Erection and transport and commissioning charges on items 7 to 21 at 10%	17.69
GST at 18% on L&T	3.184
10% Establishment and General Charges	23.37
<b>Grand Total</b>	<b>284.98</b>

**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)**

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 a)	Lands and Rights	LS	As per local conditions		
b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
<b>3</b>	<b>Station Auxillaries</b>				
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	28.15
b)	Yard lighting	8	0.072	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.00
4 a)	Foundations for structures, PTRs & breakers plinth	LS		LS	3.10
b)	Foundations for 33KV and 11KV VCB plinth and structure poles	LS		LS	6.95
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	6	0.718	MT	4.31
8	9.1 meters PSCC poles	38	0.035	Each	1.35
<b>9</b>	<b>Transformers</b>				
a)	33/11kv 5 MVA Power Transformer	2	66.068	Each	132.14
b)	3-Phase 25 KVA (CSP) (AI)	1	0.755	Each	0.75
<b>10</b>	<b>Circuit Breakers (including trivector meters)</b>				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=5)	5	3.362	Each	16.81
b)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.440	Each	6.88
<b>11</b>	<b>Control Circuit Panels</b>				
a)	AC Supply Panel	1	0.420	Each	0.42
b)	Alaram Panel	1	0.425	Each	0.43
<b>12</b>	<b>Instrument Transformers</b>				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
<b>13</b>	<b>Lightning Arrestors</b>				
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
<b>14</b>	<b>Isolating Switches</b>				
a)	33KV 800A AB Switch (Double Breaker)	3	0.480	Each	1.44
b)	11KV 800A AB Switch (NT X 1+1) (Double Breaker)	3	0.295	Each	0.88
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	0.064	Each	0.13
15	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.40
16	24 Volts 40 AH Battery Set including Battery Charger	7	0.286	Each	2.00
17	3ph LT CT operated meter 100/5A for energy audit	1	0.077	Nos	0.08
18	LT 3 1/2 x185 sq.mm XLPE Cable	80	0.006	M	0.52
19	LT 1C 120sq.mm cable	40	0.001	M	0.04
20	Distribution box	1	0.092	Each	0.09
21	Earthing of Power Transformer VCBs,AB Swicthes,Strucutres with 75x8mm GI Flat			LS	1.80
<b>Sub Total</b>					<b>226.30</b>

3% Contingencies on items 7 to 20	5.11
1% T&P Charges on items No. 7 to 20	1.70
Erection and transport and commissioning charges on items 7 to 20 at 10%	17.04
GST at 18% on L&T	3.07
10% Establishment and General Charges	22.63
<b>Grand Total</b>	<b>275.84</b>

**ote :** 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**

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 a)	Lands and Rights	LS	As per local conditions		
b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
	<b>3 Station Auxillaries</b>				
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	28.15
b)	Yard lighting	8	0.072	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4 a)	Foundations for structures, PTRs & breakers plinth	LS		LS	3.10
b)	Foundations for 33KV and 11KV VCB plinth and structure poles	LS		LS	6.95
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	5.5	0.718	MT	3.95
8	9.1 meters PSCC poles	23	0.035	Each	0.81
9	8 meters PSCC poles	8	0.017	Each	0.14
	<b>10 Transformers</b>				
a)	33/11kv 5 MVA Power Transformer	1	66.068	Each	66.07
b)	3-Phase 25 KVA (CSP) (AI)	1	0.755	Each	0.75
	<b>11 Circuit Breakers (including trivector meters)</b>				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=3)	3	3.362	Each	10.09
b)	20 KA 11 kv LV VCB including Control panel and CTs	1	3.440	Each	3.44
	<b>12 Control Circuit Panels</b>				
a)	AC Supply Panel	1	0.420	Each	0.42
b)	Alaram Panel	1	0.425	Each	0.43
	<b>13 Instrument Transformers</b>				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
	<b>14 Lightning Arrestors</b>				
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
	<b>15 Isolating Switches</b>				
a)	33KV 800A AB Switch	3	0.480	Each	1.44
b)	11KV 800A AB Switch (NT X 1+1)	2	0.295	Each	0.59
c)	11KV 400A AB Switch (NF X 2+2)	8	0.082	Each	0.66
d)	33KV Horn Gap Fuse Set (1XNT)	1	0.064	Each	0.06
16	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.30
17	24 Volts 40 AH Battery Set including Battery Charger	4	0.286	Each	1.14
18	2MVAR 11KV Capacitor Bank along with Associated Equipment	1	8.518	Each	8.52
19	3ph LT CT operated meter 100/5A for energy audit	1	0.077	Nos	0.08
20	LT 3 1/2 x185 sq.mm XLPE Cable	80	0.006	M	0.52
21	LT 1C 120sq.mm cable	40	0.001	M	0.04
22	Distribution box	1	0.092	Each	0.09
23	Earthing of Power Transformer VCBs,AB Swiches,Strucutres with 75x8mm GI Flat			LS	1.80
<b>Sub Total</b>					<b>156.10</b>

3% Contingencies on items 7 to 22	3.00
1% T&P Charges on items No. 7 to 22	1.00
10% Erection and transport and commissioning charges on items 7 to 22	10.01
GST at 18% on L&T	1.80
10% Establishment and General Charges	15.61
<b>Grand Total</b>	<b>187.52</b>

**ote :** 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)**

<b>S. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	150X150 mm H type beam of 8.5 mts length (2 Nos. RS Joist)	0.588	71,838	MT	42,255
2	100x50 mm Channel	0.201	66,340	MT	13,318
3	MS flat 75x8 mm	0.05	70,588	MT	3,529
4	AB switch 400 Amps conventional type	1	8,248	Each	8,248
5	200 sqmm ACSR Conductor (Panther-conductor)	0.02	230,009	KM	4,600
6	11 KV Polymer String insulator (C&T)	18	208	Each	3,747
7	Earthing arrangement (20 mts length with 75x8 MS flat (20x4.7=94)	94	71	KG	6,635
8	Pad clamps, bolts & nuts & Miscellaneous items	LS			1,650
<b>Sub-Total</b>					<b>83,982</b>

3% Contingencies	2,519
Labour & Transport	25,293
GST at 18% on L&T	4,553
10% Establishment & General charges	8,398
<b>Grand Total</b>	<b>124,746</b>

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

<b>S. No.</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	9.1 mts. PSCC poles	2	3,540	Each	7,080
2	100x50 mm Channel	0.201	66,340	MT	13,318
3	MS flat 75x8 mm	0.05	70,588	MT	3,529
4	AB switch 400 Amps conventional type	1	8,248	Each	8,248
5	200 sqmm ACSR Conductor (Panther conductor)	0.02	230,009	KM	4,600
6	11 KV Polymer String insulator (C&T)	18	208	Each	3,747
7	Earthing arrangement (20 mts length with 75x8 MS flat (20x4.7=94)	94	71	KG	6,635
8	Pad clamps, bolts & nuts & Miscellaneous items	LS			1,650
<b>Sub-Total</b>					<b>48,807</b>

3% Contingencies	<b>1,464</b>
Labour & Transport	<b>25,293</b>
GST at 18% on L&T	<b>4,553</b>
10% Establishment & General charges	<b>4,881</b>
<b>Grand Total</b>	<b>84,998</b>

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

<b>Sl.No</b>	<b>Description of Material</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount in Rs.</b>
1	150 x 150 RSJ pole (8m)	0.6	MT	71,838	43,103
2	100 x 50 mm MS channel	0.27	MT	66,340	17,912
3	75 x 8mm flat for clamps & earthing	0.2	MT	70,588	14,118
4	200 sqmm Panther conductor	0.02	KM	230,009	4,600
5	Strain Insulator set with metal parts (each set consists 3 Nos 11 KV strain insulators)	6	Set	624	3,747
6	Erection of 33 KV AB switch (800 Amps, Conventional)	1	Each	47,977	47,977
7	Miscellaneous items like fabrication of channels & pad clamps etc.		LS		2,750
<b>Sub-Total</b>					<b>134,206</b>

3% Contingencies	4,026
3% S&H charges	4,026
Labour & Transport	26,143
GST at 18 % on L&T	4,706
10% Estt & General charges on material	13,421
<b>Total</b>	<b>186,528</b>

**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	76,174	MT	380,871
2	Spacer clamps for 33KV bus	9	508	Each	4,572
3	Spacer clamp with T off zebra for one feeder	3	153	Each	459
4	33 KV Polymer String Insulator (B&S)	8	410	Each	3,280
5	Tension hardware for twin zebra	6	2,512	Each	15,072
6	Zebra condutor	0.150	299,369	KM	44,905
7	33KV AB Switch 800 A	1	47,977	Each	47,977
8	Twin Zebra connector	12	600	Each	7,200
9	T Clamps	12	500	Each	6,000
10	MS.Flat 100x16	0.63	46,904	MT	29,550
11	MS.Flat 50X8	0.62	51,817	MT	32,127
12	GI Flat 100X16	0.151	63,235	MT	9,548
13	GI Flat 50X8	0.155	63,478	MT	9,839
14	Civil works for erection of towers in sub-station yard and other miscellaneous items.			LS	100,000
<b>Sub-Total</b>					<b>691,400</b>

3% S&H charges on Material 17,742

3% Contingencies on Material 17,742

Labour & Transport 163,116

GST at 18 % on L&T 29,361

10% Estt. & Gen. Chargtes 69,140

**Gross Total 988,501**

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

<b>SI.No</b>	<b>Description of work</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount in Rs.</b>
1	11 KV VCB along with all Accessories Including CTs	1	Each	336,221	336,221
2	4x2.5 sqmm Control cable	0.05	KM	90,282	4,514
3	Earthing arrangements (20 mts length with 50x6 MS flat (20x2.4=48)	48	KG	70.5876	3,388
4	Miscellaneous items like conductor and clamps etc	LS			1,650
<b>Sub-Total</b>					<b>345,773</b>

3% Contingencies	10,373
3% S&H charges	10,373
Labour & Transport	56,443
GST at 18 % on L&T	10,160
10% Estt & General charges	34,577
<b>Total</b>	<b>467,699</b>

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

<b>S.No.</b>	<b>Description of work</b>	<b>Qty</b>	<b>Rate</b>	<b>Per</b>	<b>Amount in Rs.</b>
1	33 KV VCB with relay& CTs (400-200-100/1-1-1A)	1	493,500	Each	493,500
2	LT PVC Copper Control Cable 10 C x2.5 Sq.mm	0.75	215,793	KM	161,844
3	LT PVC Copper Control Cable 4 C x2.5 Sq.mm	0.75	90,282	KM	67,711
4	33KV LAS line type	3	2,205	Each	6,616
5	33 KV Twin feeder control panel	1	385,643	No	385,643
6	Miscellenous items			LS	1,100
<b>Sub-Total</b>					<b>1,116,415</b>

3% S&H charges 33,492

3% Contingencies on material 33,492

Labour & Transport 121,164

GST 18 % on L&T 21,809

10% Estt. & General Charges 111,642

**Gross Total 1,438,015**

**Cost data for erection of 2 MVAR Capacitor Bank**

<b>S. No</b>	<b>Particulars</b>	<b>Qty.</b>	<b>Rate in Rs.</b>	<b>Per Unit</b>	<b>Amount in Rs.</b>
1	2 MVAR 11KV Capacitor Bank along with associated Equipment (Capactors, Structure and VCB ) (Type A)	1	724,070	Each	724,070
2	24 volts 40AH Battery Set including Battery Charger	1	28,566	Each	28,566
3	M.S.Flat 50x6mm	0.36	74,436	MT	26,797
4	Panther Conductor	0.05	230,009	KM	11,500
5	4 Core 2.5 Sqmm PVC Copper Control Cable	0.05	90,282	KM	4,514
6	10 Core 2.5 Sqmm PVC Copper Control Cable	0.1	215,793	KM	21,579
7	2 Core 2.5 Sqmm PVC Copper Control Cable	0.06	53,867	KM	3,232
8	11KV Post type insulators	3	243	Each	729
9	Cost of CI pipe of 100 mm dia, 8 mm thick and 2.75 Mts long	2	3,486	Each	6,972
10	11KV H.G. Fuse Set with Insulators	1	2,800	Each	2,800
11	11KV LA's Station type	3	1,528	Each	4,583
12	M.S. Channel 100x50mm	0.24	66,340	MT	15,922
13	Miscellaneous items	LS			550
<b>Sub-Total</b>					<b>851,814</b>

3% Contingencies	25,554
Labour ,Transport & Commsioning charges	89,430
GST at 18 % on L&T	16,097
10% Establishment & General charges	85,181
<b>Grand Total</b>	<b>1,068,078</b>





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

<b>Sl. No</b>	<b>Description of the material</b>	<b>Qty</b>	<b>Rate</b>	<b>Unit</b>	<b>Amount in Rs.</b>
1	Laying 11 KV 3 core 300Sq.mm UG Cable at depth of 1.20mtrs along CC road	1	1,451,400	KM	1,451,400
2	Erection of 3 way RMU (SF6) outdoor type	1	583,982	Each	583,982
3	Straight through joints for 3 core 11KV 300Sq.mm UG Cable	1	3,725	Each	3,725
4	End termination suitable for 3 core 300 Sq.mm UG cable	4	2,371	Each	9,484
5	Earthing of Cable with GI pipe of 2mt length	3	733	Nos	2,199
<b>Sub-Total</b>					<b>2,050,790</b>

3 % storage & handling charges 43,542

3 % contingencies 43,542

Labour and Transport 638,628

GST at 18 % on L&T 114,953

10 % Estt & General charges 205,079

**Grand Total 3,096,534**

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

<b>Sl. No</b>	<b>Description of the material</b>	<b>Qty</b>	<b>Rate</b>	<b>Unit</b>	<b>Amount in Rs.</b>
1	Laying 33 KV 3 core 400Sq.mm UG Cable at depth of 1.20mtrs along CC road	1	3,035,196	KM	3,035,196
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	5,701	Each	5,701
3	End termination suitable for 400 Sq.mm (outdoor type)	2	2,765	Nos	5,530
4	Earthing of Cable with GI pipe of 2mt length	2	698	Nos	1,396
<b>Sub-Total</b>					<b>3,047,823</b>

3 % Storage & handling charges	91,056
3 % Contingencies	91,056
Labour and Transport	748,328
GST at 18 % on L&T	134,699
10 % Estt & General charges	304,782
<b>Grand Total</b>	<b>4,417,744</b>

**DATA-VII**  
**Erection of Galvanised M+3 Tower as per ASCI Standard without excavation**

S. No.	Particulars	Qty.	Per Unit	Rate	Amount in Rs.
<b>Material</b>					
1	Supply of Galvanised M+3 type tower as per Specification.	1.468	MT	83913.06	123,184
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	158	KG	110.69	17,490
				<b>Total:</b>	<b>140,674</b>
<b>Labour</b>					
1	Fabrication of tower Parts as per Specification	1.468	MT	6479.70	9,512
2**	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 1.2x1.2x3.3 mtr i.e.4.752 cum	4.752	CUM		
3	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	7310.18	34,738
4	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering, transport of material and bolts and nuts etc.,	1.468	MT	7657.83	11,242
5	Tack welding of total tower nuts and bolts	1	Job	1767.19	1,767
6	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc.,	2	Each	1743.04	3,486
7	Transport of Material to site including loading and unloading	1.626	MT	2356.26	3,831
				<b>Total:</b>	<b>64,576</b>

(\*\*) Note:-(1) Earth work excavation of Hard Rock 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 the 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 M type tower	1.290	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 <b>SIX</b> 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.

**DATA-VI**

**Erection of Galvanised L+3 Tower as per ASCI Standard without excavation**

S. No.	Particulars	Qty.	Per Unit	Rate	Amount
<b>Material</b>					
1	Supply of L+3 type tower as per Specification.	1.05	MT	83913.63	88,109
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	168	KG	110.69	18,597
				<b>Total:</b>	<b>106,706</b>
<b>Labour</b>					
1	Fabrication of tower Parts as per Specification	1.05	MT	6479.70	6,804
2**	Excavation of pit including dewatering, planking, showing 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	3.000	CUM		
3	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	7025.18	22,129
4	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering, transport of material and bolts and nuts etc.,	1.05	MT	7657.83	8,041
5	Tack welding of total tower nuts and bolts	1.00	Job	1767.19	1,767
6	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc.,	2.00	Each	1743.04	3,486
				<b>Total:</b>	<b>42,227</b>

(\*\*) Note:-(1) Earth work excavation of Hard Rock 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 the 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	0.957 MT
2	Weight of 1 No. extension of 3 Mts	0.263 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
<b>stubs</b>	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-V**

**Erection of Galvanised K+3 Tower as per ASCI Standard without excavation**

S. No.	Particulars	Qty	Per Unit	Rate	Amount
<b>Material</b>					
1	Supply of Galvanised K+3 type tower as per Specification.	0.75	MT	83914.66	62,936
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	118.27	KG	110.69	13,092
				<b>Total:</b>	<b>76,028</b>
<b>Labour</b>					
1	Fabrication of tower Parts as per Specification	0.75	MT	6479.70	4,860
2**	Excavation of pit including dewatering, planking, showing 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	2.500	CUM		
2	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	7025.18	18,617
3	Erection of tower parts completely as per specification including erection of insulators with all accessories, jumpering and bolts and nuts etc.,	0.75	MT	7657.83	5,743
4	Tack welding of total tower nuts and bolts	1.00	Job	1767.19	1,767
5	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc.,	2.00	Each	1743.04	3,486
6	Transport of Material to site including loading and unloading	0.868	MT	2356.26	2,046
			<b>Total</b>		<b>36,519</b>

(\*\*) Note:-(1) Earth work excavation of Hard Rock 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 the 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 Galvanized K+3 Tower as per ASCI Standard**

S. No	Description	Qty	Per Unit	Rate	Amount
<b>Material</b>					
1	Supply of Galvanised K+3 type tower as per Specification.	0.14	MT	83918.46	11,584
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	24.96	KG	110.70	2,764
				<b>Total:</b>	<b>14,347</b>
<b>Labour</b>					
1	Fabrication of tower Parts as per Specification	0.14	MT	6480.29	895
2	Erection of tower parts completely as per specification including erection of insulators with all accessories, jumpering and bolts and nuts etc.,	0.14	MT	7658.53	1,057
3	Transport of Material to site including loading and unloading	0.16	MT	2356.47	384
				<b>Total:</b>	<b>2,336</b>

**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	1.030
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 : 2.5mts  
Height of tower above ground level : 12.1 mts.

**DATA-IX**  
**Extension of 3mtrs for Galvanized L+3 Tower as per ASCI Standard**

S. No	Description	Qty.	Per Unit	Rate	Amount
<b>Material</b>					
1	Supply of L+3 type tower as per Specification.	0.24	MT	83916.32	20,094
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	23.81	KG	110.70	2,635
				<b>Total:</b>	<b>22,729</b>
<b>Labour</b>					
1	Fabrication of tower Parts as per Specification	0.24	MT	6480.29	1,552
2	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering, transport of material and bolts and nuts etc.,	0.24	MT	7658.53	1,834
3	Transport of Material to site including loading and unloading	0.26	MT	2356.47	620
				<b>Total:</b>	<b>4,006</b>

**Tower details**

1	Weight of L type tower including nuts&bolts	0.957 MT
2	Weight of 1 No. extension of 3 Mts	0.263 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
<b>stubs</b>	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 Galvanized M+3 Tower as per ASCI Standard**

S. No	Description	Qty.	Per Unit	Rate	Amount
<b>Material</b>					
1	Supply of Galvanised M+3 type tower as per Specification.	0.30	MT	83916.41	25,175
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	30.23	KG	110.70	3,346
				<b>Total:</b>	<b>28,521</b>
<b>Labour</b>					
1	Fabrication of tower Parts as per Specification	0.30	MT	6672.88	2,002
2	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering, transport of material and bolts and nuts etc.,	0.30	MT	7886.13	2,366
3	Transport of Material to site including loading and unloading	0.33	MT	2426.50	801
				<b>Total:</b>	<b>5,169</b>

**+3 Extension**

100x100x10=3mtrs

**Note:-** The material has to be certified before dispatch of materials to the site by field Engineer not below the rank of Divisional Engineer.

**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	71,838	43,103
2	100 x 50 mm MS channel	0.27	MT	66,340	17,912
3	75 x 8mm flat for clamps & earthing	0.4	MT	70,588	28,235
4	200 sqmm Panther conductor	0.02	KM	230,009	4,600
5	Strain Insulator set with metal parts (each set consists 3 Nos 11 KV strain insulators)	6	Set	624	3,747
5	Erection of 33 KV AB switch	1	Each	47,977	47,977
6	5 MVA Power Transformer	1	Each	6,606,820	6,606,820
7	Foundation of Power Transformer	1	LS	50,000	50,000
8	Miscellaneous items like fabrication of channels & pad clamps etc.		LS		5,000
<b>Sub-Total</b>					<b>6,807,394</b>

3% Contingencies 204,222

3% S&H charges 204,222

Labour & Transport 54,075

GST at 18 % on L&T 9,733

10% Estt & General charges on material 680,739

**Total 7,960,385**

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

<b>Sl. No</b>	<b>Description of Material</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate in Rs.</b>	<b>Amount in Rs.</b>
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
6	11KV tension insulator Hardware	50	Nos.	378	18,910
<b>Material value (in Rs.)</b>					<b>1,501,033</b>

3% Contingencies 45,031

3% S&H charges 45,031

Labour & Transport 197,200

GST at 18 % on L&T 35,496

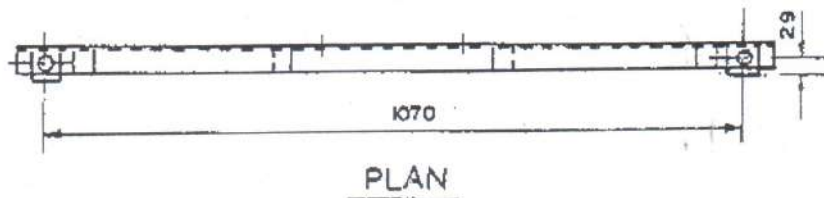
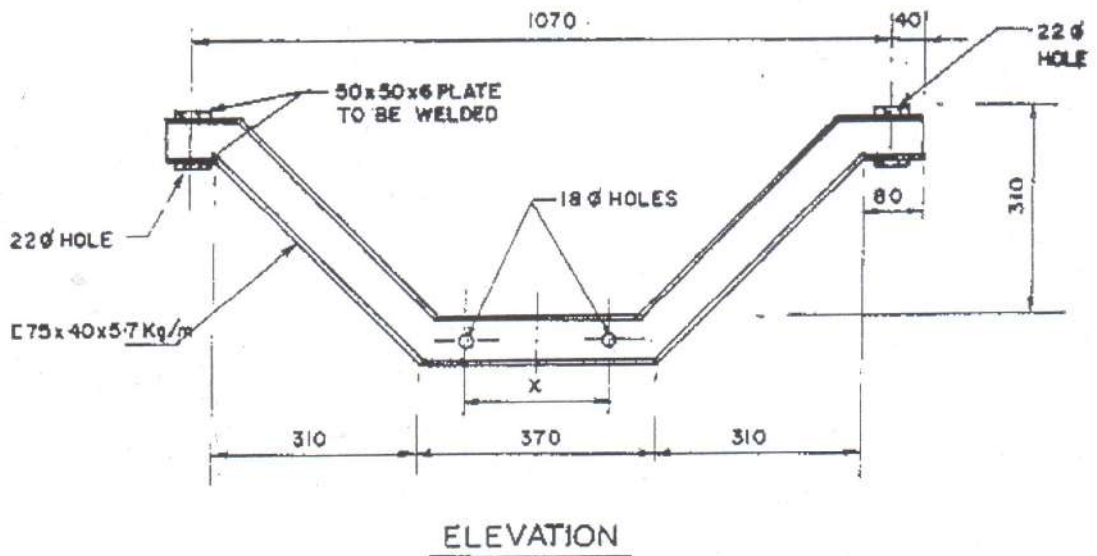
10% Estt & General charges on material 150,103

**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**

<b>S. No</b>	<b>Particulars</b>	<b>REC Construction Standard No./ Specification No.</b>	<b>Remarks/ Notes</b>
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 tying	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 tying	Sp. No. 25/1983	All lines
22	Fibre Reinforced Plastic Cross Arms	40/1987	

REC  
CONSTRUCTION STANDARD  
A-6



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.

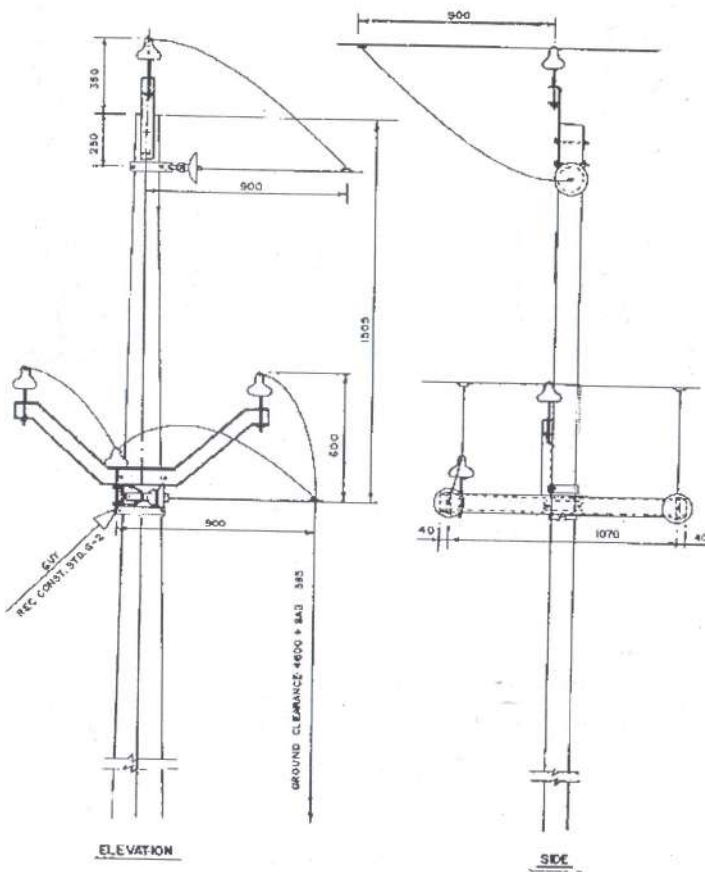
११ के.वी. लाईन  
V-क्रेची भुजा  
11 KV LINES  
V-CROSS ARM

SCALE :- N.T.S

SEPT. - 1972



REC  
CONSTRUCTION STANDARD  
A-II



BILL OF MATERIAL

P.C.C SUPPORT	8M LONG	1No.
CHANNEL (FOR V-CROSS ARM)	REFER REC CONST STD. A-6	1No.
CHANNEL (FOR HORIZONTAL CROSS ARM)	75X40-150 (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	1No.
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: - MAINTAIN SPAN BETWEEN THE TAPPING POLE AND ADJACENT POLE OF THE BRANCH LINE - 30 METRES

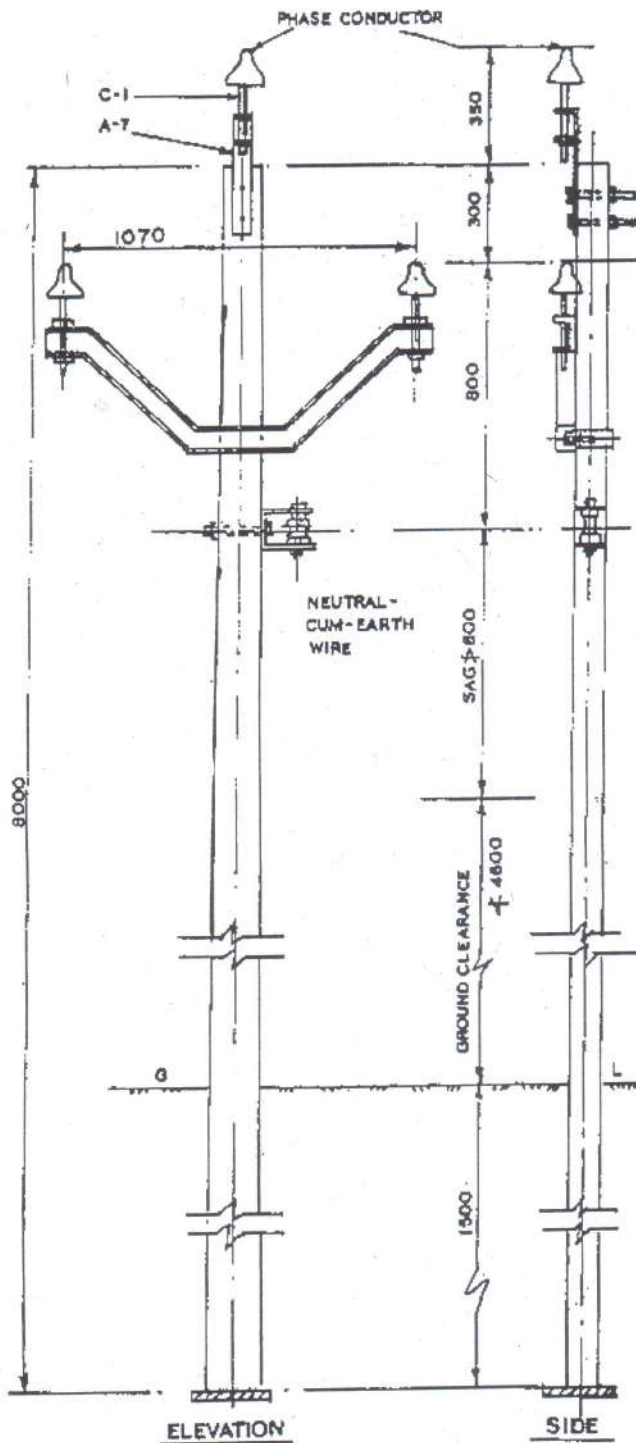
ALL DIMENSIONS ARE IN MM.

११ के वी लाईन  
निकाश व्यवस्था एक खम्भे से निकाला

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 BM	1
POLE TOP BRACKET	1
V-CROSS ARM	1
11 KV PH INSULATOR WITH PINS	3
SHACKLE INSULATOR	1
U-CLAMP WITH BOLT	1
EARTHING MATERIAL	1
BOLTS, NUTS, CLAMPS ETC.	AS REQD.
BOLTS 16 #	4
BASE PLATE	1

**NOTES:-**

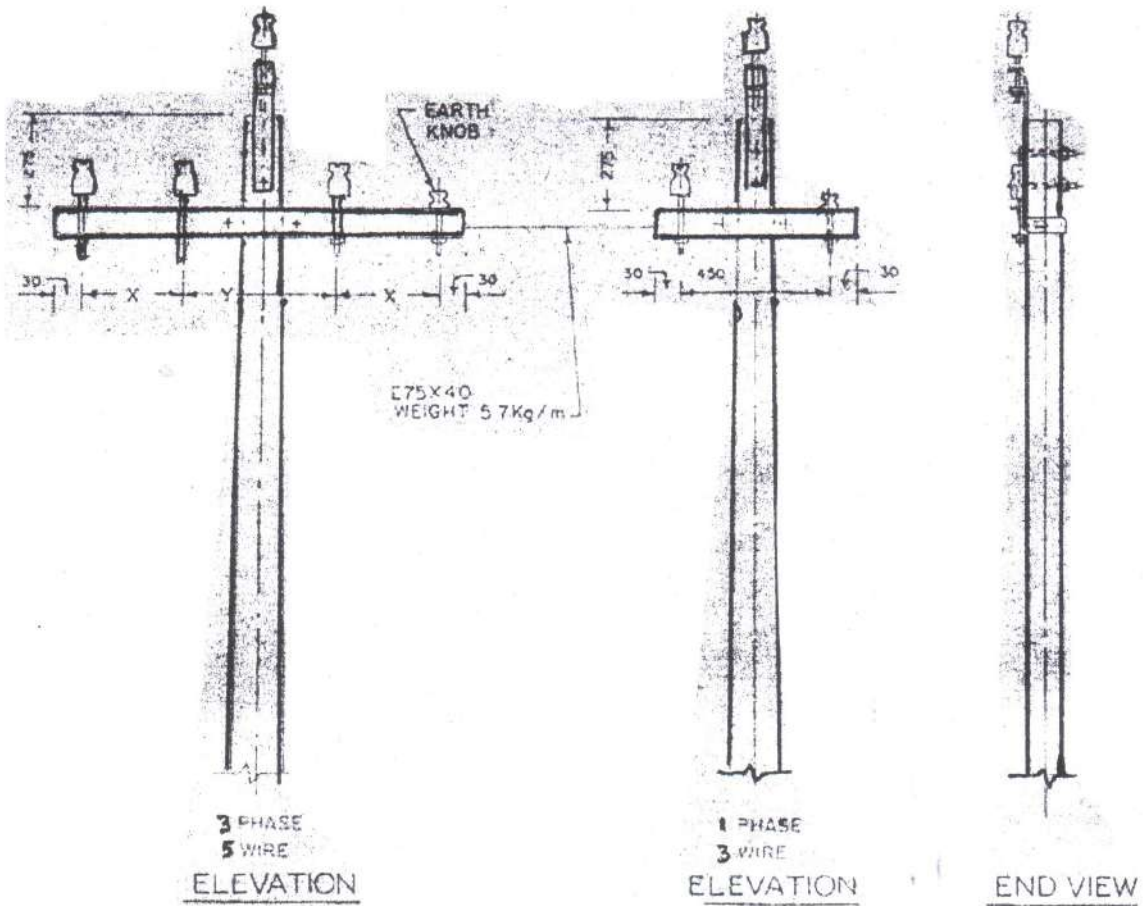
- IF THROUGH BOLT ARRANGEMENT FOR FIXING THE SHACKLE INSULATOR TO THE POLE IS NOT POSSIBLE, SUITABLE POLE CLAMP MAY BE USED.
- THE EARTH-CUM-NEUTRAL WIRE SHALL BE RUN ON LT SHACKLE INSULATORS

११ के.वी. ३-फेज लाइन व कन्डक्टर फार्मेशन  
और क्लियरेंस- ३ फेज/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 वी. लाईन  
कन्डक्टर रचना व अंतराल  
समझिए तसना  
415/240V LINES  
CONDUCTOR FORMATION AND  
CLEARANCES  
HORIZONTAL FORMATION

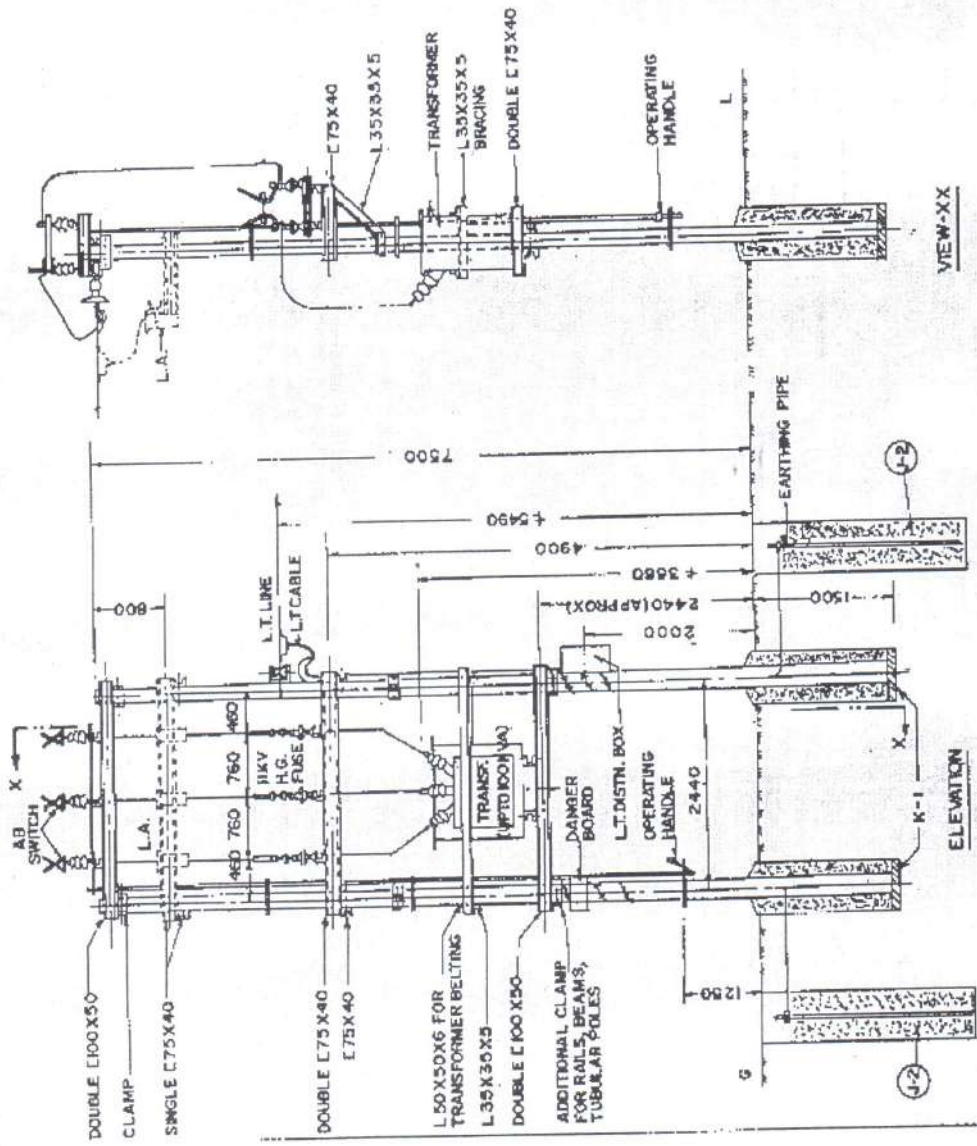
SCALE - N.T.S

SEPT. - 1972

REC  
CONSTRUCTION STANDARD  
F-2

BILL OF MATERIAL

SUPPORTS	- 9 m.	2
CHANNELS	100X50 - 2600 (APPROX.)	4
CHANNELS	75 X 40 - 2600 (APPROX.)	2+1
CHANNELS	75 X 40 - X-ARM FOR SUPPORTING H.G. FUSE & L.A.	2+2
ANGLES	50 X 50 X 6 - 2800 (APPROX.)	2
ANGLES	35 X 35 X 5 - 480 (APPROX.)	2
ANGLES	35 X 35 X 5 - BRACING FOR SUPPORTING H.G. FUSE FOR SUPPORTING DISTRIBUTION BOX	2
DISTRIBUTION TRANSFORMER		1
AIR BREAK SWITCH (HORIZONTAL TYPE)		1
H.G. FUSE UNIT-3 PHASE		1 SET
# KV. LIGHTNING ARRESTERS		3
DISTRIBUTION BOX		1
EARTHING SET		AS REQD.
DANGER BOARD		1
CLAMPS, NUTS, BOLTS, BARRED WIRE ETC. AS REQD.		AS REQD.
L.T. CABLE		AS REQD.

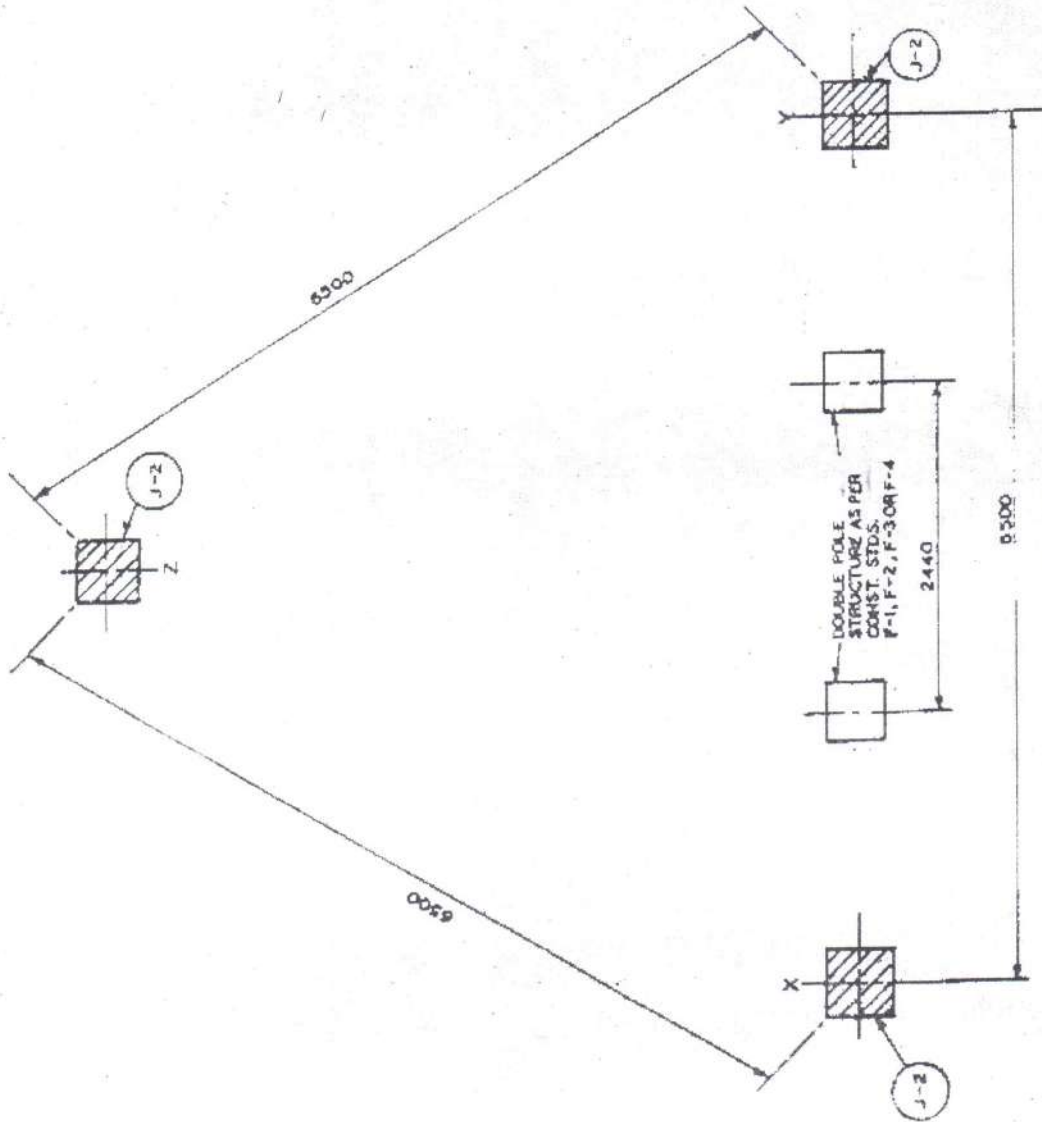


11 KV. 433-250 V  
DISTRIBUTION SUB-STATION  
WITH A.B. SWITCH &  
HORN GAP FUSES  
SCALE: N.T.S. 1972 / JAN. - 1981

R EC  
CONSTRUCTION STANDARD  
F-5

NOTES:

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



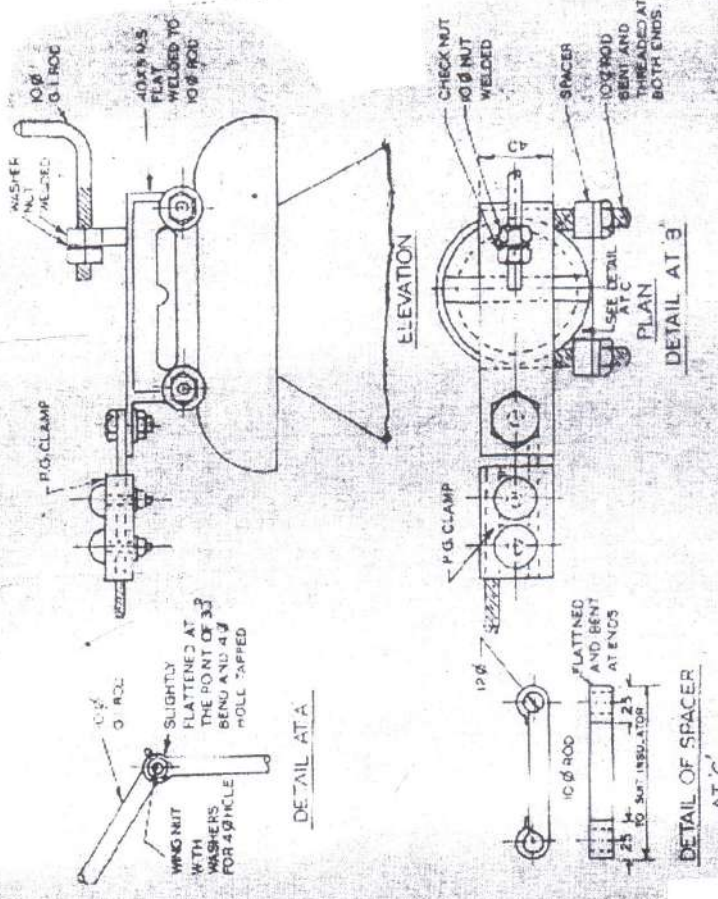
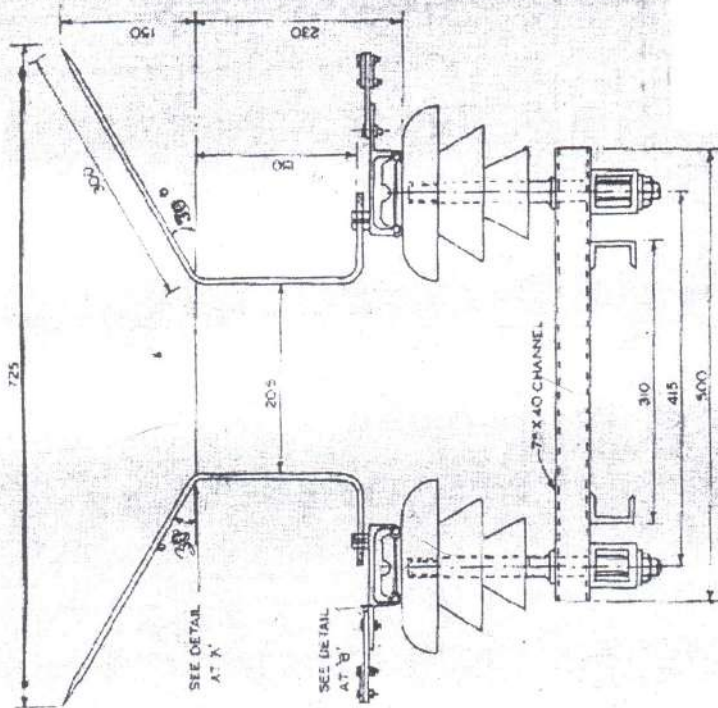
ALL DIMENSIONS ARE IN MM.

११ के. वी. / ११०० - २५० वोल्ट  
विद्युत स्तंभ - संरचना  
संश्लेषण के संकेत  
संश्लेषण के संकेत

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

R-2 SCALE: M.T.S. 1993 / JAN. - 1993

REC  
CONSTRUCTION STANDARD  
F-6



ALL DIMENSIONS ARE IN MM

११ के. वी. सी. गैप फ्यूज

11KV HORN GAP FUSES

SCALE: 1:1.5

REC  
CONSTRUCTION STANDARD  
F-8  
(REVISED-1967)

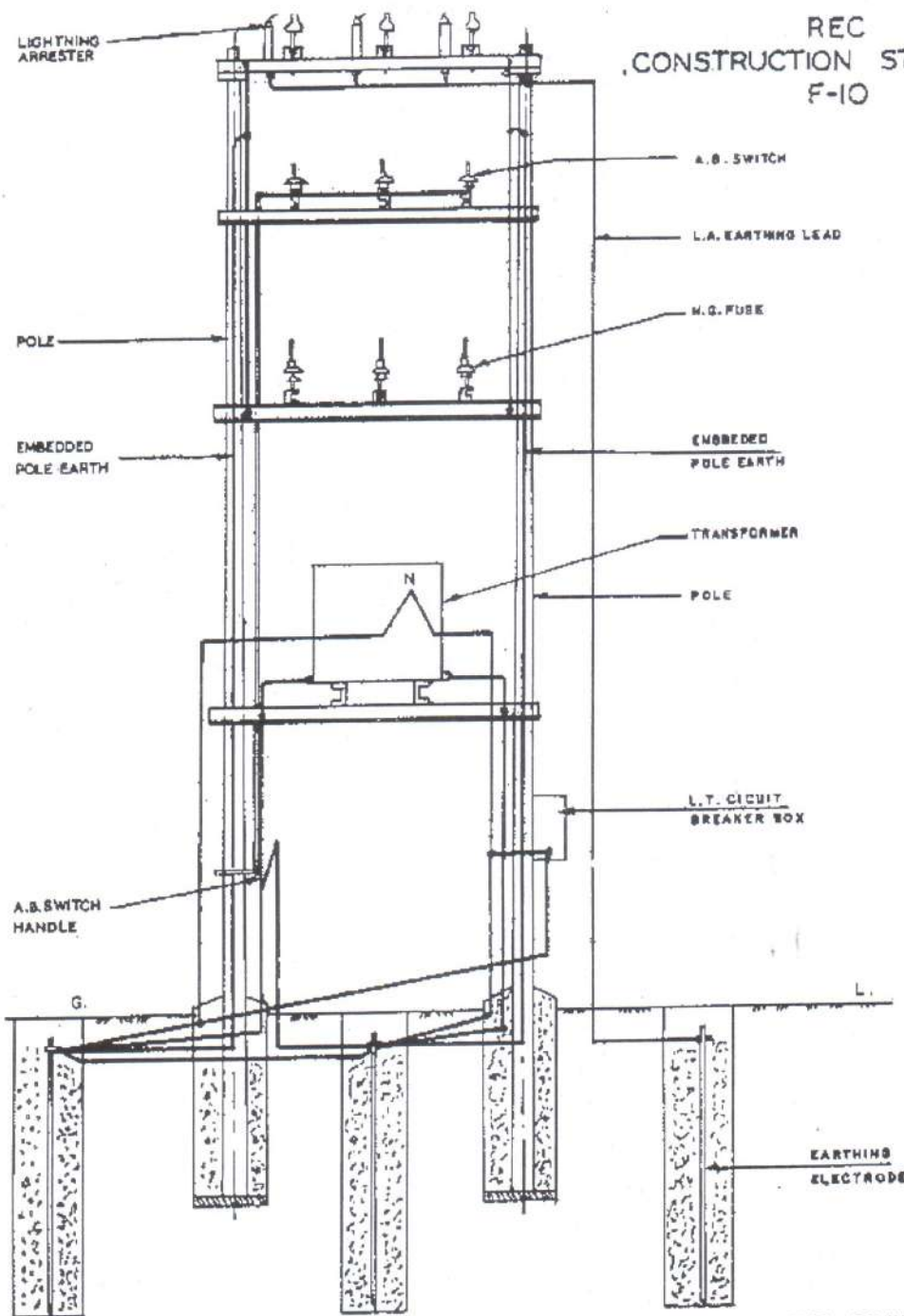
RECOMMENDED TYPE AND SIZES OF MULTICORE CABLES

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 <sup>2</sup>
63	PVC insulated and sheathed un-armoured four-core aluminium cable with reduced neutral conductor.	70 mm <sup>2</sup>
	OR	
	PVC insulated and sheathed aluminium armoured three-core solid aluminium conductored cable.	70 mm <sup>2</sup>
100	PVC insulated and sheathed un-armoured four-core aluminium cable with reduced neutral conductor.	120 mm <sup>2</sup>
	OR	
	PVC insulated and sheathed aluminium armoured three-core solid aluminium conductored cable.	120 mm <sup>2</sup>

- 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  
मल. टी. बहुकोर केबिल (एल्यूमी.)  
संस्तुत प्रकार एवं आकार  
L.T MULTICORE CABLES (ALUM.)  
FOR DISTRIBUTION SUB-STATIONS  
RECOMMENDED TYPE AND SIZES.

FEBRUARY - 1970



ALL DIMENSIONS ARE IN mm.

वितरण सब-स्टेशन के लिए  
अर्थन व्यवस्था

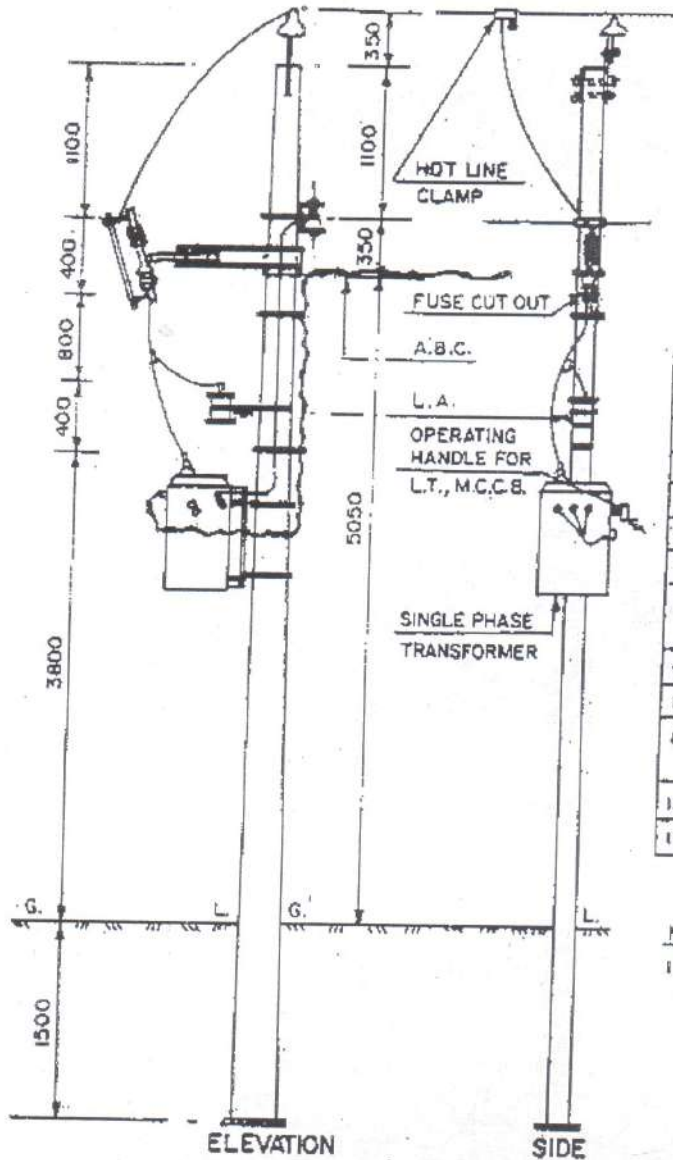
EARTHING ARRANGEMENT FOR  
DISTRIBUTION SUB-STATION

SCALE:- N.T.S

APRIL - 1983



REC  
CONSTRUCTION STANDARD  
F-13



BILL OF MATERIAL

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

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

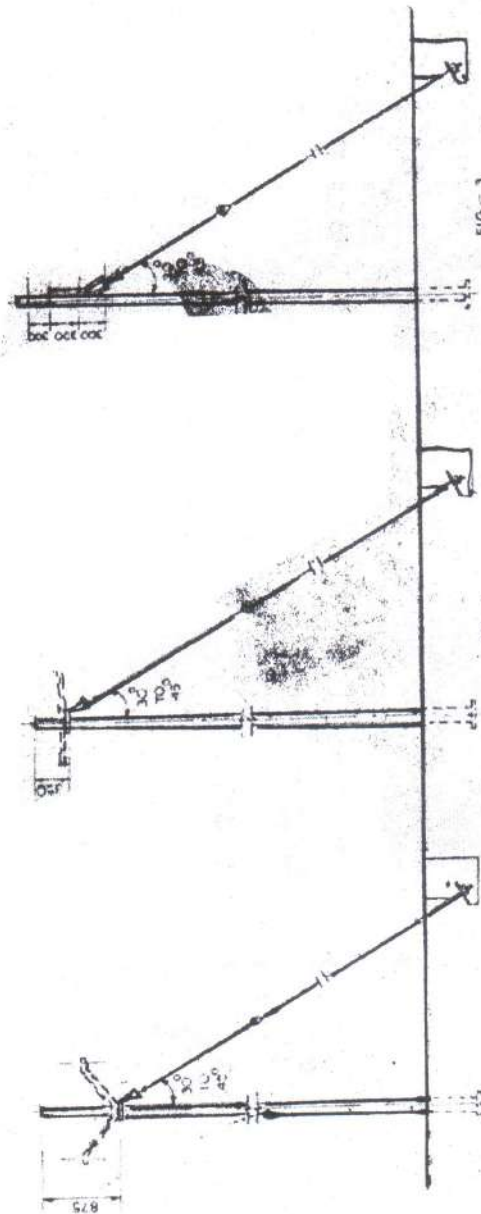
SCALE:- N.T.S

JULY, 1987



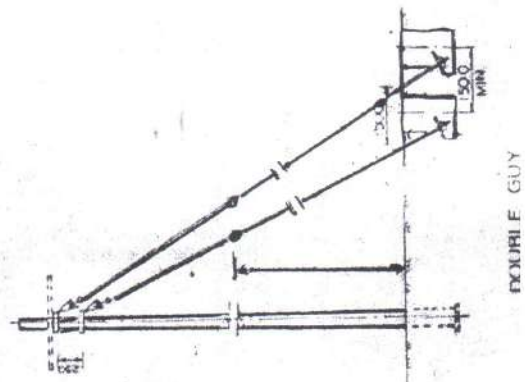


REC  
CONSTRUCTION STANDARD  
G-3



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      MAXIMUM TENSION TO BE TAKEN ON THE GUY  
7/2 50 mm      920 KG  
7/3 13 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



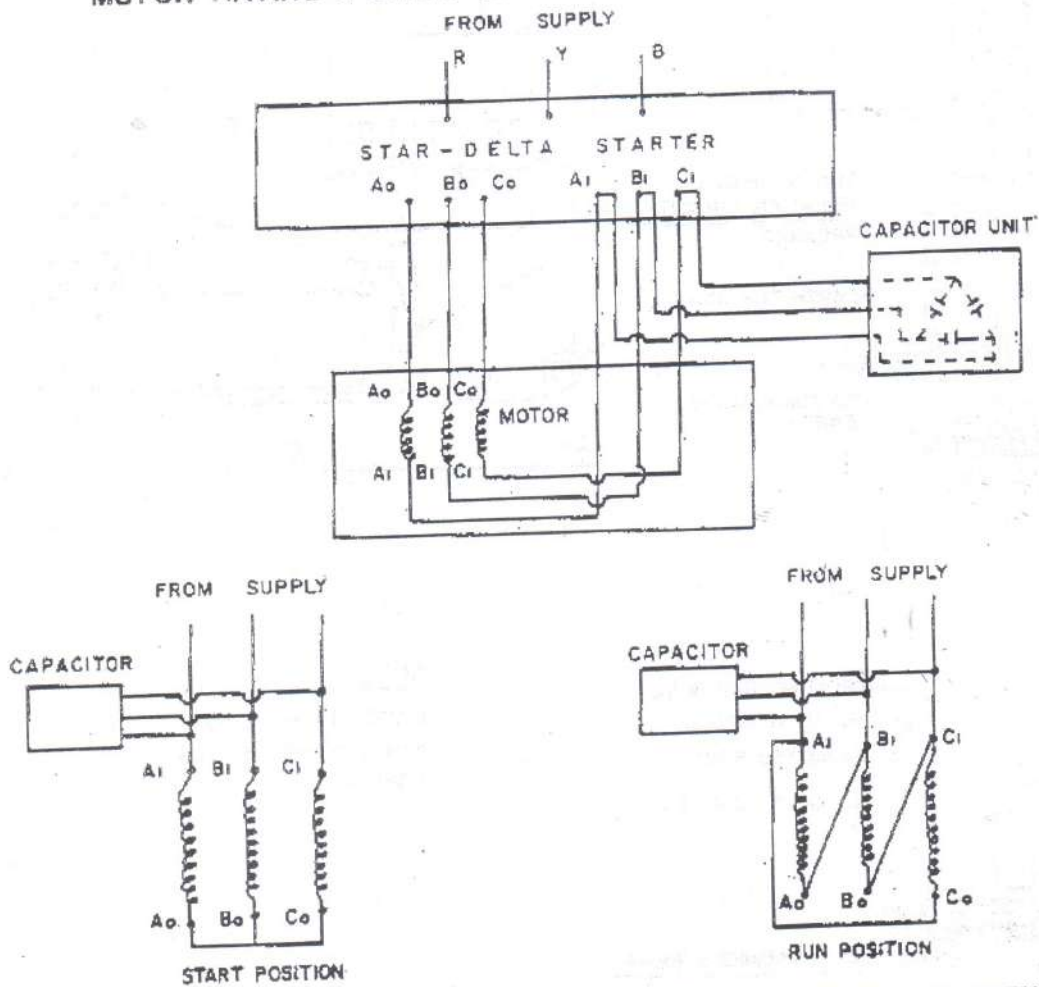
ALL DIMENSIONS ARE IN MM  
सभी आयामें मिमी में  
गुयिंग अरेंजमेंट्स  
सभी आयामें मिमी में

REC  
CONSTRUCTION STANDARD  
H-9

RECOMMENDED CAPACITOR RATINGS

MOTOR RATING	22KW(3H.P.)	37KW (5H.P.)	5.5KW(7.5H.P.)	75KW(10H.P.)
CAPACITOR RATING IN KVAR	1	2	3	4

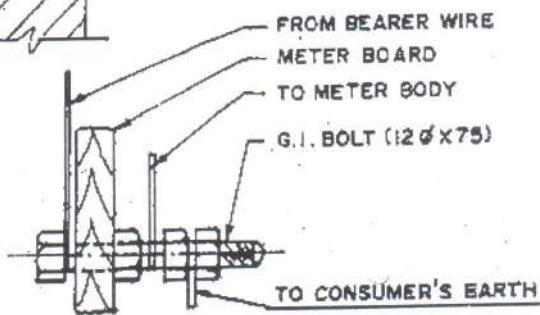
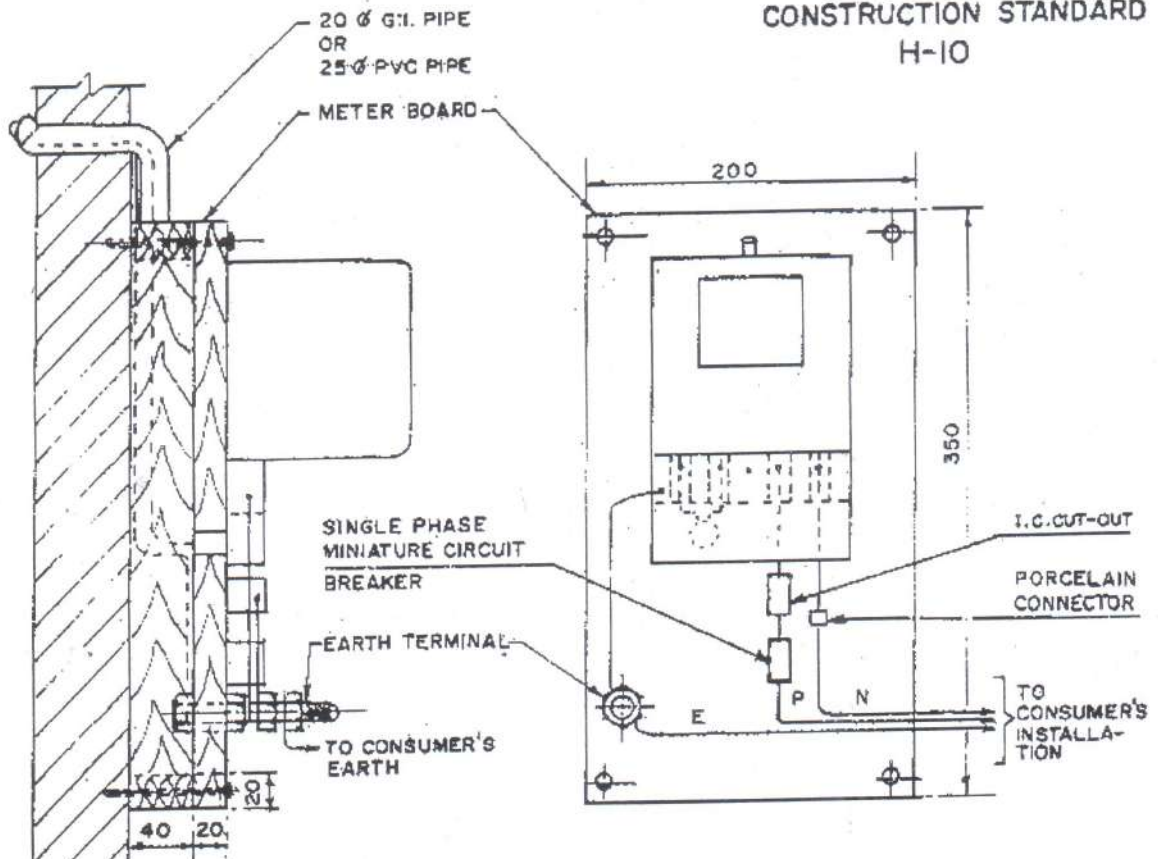
CONNECTIONS OF A 3-TERMINAL CAPACITOR UNIT TO A MOTOR HAVING A START DELTA STARTER



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



**EARTH TERMINAL DETAILS**

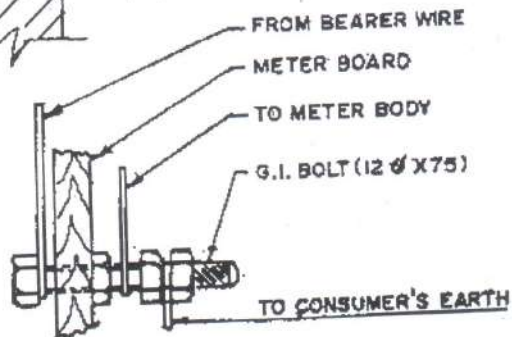
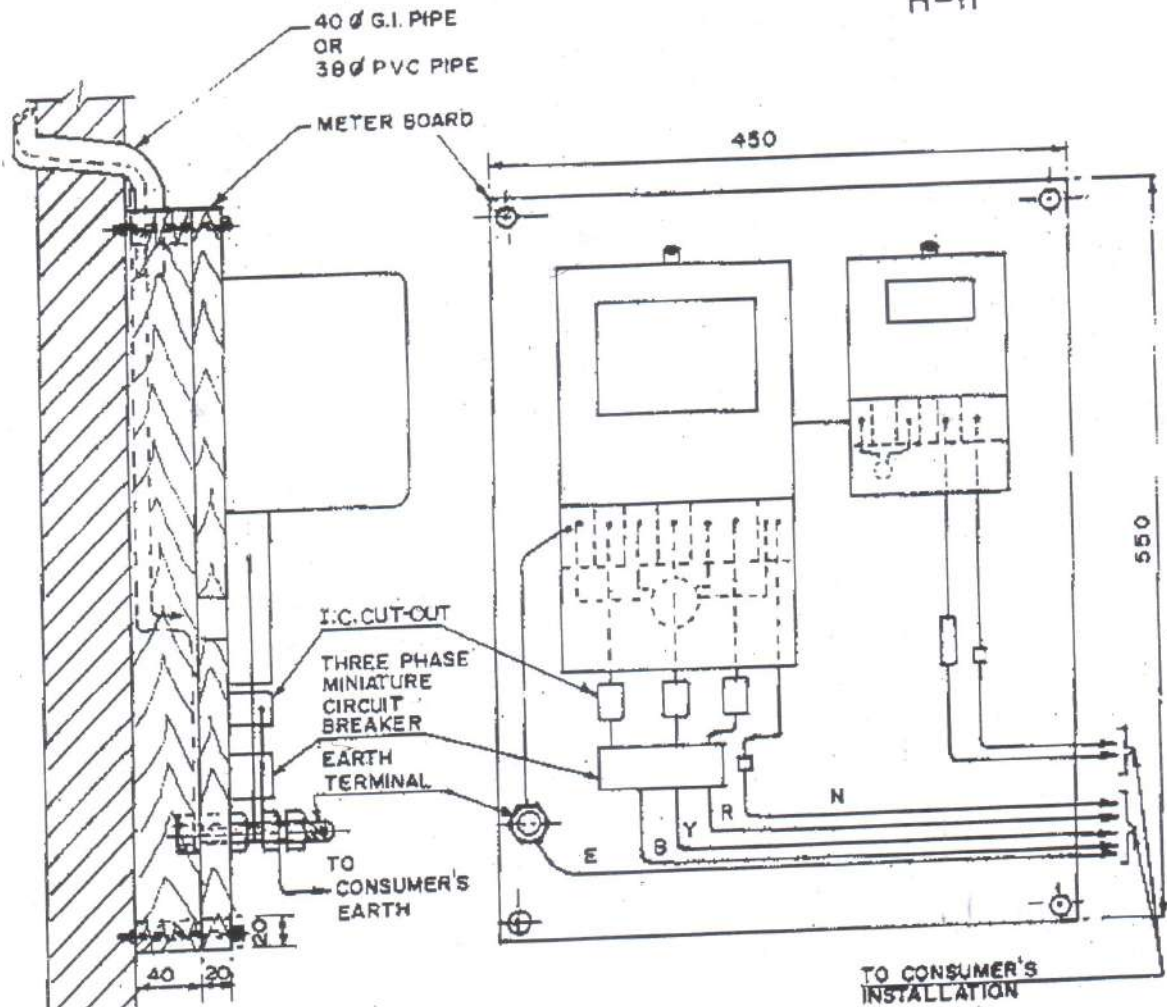
**NOTE :-**

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

ALL DIMENSIONS ARE IN MM.

रम. सी. पी. कन्ट्रोल के साथ सर्विस 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.

रम.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)

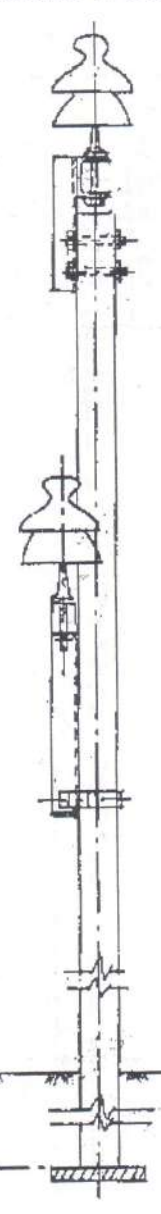
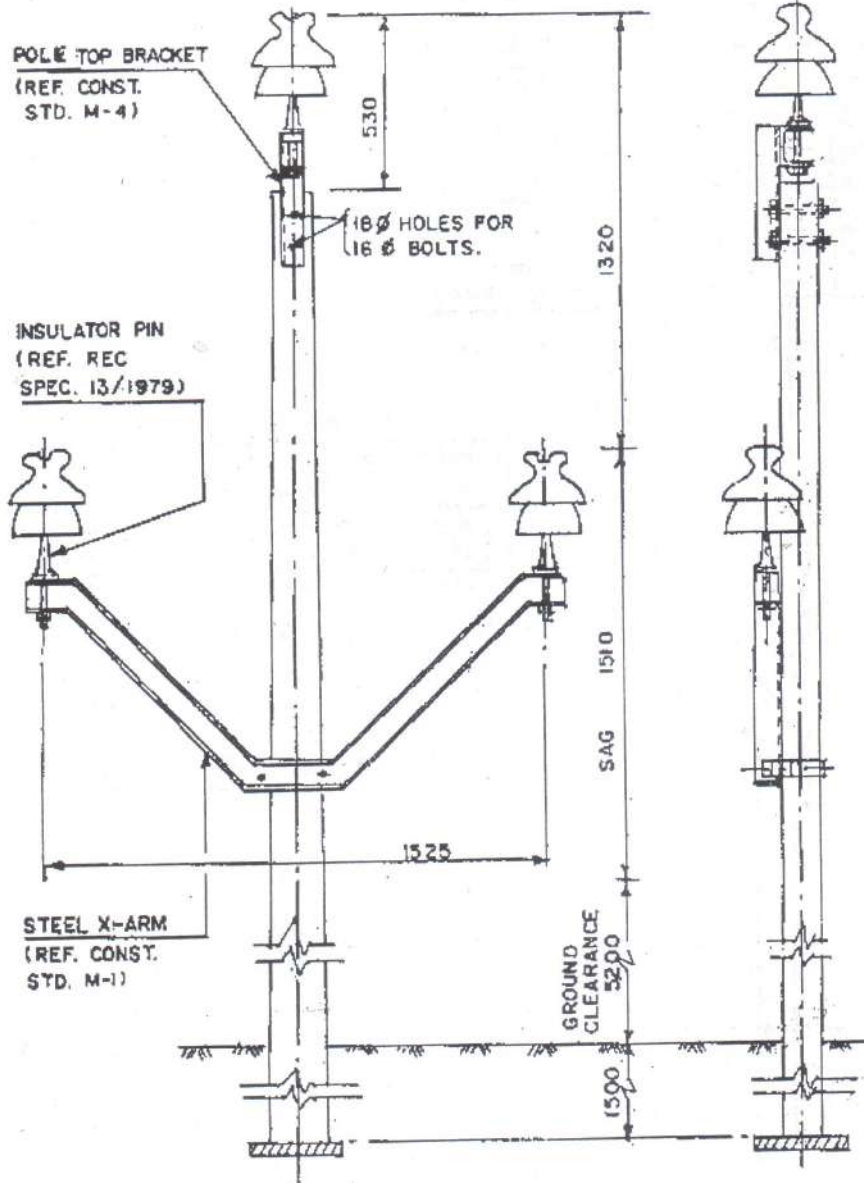
SCALE: N.T.S.

MAY, 1993.





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 $\phi$	4
33 KV PIN INSULATOR	3
33 KV PINS	3
EARTHING COMPLETE	1

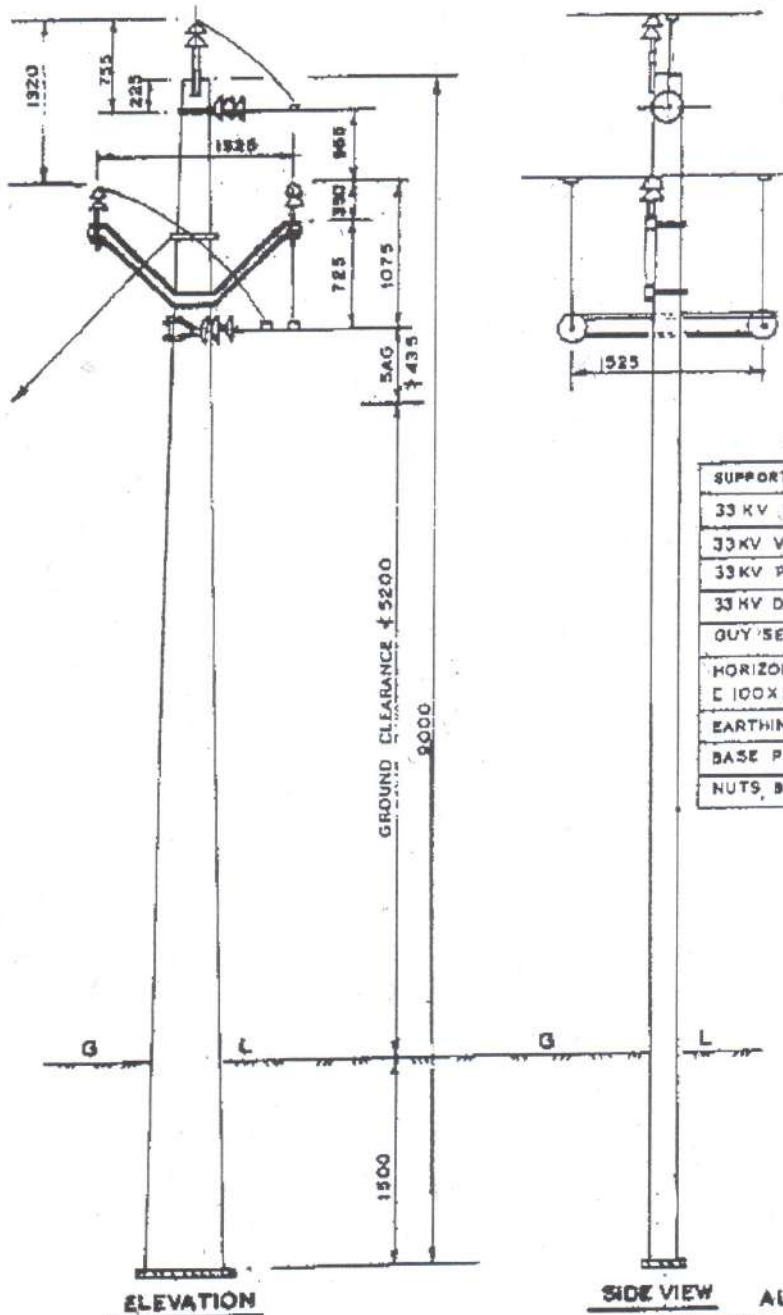
TANGENT LOCATION  
MAX. SPAN 125 M  
(CROSS COUNTRY)

ALL DIMENSIONS ARE IN mm.

३३ कि० वी० लाईन  
कन्डक्टर रचना एवं अन्तराल  
33KV LINE  
CONDUCTOR FORMATION  
AND CLEARANCES

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

R E C  
CONSTRUCTION STANDARD  
M-10



BILL OF MATERIAL

SUPPORT - P.O.M	1 NO.
33 KV POLE TOP BRACKET	1 NO.
33KV V-CROSS ARM	1 NO.
33KV PIN INSULATOR	3 NOS.
33KV DISC INSULATORS	3 SETS
GUY SET	1 NO.
HORIZONTAL CROSS ARM E 100X50X6.4	1 NO.
EARTHING MATERIAL	AS REQD.
BASE PLATE	1 NO.
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.

३३ के. वी. लाईन  
टैपिंग व्यवस्था  
सिंगल पोल टैपिंग

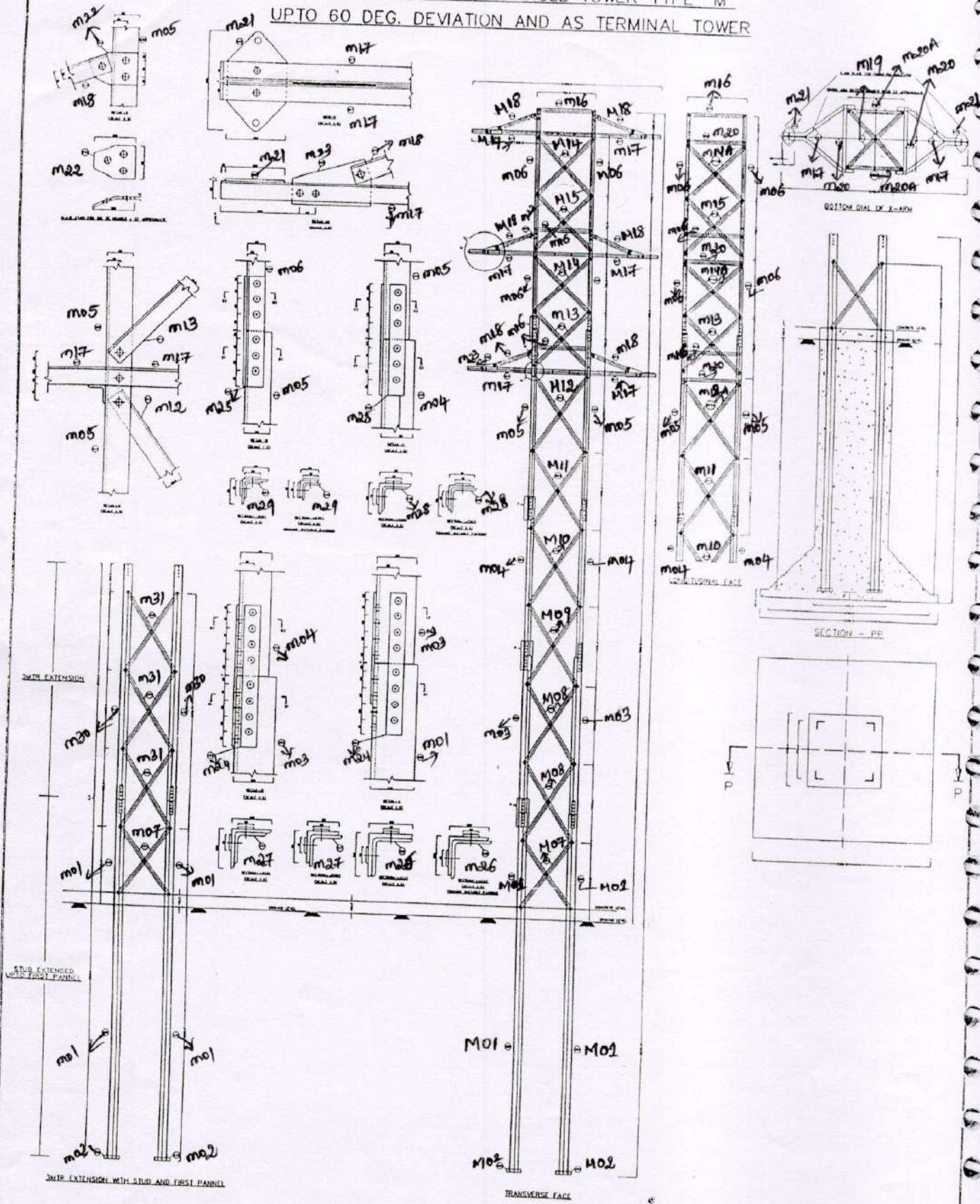
33 KV LINES  
TAPPING ARRANGEMENT ON  
SINGLE POLE

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



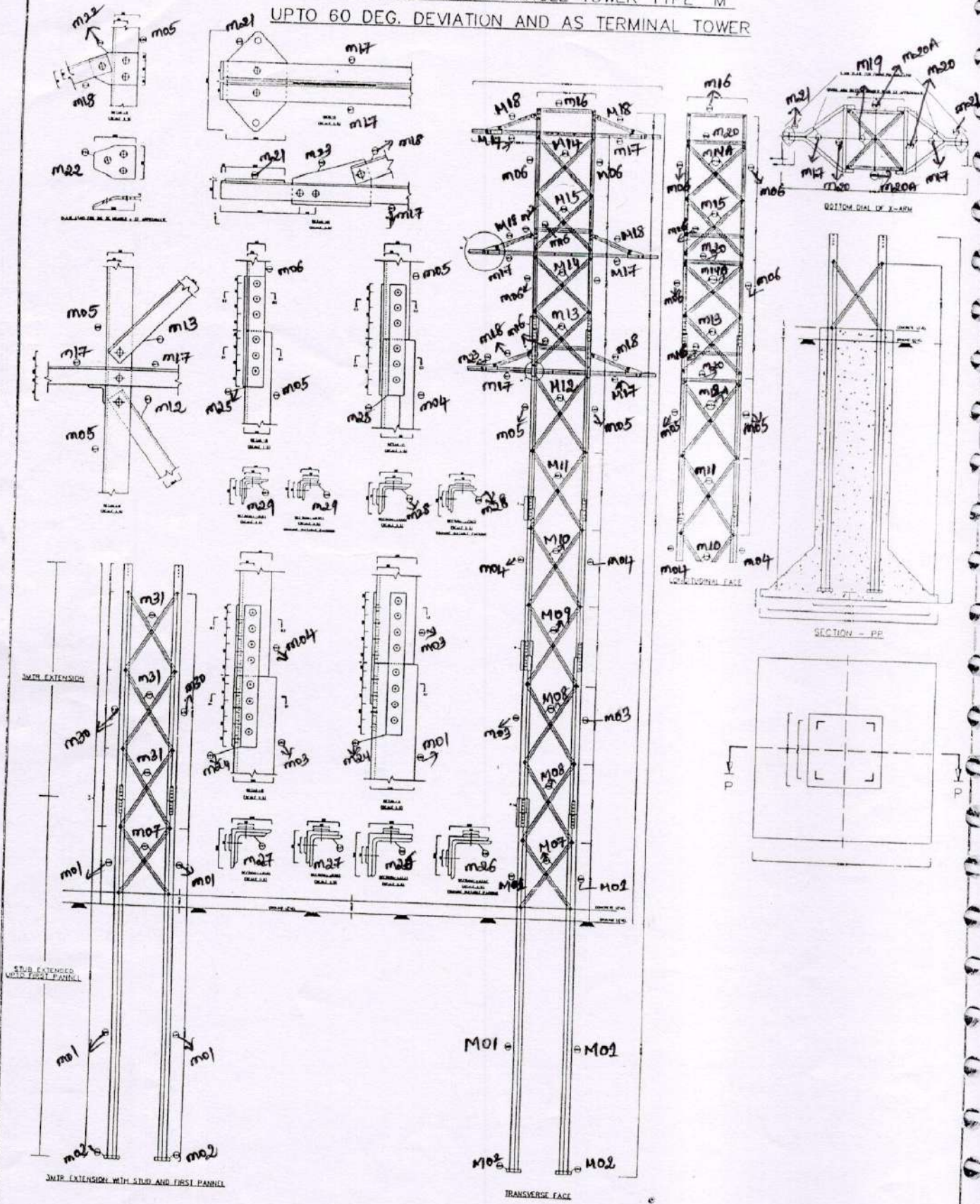
For clarity of drawing, may refer the Cost data 18-19 pdf file placed on <sup>155/16/201</sup> website.

CENTRAL POWER DISTRIBUTION COMPANY OF  
 ANDHRA PRADESH LTD, MINT COMPOUND, HYDERABAD  
 33 K.V. DOUBLE CIRCUIT  
 ANGLE TOWER TYPE "M"  
 UPTO 60 DEG DEVIATION AND AS  
 TERMINAL TOWER

STRUCTURAL DRAWING

OF

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



CENTRAL POWER DISTRIBUTION COMPANY OF  
 ANDHRA PRADESH LTD, MINT COMPOUND, HYDERABAD  
 33 K.V. 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 <sup>155/16/21</sup> website.

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

Sl. No.	PART DESCRIPTION	PART NO.	DIMENSION S OF SECTION/P LATE B and	LENGTH/AREA (m/m)	QUANTITY (No's)	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)
<b>stub and cleats</b>							
1	stub	M01	110x110x8	4.560m	4	13.4	244.416
2	cleats for stub	M02	45x45x5	0.200m	8	3.4	5.44
						<b>sub total</b>	<b>249.856</b>
<b>super structure of L type tower</b>							
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-longitudinal 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 <sup>2</sup>	6	47.1	10.598
25	plate(b/w tie number & leg)	M22	6 mm thick	0.013m <sup>2</sup>	12	47.1	7.235
26	plate(b/w tie number & main member)	M23	6 mm thick	0.020m <sup>2</sup>	6	47.1	5.652
27	cover plate for leg joint	M24	6 mm thick	0.01448m <sup>2</sup>	16	47.1	10.912
28	cover plate for leg joint	M25	6 mm thick	0.01128m <sup>2</sup>	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	6.542
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
						<b>sub total</b>	<b>883.838</b>
						<b>grand total</b>	<b>1133.692</b>

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 <sup>2</sup> )	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

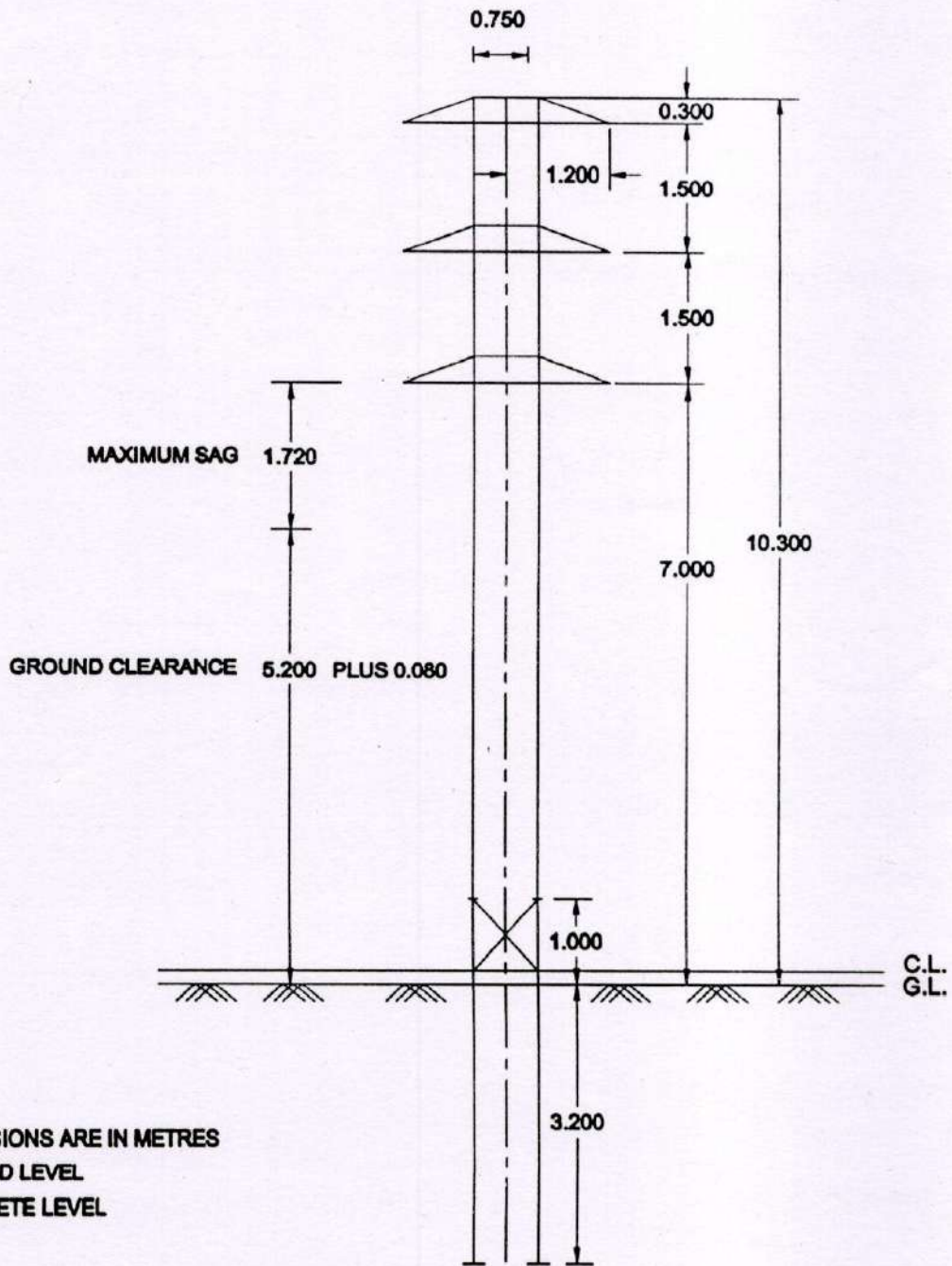
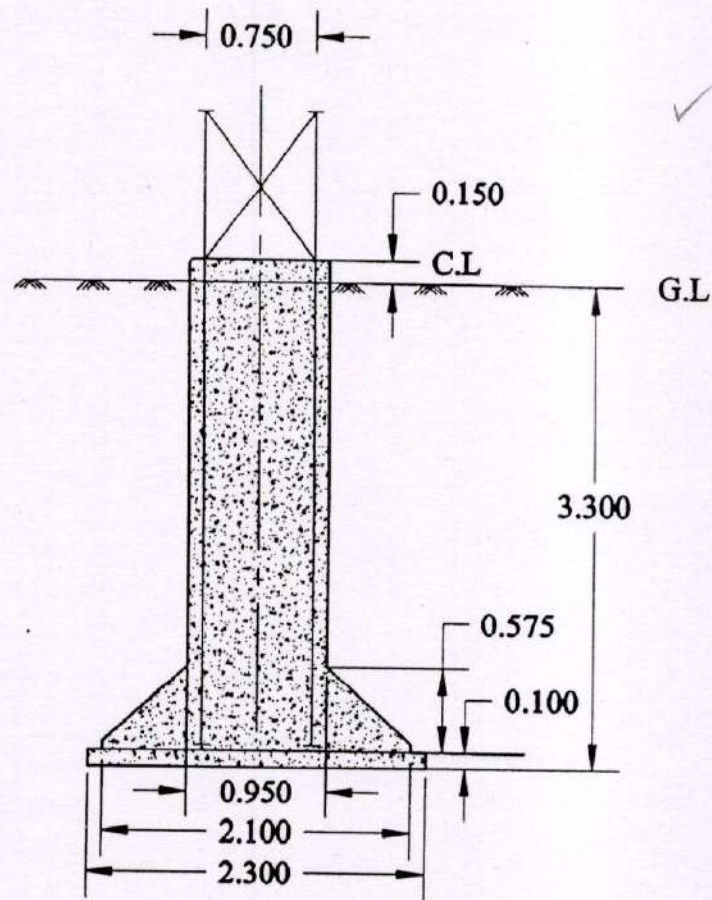


FIG - 11

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 BOTTOM : 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.

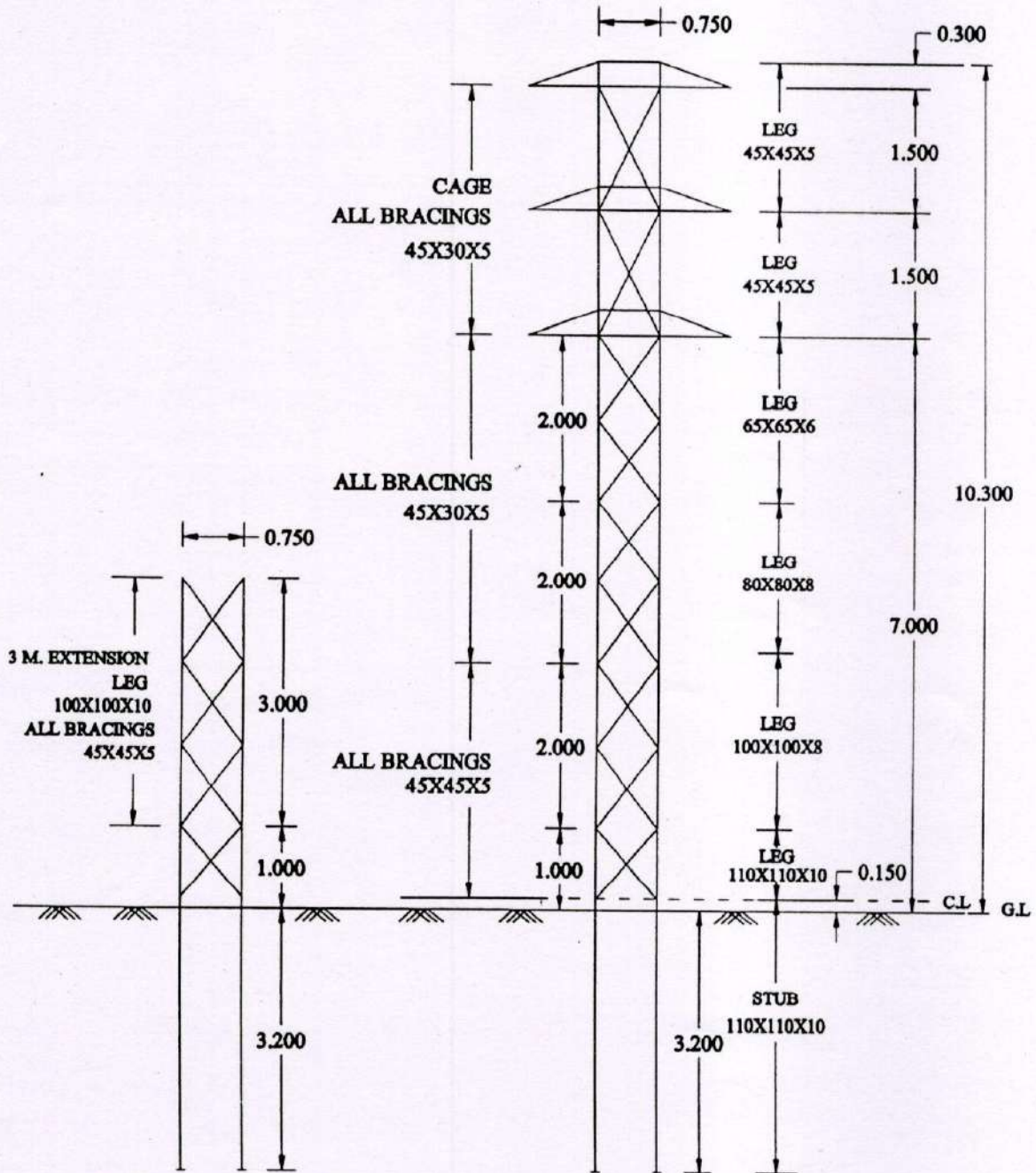
THE FOUNDATION CAN BE ADOPTED FOR PLUS 9M AND PLUS 12M EXTENSIONS ERECTING THE TOWER AS A STRAIGHT LINE CUT POINT AND LIMITING THE SPAN TO 80M.

**FIG - 14**

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



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

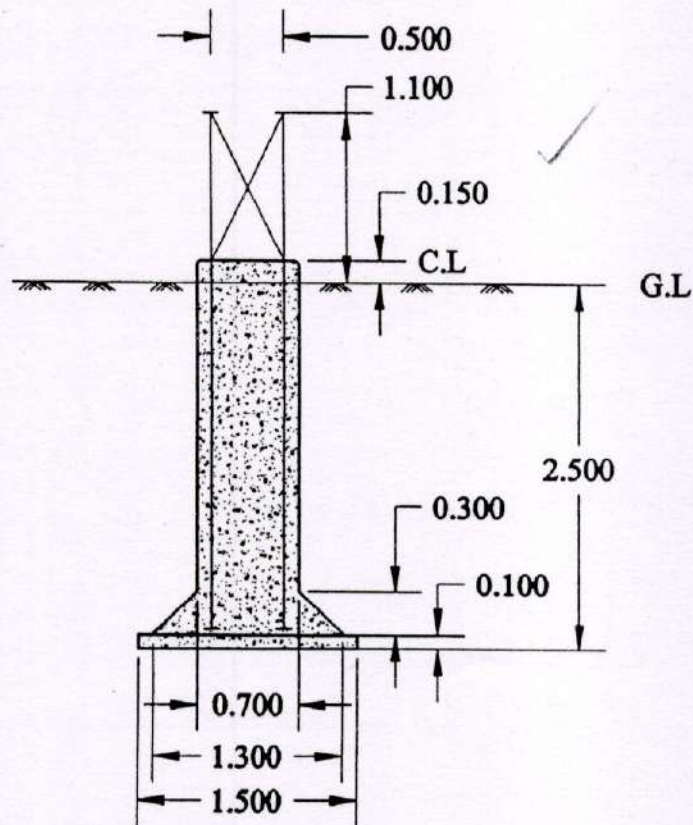


ALL DIMENSIONS ARE IN METRES.  
 STEEL SECTIONS FOR LEG MEMBERS AND BRACINGS ARE INDICATED IN THE DRAWING.  
 CROSS-ARM MAIN MEMBERS AND BELT MEMBERS ARE 45 X 45 X 5 MM. OTHER MEMBERS OF  
 CROSS-ARMS ARE 45 X 30 X 5 MM.  
 ALL SECTIONS ARE IN MM.  
 8NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR FIRST 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: APCPDCL-CM-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.

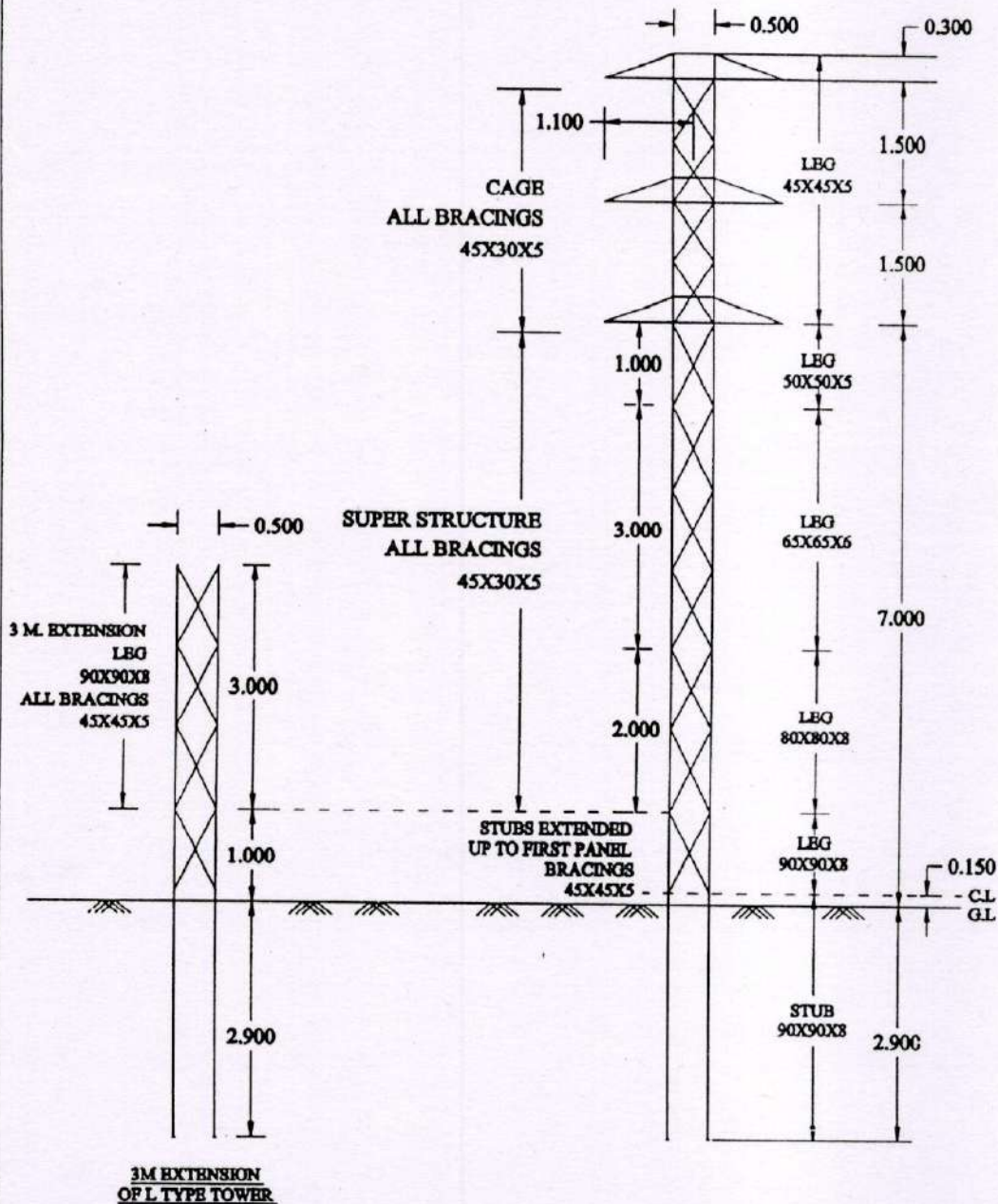
THE FOUNDATION IS SUITABLE FOR NORMAL TOWER, PLUS 3M AND PLUS 6M EXTENSIONS.

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**



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