

R



**Memorandum to Whole Time Directors**  
**(Through Circulation)**  
**Head of Department: Chief Engineer (SP)**

**Subject: Approval of Cost Data in respect of Sub-Transmission and Distribution System (33 kV and below) for the FY 2022-23.**

**Background:-**

The Cost Data has been prepared for Sub-Transmission and Distribution System (33 kV & below) in pursuance to regulation 13 of Himachal Pradesh Electricity Regulatory Commission (Recovery of Expenditure for Supply of Electricity) Regulations, 2012 for preparing initial estimate for erection of electric lines and/or electric plants and/or any other works to be executed in order to provide 'Supply of Power' to consumers/ applicants in cases where cost is to be recovered on actual basis.

**Issues in Question and Proposal:-**

1. The existing Composite Cost Data has 18 predefined Configurations for 33 kV, 11 kV and LT lines, 33/11 kV Substation, DTR Structures, Consumer Service connection and Erection cost etc. Now, in this draft Composite Cost Data for the FY 2022-23 the configuration of 33 kV Double Circuit Double Pole line and 11 kV Double Circuit Double pole has been amended as per the latest Drawing received from SE Design
2. A tolerance of (+100) hundred millimeters where needed on either side of other 33kV and 11 kV configurations is added on the bases of latest drawing of 11kV and 33 kV Double Circuit on Double pole Structure received from SE Design
3. The out turn rates of only trucks for FY 2022-23 have been considered which comes out to Rs. 47/ km.
4. Since, there are innumerable configurations and all cannot be included in the Cost Data. Therefore, if required by the field units, the configuration as per their requirement/ site condition can be formulated by opting items from the Main Cost Database. The main constituents/features of the Composite Cost Data are as listed below:
  - (a) The costs of items in the Draft Cost Data are based on Purchase Orders (POs) wherever PO for items were available.
  - (b) In case, where POs for the financial year were not available, costs have been based on escalation (Esc) on cost data of previous years. For other items, costs are based on Stock Issue Value/Market Rates (MR) / Estimation (Est etc. The Escalation (Esc) in the price over past years is calculated based on WPI/inflation in those cases where costs for the financial year under consideration are not available.
  - (c) The Transportation Charges have been worked out as per the actual out turns rates of the trucks being used for the transportation of Material/equipments for the Board's works.

- (d) The labour rates for the calculation of erection charges in the Cost Data have been worked out as per the pay of Regular Technical Staff of the Board. The labour rates for the Beldar has been taken as per prevailing rates for the labour hired on daily wages as per the Govt. of HP letter No. FIN-(PR) B(7)-33/2010 dated 5<sup>th</sup> April 2022 for FY2022-23 (Flag ).
- (e) Provision for an additional unknown cost of Rs 'X' for optional configurations such as for guarding of road crossings, multi-pole structures at ridge/ valley crossings etc. as per site conditions has also been made in the Composite Cost Data.
- (f) Provision of an additional amount of 1% in case of 33 kV & 11 kV lines, 2.5% for Distribution system and 5 % for 33/11 kV Substations has been kept in Cost Data to cater for the Cost of Miscellaneous items (not covered in configuration) such as Protective Gear, T&P, Safety Equipments etc.
- (g) The various charges (i.e. Contingency Charges, Labour Charges, Departmental Charges and Goods and Service Tax (GST) etc.) have been listed separately at Annexure 'A' of the draft Cost Data which shall be added to the Estimate being prepared in the field.
- (h) The estimates for the Civil component like Control Room building with / without Sub-divisions building, Power transformer foundation, VCB foundation, CT-PT foundations, RS Joist Foundation, Substation trenches (indoor /outdoor), Rain harvesting tank etc. as per the Civil drawings issued by SE (Design) Hamirpur vide letter No. HPSEBL/SED/63rd STC-MOM/2020-21-7889-7908 dated 30.12.2020 have been prepared on the basis of HPSR 2020 by the O/o SE (Civil) under CE(P&M) and have been incorporated in the present Cost Data.

The Composite Cost Data for FY 2022-23 is now being submitted before the WTD for approval and submission to HPERC.

5. **Whether similar proposal has been discussed in earlier meeting?**  
No.
6. **View of F & A wing:**  
(Not required).
7. **View of other wings:**  
(Not required).
8. **Financial/administrative implications.**  
(Not required).
9. **Legal implications:**  
(Not required).
10. **Whether proposal involves deviation from PSEB:**  
N/A.
11. **Whether approval of MD obtained to place the matter before WTD (through circulation):**

-9-

-10-

-11-

-12-

-13-

-14-

-15-

Contd. Pp. - -

12. Now, the approval of the Whole Time Directors is required for the following:-

1. Approval of the Composite Cost Data for FY2022-23 for Sub-Transmission and Distribution System (33 kV & below).
2. Approval to upload the Cost Data on Board's website for Public Objections.
3. Approval to submit the Cost Data to HP Electricity Regulatory Commission after incorporating public objections / suggestions.

Submitted please.

*[Signature]*  
 Chief Engineer (SP)

Countersigned

Director (Op) *[Signature]*  
 20/5/22

Approval of the Whole Time Directors

Director (Op) *[Signature]*  
 20/5/22

Director (Tech) *[Signature]*

Director (Civil) *[Signature]*  
 25/05/2022

Director (F&A) *[Signature]*  
 20/5/22

Managing Director *[Signature]*  
 22/5/22

Comp. Secy

PS/Dir (F & A)  
 Dy. No. 839  
 Dt. 25/5/22

P.S. to Dir (Civil)  
 No. 95  
 Dt. 25-05-22



## **Sub-Transmission & Distribution System**

(33 kV and Below Systems)

**Cost Data FY 2022-23**

**COST DATA FOR FY- 2022-23****PREFACE**

1	This Cost Data has been prepared in pursuance to regulation 13 of HPERC (Recovery of Expenditure for Supply of Electricity) Regulation, 2012, for the purpose of making initial estimate for erection of electric lines and/or electric plants and/or any other works to be executed in order to provide supply of power to applicants/consumers in cases where cost is to be recovered on actual basis.
2	Configurations and costs for Sub-Stations and Lines contained in this Cost Data comprising of rates of individual items (Equipment / Material) are merely indicative in nature. The Estimates shall however be prepared by the field units on the basis of proposed layout of the sub-station & other requirements etc. and in accordance with the relevant Standards and Rules / Regulations.
3	Cost of detailed civil works for laying of lines, erection of sub-station has not been incorporated in this Cost Data, as these vary from place to place. The area & site specific conditions shall be taken into account while preparing the estimates.
4	Cost of land development for sub-station and laying of lines is not envisaged in this Cost Data. The estimations shall be based upon actual requirements.
5	The estimates for the works/ equipments / material not specifically covered in this Cost Data shall be prepared from available stock rates or recent purchase orders or market prices as may be accessible and proof to this effect shall be submitted to the O/o SE(DSP).
6	Estimates prepared by Field Units based upon specifications and other considerations using costs not available in this Cost Data <b>shall NOT</b> be subject to Audit Objections by Internal / External Audit Parties or any other Agency.
7	This Cost Data shall not be applicable in cases where prices / costs / rates are discovered or discoverable through competitive bidding as in case of Turn Key Contracts / Awards of Work Contracts.
8	The GST on material / GST on Erection and Transportation/ D.C. / Labour cess on material and other statutory levies shall be as per prevalent rates. The prevalent rates as on 01.04.2022 are depicted separately in the Cost Data.
9	IEEMA (Indian Electrical and Electronics Manufacturing Association) formula calculates the variation in prices for the purpose of price adjustments between start of tendering process and delivery of equipment and services and is intended for the purposes of Contractual clauses. This formula is applied to specific equipment / material and is calculated using a host of factors / indices that are distinct for different items. This formula has not been applied in this Cost Data, being not pertinent to Cost Data.
10	Escalation in the price over past years is calculated based upon WPI / inflation in those cases where costs for the financial year under consideration are not available. Rates of material not considered in previous years has been estimated based upon the contiguous items available in the Cost Data. Where items are used in the field which are not available in this Cost Data, the same shall be intimated to the O/o SE(DSP) by the field unit so as to enable updating of this Cost Data.
11	The Labour Rates for erection/manual carriage for the labour hired on daily wages basis in the Scheduled Tribal Areas/ Remote Area/Hard Area as notified by State Government from time to time shall be separately allowed 25 % enhancement on the prevalent daily wages rates in accordance with the Finance Department's Office Memorandum No. FIN(PR)B(7)-1/95-II dated 17.04.1998.
12	Where Purchase Orders for the Financial Year have been made available, costs of such items in this Cost Data are based on these Purchase Orders (POs) . Where Purchase Orders for the Financial Year have not been made available, costs have been based upon escalation (Esc) on the Cost Data of previous year. For other items, costs are based on Market Rates (MR) / Estimation (Est) / Awards. Accordingly , in order to continue to build this Cost Data in the future, discovery of new costs by the Field Units by way of POs / MR / Awards may be intimated to the office of SE(DSP) along with documentary proof.

<b>13</b>	All Technical / Engineering provision in relevant statutes in force shall be kept in mind at the time of framing estimates based on this cost data viz:-
(a)	The Electricity Act, 2003
(b)	The Electricity Rules, 2005
(c)	HPERC (Recovery of Expenditure for Supply of Electricity) Regulation, 2012 and amendments thereto.
(d)	CEA (Technical Standards for construction of Electrical Plans and Electrical Lines) Regulation, 2010 and
(e)	CEA (Installation and Operation of Meters) Regulation, 2006 and amendments thereto.
(f)	REC Specifications and Costruction Standards
(g)	For Civil Works - Latest HP Schedule of Rates (HPSR)
<b>14</b>	<b>DISCLAIMER:</b>
(a)	This is a broad based Cost Data for the purpose of cost estimation only and is not intended as a design substitute. The design for the construction shall be based on construction standards which shall be prepared separately at the time of Framing Estimates. The drawings given in this Cost Data are indicative and field units may make upward modification / improvements so as to include for or improve stability and safety. The Office of SE(DSP) shall not be liable on any account for any errors made by the Field Units as a result of this Cost Data.
(b)	This Cost Data covers only a limited number of configurations and costs. Configurations and Costs being innumerable, all configurations and costs as may be required on case to case basis cannot be covered under the scope of this Cost Data due to practical constraints, which may be prepared at the field level as per case requirements. The Office of SE(DSP) shall not be liable on any account for any errors made by the Field Units as a result of this Cost Data. In case of doubts, office of SE (DSP) may be consulted.
(c)	<b>Estimations of costs and other components made in this Cost Data shall NOT be subject to Audit Objections by Internal / External Audit Parties or any other Agency.</b>

<b><u>INDEX</u></b>		
<b>S. N.</b>	<b><u>Description</u></b>	<b><u>Page No</u></b>
1	MAIN COST DATA BASE (including optional scope of items)	6-31
2	ABSTRACT COST	32-33
3	Configuration 1: Estimated Cost (per Km) for 33 kV Single Circuit Line on Single Pole Structure (Delta Formation) using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72 and Double continuous Earth wire	34-37
4	Configuration 2: Estimated Cost (per Km) for 33 kV Single Circuit (SC) Line on Double Pole (DP) Structure ( Horizontal Formation); using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and Double continuous Earth wire	38-41
5	Configuration 3: Estimated Cost (per Km) for 33 kV Double Circuit (DC) Line on Double Pole (DP) Structure (Vertical Formation); using Dog Conductor (100mm <sup>2</sup> : ACSR 6/1/4.72) and Double continuous Earth wire	42-45
6	Configuration 3A: Estimated Cost (per Km): [For 33 kV Multi Circuit (MC) Line on Multi Circuit Tower in Snow Zone using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and single continuous Earth wire] [MC & MD Type] - <b>For Snow Zone</b>	46-50
7	Configuration 3B: Estimated Cost (per Km): [For 33 kV Multi Circuit (MC) Line on Multi Circuit Tower in Snow Zone using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and single continuous Earth wire] [MA & MB Type] - <b>For Non-Snow Zone</b>	51-58
8	Configuration 4: Estimated Cost (per Km) for 11 kV Single Circuit (SC) Line on Single Pole (SP) Structure (Delta Formation); using Dog Conductor (100mm <sup>2</sup> : ACSR 6/1/4.72) and Single continuous Earth wire	59-62
9	Configuration 5: Estimated Cost (per Km) for 11 kV Double Circuit (DC) Line on Double Pole (DP) Structure ( Vertical Formation); using Dog Conductor (100 mm <sup>2</sup> / ACSR 6/1/4.72) and Single continuous Earth wire	63-66
10	Configuration 6: Estimated Cost (per Km) for 11 kV Line on Single Pole (SP) Structure; using AB Cable (3x70+95 mm <sup>2</sup> )	67
11	Configuration 7: Estimated Cost (per Km) for 11 kV Line 3Cx300 mm <sup>2</sup> Underground XLPE Cable	68-70
12	Configuration 8: Estimated Cost (per Km) for 3Φ LT Line on Single Pole (SP) Structure (Vertical Formation); using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and Single continuous Earth wire	71-73
13	Optional Configurations	74-75
14	Configuration 9: Estimated Cost for 25 kVA, 11/0.4 kV Pole Mounted Distribution Substation	76-77
15	Configuration 10: Estimated Cost for 25 kVA, 22/0.4 kV Pole Mounted Distribution Substation	78-79
16	Configuration 11: Estimated Cost for 400 kVA, 11/0.4 kV Outdoor Type Distribution Substation	80-81
17	Configuration 12: Estimated Cost for 6.3 kVA, 11/0.23 kV, 1-Ø Distribution Substation	82

18	Configuration 13: Estimated Cost for 1-Ø, 0.230 kV Domestic Service (DS) Connection upto 8 kW	83
19	Configuration 14: A) Estimated Cost for 1-Ø, 0.230 kV DS/NDNC/CS/ SIP/IDWPS Connection ≤ 20 kW; B) Estimated Cost for 3-Ø, 0.415 kV DS/ NDNC/ CS/ SIP Connection ≤ 20 kW	84-85
20	Configuration 15: Estimated Cost 3-Ø, 0.415 kV DS/ NDNC/ CS/ SIP/IDWPS Connection ≤ 50KW	86
21	Configuration 16: Erection of 3-Ø, 11 kV DS/ CS/ MIP/ IDWPS Connection above 50 kW to upto 100 kW	87-88
22	Configuration 17: Estimated Cost of Street Light	89
23	Configuration 18: Estimated Cost of 33/11 kV, 3.15 MVA Substation (with Single Power Transformer) (With Single 33 kV Incomer Bus / Bay, Single 11 kV Bus from Transformer, Single 11 kV Outgoing feeder)	90-100
24	<b>Civil Works</b>	<b>101-146</b>
	a) Estimated cost of various Control Room Buildings	101-118
	b) Estimated cost of RCC foundation for the 3.15 MVA to 6.3 MVA Power Transformer	119-121
	c) Estimated cost of RCC foundation for the 6.3 MVA to 10 MVA Power Transformer	122-126
	d) Estimated cost of Fire Wall/Baffle wall for 10 MVA 33/11 kV Power Transformers	127-128
	e) Estimated cost of Rain Water Harvesting Tank	129-130
	f) Estimated cost of Main Gate and Substation Yard Gate	131
	g) Estimated cost of boundary wall and retaining wall	132-134
	h) Estimated cost of VCB foundation	135-136
	i) Estimated cost of RS Joist Foundation	137-138
	j) Estimated cost of CT-PT,LA Foundation(33 kV)	139-140
	k) Estimated cost of Outdoor Cable trench	141-143
	l) Estimated cost of Indoor Cable trench	144-146
25	Erection/ Labour Charges	147-165
26	Transportation Charges	166-169
27	<b>Annexure 'A':</b> Various Charges and Taxes, Ratings & Specifications	170



**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Cable	Control	2.5 mm <sup>2</sup>	PVC(1.1 kV, 4C, HR FRLS, Cu, Un-Screen)	per/km	94067	Esc
Cable	Control	2.5 mm <sup>2</sup>	PVC(1.1 kV, 7C, HR FRLS, Cu, Un-Screen)	per/km	166258	Esc
Cable	Control	2.5 mm <sup>2</sup>	PVC(1.1 kV, 10C, HR FRLS, Cu, Un-Screen)	per/km	247199	Esc
Cable	Control	2.5 mm <sup>2</sup>	PVC(1.1 kV, 12C, HR FRLS, Cu, Un-Screen)	per/km	258137	Esc
Cable	Control	2.5 mm <sup>2</sup>	PVC(1.1 kV, 19C, HR FRLS, Cu, Un-Screen)	per/km	423301	Esc
Cable	Control	4 mm <sup>2</sup>	PVC(1.1 kV, 2C, HR FRLS, Cu, Un-Screen)	per/km	85317	Esc
Cable	Control	4 mm <sup>2</sup>	PVC(1.1 kV, 4C, HR FRLS, Cu, Un-Screen)	per/km	143288	Esc
Cable	Control	6 mm <sup>2</sup>	PVC(1.1 kV, 4C, HR FRLS, Cu, Screen)	per/km	237355	Esc
Cable	Control	6 mm <sup>2</sup>	PVC(1.1 kV, 7C, HR FRLS, Cu, Screen)	per/km	386112	Esc
Cable	Control	6 mm <sup>2</sup>	6 Core 1 mm Armoured Multicore FRLSCABLE	per/km	50805	SIV
Cable	LT	6 mm <sup>2</sup>	PVC(1.1 kV, 2C, Al, Outdoor)	per/km	10671	SIV
Cable	LT	10 mm <sup>2</sup>	PVC(1.1 kV, 2C, Al, Outdoor)	per/km	14739	SIV
Cable	LT	16 mm <sup>2</sup>	PVC(1.1 kV, 2C, Al, Outdoor)	per/km	26673	Esc
Cable	LT	25 mm <sup>2</sup>	PVC(1.1 kV, 2C, Al, Outdoor)	per/km	45944	SIV
Cable	LT	10 mm <sup>2</sup>	PVC(1.1kV, 4C, Cu, Armour)	per/km	260324	Esc
Cable	LT	16 mm <sup>2</sup>	PVC(1.1kV, 4C, Al, Un-Armour)	per/km	64006	Esc
Cable	LT	25 mm <sup>2</sup>	PVC(1.1kV, 4C, Al, Un-Armour)	per/km	90310	Esc
Cable	LT	16 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	61061	Esc
Cable	LT	25 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	84594	Esc
Cable	LT	35 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	107613	Esc
Cable	LT	50 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	144731	Esc
Cable	LT	70 mm <sup>2</sup>	XLPE (1.1kV, 3½ C, Al, )	per/km	190242	Esc
Cable	LT	95 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	248855	Esc
Cable	LT	120 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	299291	SIV
Cable	LT	150 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	363630	Esc
Cable	LT	185 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	478003	Esc
Cable	LT	240 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	646721	Esc
Cable	LT	300 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	811042	Esc

**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Cable	LT	400 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	986153	Esc
Cable	LT	500 mm <sup>2</sup>	PVC(1.1kV, 3½ C, Al, Un-Armour)	per/km	1136357	Esc
Cable	11kV Line	3 x 70 mm <sup>2</sup>	XLPE(11 kV, 3C, Al, Armoured)	per/km	564527	Esc
Cable	11kV Line	3 x 95 mm <sup>2</sup>	XLPE(11 kV, 3C, Al, Armoured)	per/km	716163	Esc
Cable	11kV Line	3 x 120 mm <sup>2</sup>	XLPE(11 kV, 3C, Al, Armoured)	per/km	823432	Esc
Cable	11kV Line	3 x 150 mm <sup>2</sup>	XLPE(11 kV, 3C, Al, Armoured)	per/km	873724	Esc
Cable	11kV Line	3 x 185 mm <sup>2</sup>	XLPE(11 kV, 3C, Al, Armoured)	per/km	1298599	Esc
Cable	LT	120 mm <sup>2</sup>	PVC(1.1kV, 3C, Al, Armour)	per/km	311577	Esc
Cable	LT	150 mm <sup>2</sup>	PVC(1.1kV, 3C, Al, Armour)	per/km	363629	Esc
Cable	LT	185 mm <sup>2</sup>	PVC(1.1kV, 3C, Al, Armour)	per/km	478003	Esc
Cable	LT	240 mm <sup>2</sup>	PVC(1.1kV, 3C, Al, Armour)	per/km	646721	Esc
Cable	LT	300 mm <sup>2</sup>	PVC(1.1kV, 3C, Al, Armour)	per/km	811042	Esc
Cable	LT	400 mm <sup>2</sup>	PVC(1.1kV, 3C, Al, Armour)	per/km	986153	Esc
Cable	LT	500 mm <sup>2</sup>	PVC(1.1kV, 3C, Al, Armour)	per/km	1136357	Esc
Cable	11kV Line	3 x 240 mm <sup>2</sup>	XLPE(11 kV, 3C, Al, Armoured)	per/km	1359800	Esc
Cable	11kV Line	3 x 300 mm <sup>2</sup>	XLPE(11 kV, 3C, Al, Armoured)	per/km	1499393	Esc
Cable	11kV Line	3 x 400 mm <sup>2</sup>	XLPE(11 kV, 3C, Al, Armoured)	per/km	1541386	Esc
Cable	22kV Line	3 x 50 mm <sup>2</sup>	XLPE(22 kV, 3C, Al, Armoured)	per/km	739361	SIV
Cable	22kV Line	3 x 95 mm <sup>2</sup>	XLPE(22 kV, 3C, Al, Armoured)	per/km	1006681	Esc
Cable	22kV Line	3 x 120mm <sup>2</sup>	XLPE(22 kV, 3C, Al, Armoured)	per/km	1036785	Esc
Cable	22kV Line	3 x 150mm <sup>2</sup>	XLPE(22 kV, 3C, Al, Armoured)	per/km	1946355	Esc
Cable	22kV Line	3 x 185 mm <sup>2</sup>	XLPE(22 kV, 3C, Al, Armoured)	per/km	1384444	Esc
Cable	22kV Line	3 x 240 mm <sup>2</sup>	XLPE(22 kV, 3C, Al, Armoured)	per/km	2556850	Esc
Cable	22kV Line	3 x 300 mm <sup>2</sup>	XLPE(22 kV, 3C, Al, Armoured)	per/km	2932440	Esc
Cable	22kV Line	3 x 400 mm <sup>2</sup>	XLPE(22 kV, 3C, Al, Armoured)	per/km	3453877	Esc
Cable	33kV Line	3 x 95mm <sup>2</sup>	XLPE(33 kV, 3C, Al, Armoured)	per/km	2061226	Esc
Cable	33kV Line	3 x 120mm <sup>2</sup>	XLPE(33 kV, 3C, Al, Armoured)	per/km	2351631	Esc
Cable	33kV Line	3 x 150mm <sup>2</sup>	XLPE(33 kV, 3C, Al, Armoured)	per/km	2489734	Esc

**MAIN COST DATABASE**

**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Cable	33kV Line	3 x 185mm <sup>2</sup>	XLPE(33 kV, 3C, Al, Armoured)	per/km	2749162	Esc
Cable	33kV Line	3 x 240mm <sup>2</sup>	XLPE(33 kV, 3C, Al, Armoured)	per/km	3145403	Esc
Cable	33kV Line	3 x 300mm <sup>2</sup>	XLPE(33 kV, 3C, Al, Armoured)	per/km	2156852	Esc
Cable	33kV Line	3 x 400mm <sup>2</sup>	XLPE(33 kV, 3C, Al, Armoured)	per/km	4090186	Esc
Cable	33kV Line	1 x 95 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	771831	Esc
Cable	33kV Line	1 x 120 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	847981	Esc
Cable	33kV Line	1 x 150 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	885411	Esc
Cable	33kV Line	1 x 185 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	984794	Esc
Cable	33kV Line	1 x 240 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	1113863	Esc
Cable	33kV Line	1 x 300 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	1304884	Esc
Cable	33kV Line	1 x 400 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	1492034	Esc
Cable	33kV Line	1 x 500 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	1831484	Esc
Cable	33kV Line	1 x 630 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	1015048	Esc
Cable	33kV Line	1 x 800 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	2457467	Esc
Cable	33kV Line	1 x 1000 mm <sup>2</sup>	XLPE(33 kV, 1C)	per/km	2998265	Esc
Cable	11kV Line	1 x 70 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	384625	Esc
Cable	11kV Line	1 x 95 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	428508	Esc
Cable	11kV Line	1 x 120 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	481426	Esc
Cable	11kV Line	1 x 150 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	529182	Esc
Cable	11kV Line	1 x 185 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	635018	Esc
Cable	11kV Line	1 x 240 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	798935	Esc
Cable	11kV Line	1 x 300 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	931876	Esc
Cable	11kV Line	1 x 400 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	1116444	Esc
Cable	11kV Line	1 x 500 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	1352640	Esc
Cable	11kV Line	1 x 630 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	1609486	Esc
Cable	11kV Line	1 x 800 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	1956681	Esc
Cable	11kV Line	1 x 1000 mm <sup>2</sup>	XLPE(11 kV, 1C)	per/km	2543943	Esc
Cable	22kV Line	3 x 95 +70mm <sup>2</sup>	XLPE(22 kV, 3C + Earth)	per/km	795653	Esc
Cable	ABC (11kV)	3 x 35+35 mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	513785	Esc
Cable	ABC (1.1kV)	3 x 35+16+25 mm <sup>2</sup>	XLPE(1.1 kV,)	per/km	122486	Esc
Cable	ABC (11kV)	3 x 50+16+35mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	164529	Esc
Cable	ABC (11kV)	3 x 70+35 mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	490762	Esc
Cable	ABC (11kV)	3 x 70+95 mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	587852	Esc
Cable	ABC (11kV)	3 x 95+70 mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	597110	Esc
Cable	ABC (11kV)	3 x 120+95 mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	693865	Esc
Cable	ABC (11kV)	3 x 35+70 mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	410670	Esc
Cable	ABC (11kV)	3 x 95+70+35 mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	533805	Esc
Cable	ABC (11kV)	3 x 70+70 mm <sup>2</sup>	XLPE(11 kV, 3C + Earth)	per/km	546577	Esc
Cable	ABC (LT)	3 x 50+35+35 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	178908	Esc
Cable	ABC (LT)	3 x 50+16+35 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	152516	SIV
Cable	ABC (LT)	3 x 50+35 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	127056	Esc
Cable	ABC (LT)	3 x 35+25+16 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	132005	Esc
Cable	ABC (LT)	3 x 35+16+25 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	118491	Esc
Cable	ABC (LT)	3 x 35+25 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	95523	Esc
Cable	ABC (LT)	3 x 120+95 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	693865	Esc
Cable	ABC (LT)	3 x 70+50+16 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	239429	Esc
Cable	ABC (LT)	3 x 70+16+50 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	201928	Esc
Cable	ABC (LT)	3 x 95+16+70 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	296084	Esc

**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Cable	ABC (LT)	3 x 95+70 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	597110	Esc
Cable	ABC (LT)	3 x 120+16+70 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	321344	SIV
Cable	ABC (LT)	3 x 70+50+35 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	235565	Esc
Cable	ABC (LT)	3 x 70+35+50 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	209065	Esc
Cable	ABC (LT)	3 x 70+50 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	201878	Esc
Cable	ABC (LT)	3 x 25+25+16 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	105874	Esc
Cable	ABC (LT)	3 x 25+16+25 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	89119	Esc
Cable	ABC (LT)	3 x 25+35+35 mm <sup>2</sup>	PVC(1.1kV, 3+1 C, Al)	per/km	192255	Esc
Cable Termination Kit	33 kV	1 x 630 mm <sup>2</sup> , Indoor Type	XLPE (33 kV, 1 C, Al) with armoured	per/Set	13126	Esc
Cable Termination Kit	33 kV	1 x 630 mm <sup>2</sup> , Outdoor Type	XLPE (33 kV, 1 C, Al) with armoured	per/Set	15313	Esc
Cable Termination Kit	11 kV	1 x 1000 mm <sup>2</sup> , Indoor Type	XLPE (11 kV, 1 C, Al) with armoured	per/Set	10938	Esc
Cable Termination Kit	11 kV	1 x 1000 mm <sup>2</sup> , Outdoor Type	XLPE (11 kV, 1 C, Al) with armoured	per/Set	13126	Esc
Cable Termination Kit	11 kV	3 x 185 mm <sup>2</sup> , Indoor Type	XLPE (11 kV, 3 C, Al) with armoured	per/Set	11157	Esc
Cable Termination Kit	11 kV	3 x 185 mm <sup>2</sup> , Outdoor Type	XLPE (11 kV, 3 C, Al) with armoured	per/Set	12360	Esc
Cable Termination Kit	11 kV	3 x 95+70 mm <sup>2</sup> , Outdoor Type	ABC (11 kV, 3 C, Al)	per/Set	6016	Esc
Cable Termination Kit	11 kV	3 x 70+35 mm <sup>2</sup> , Outdoor Type	ABC (11 kV, 3 C, Al)	per/Set	7438	Esc
Cable Termination Kit	11 kV	3 x 95+70 mm <sup>2</sup> , Outdoor Type	ABC (11 kV, 3 C, Al)	per/Set	7657	Esc
Cable Termination Kit	11 kV	3 x 120+95 mm <sup>2</sup> , Outdoor Type	ABC (11 kV, 3 C, Al)	per/Set	7711	Esc
Cable Termination Kit	11 kV	3 x 185+95 mm <sup>2</sup> , Outdoor Type	ABC (11 kV, 3 C, Al)	per/Set	7930	Esc
Capacitor Bank	11 kV	Thyristor Controlled along with Series Reactor	1200 kVAr	Each	795352	Esc
Capacitor Bank	11 kV	Thyristor Controlled along with Series Reactor	1800 kVAr	Each	1094951	Esc
Capacitor Bank	415V	for 25 kVA DTR	9 kVAr	Each	7150	Esc
Capacitor Bank	415V	for 63 kVA DTR	27 kVAr	Each	21451	Esc
Capacitor Bank	415V	for 100 kVA DTR	36 kVAr	Each	28601	Esc

**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Capacitor Bank	415V	for 250 kVA DTR	81 kVAr	Each	64353	Esc
Capacitor Bank	415V	for 400 kVA DTR	135 kVAr	Each	107254	Esc
Capacitor Bank	415V	for 630 kVA DTR	216 kVAr	Each	171607	Esc
Chemical Earth		With Back Fill Compound, Conductive gel, Cu bonded rod, Earth Pit Cap etc		kg	11418	Esc
Clamps	Half	For Steel Poles		per/No	158	Esc
Clamps	Full	For Steel Poles		per/No	273	Esc
Clamps	33 kV	Tension Type	For Line with Covered Conductor (CC)	per/No	2407	Esc
Clamps	11 kV	Tension Type	For line with Covered Conductor (CC)	per/No	1806	Esc
Clamps	0.415 kV	Suspension Type	For line with Covered Conductor (CC)	per/No	228	Esc
Communication Equipment	Auto Recloser	Router, Modem, M2M Gateway, Ethernet Switch, Control Cable, Panel for meters, Battery and Battery Charger, LAN Cables, Software		LS	1141772	Esc
Communication Equipment	Package Sub Station			LS	228354	Esc
Communication Equipment	Cable (OFC)	ADSS	6 pair /12 core	Per/km	74215	Esc
Communication Equipment	Cable (OFC)	ADSS	12 pair /24 core	Per/km	85633	Esc
Communication Equipment	Cable (OFC)	OPGW	12 pair /24 core	Per/km	285443	Esc
Communication Equipment	VSAT			per/set	114177	Esc
Communication Equipment	RTU	With Interface	For SCADA	Per/Set	1141772	Esc
Communication Equipment	Satellite Phone			Per/Set	137013	Esc
Communication Equipment	Radio Frequency			Per/Set	319696	Esc
Communication Equipment	Terminal Equipment	With STM-1	SCADA	Per/Set	2854430	Esc
Conductor	ACSR	30 mm <sup>2</sup> , 6/1/2.59 mm (Weasel)		Per/km	27364	SIV

**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Conductor	ACSR	50 mm <sup>2</sup> , 6/1/3.35 mm (Rabbit)		per/km	47146	SIV
Conductor	ACSR	80 mm <sup>2</sup> 6/1/4.09 mm (Racoon)		per/km	63320	Esc
Conductor	ACSR	100mm <sup>2</sup> , 6/1/4.72 mm (Dog)		per/km	80362	Esc
Conductor	ACSR	150 mm <sup>2</sup> 30/7/2.59 mm (Wolf)		per/km	136878	Esc
Conductor	ACSR	200mm <sup>2</sup> , 30/7/3.00 mm (Panther)		per/km	158467	Esc
Conductor	AAAC	34 mm <sup>2</sup> , 7/2.50 mm (Eq. to Weasel)		per/km	21897	Esc
Conductor	AAAC	55 mm <sup>2</sup> , 7/3.15 mm (Eq. to Rabbit)		per/km	34349	Esc
Conductor	AAAC	80mm <sup>2</sup> , 7/3.81 mm (Eq. to Racoon)		per/km	48286	SIV
Conductor	AAAC	100mm <sup>2</sup> , 7/4.26 mm (Eq. to Dog)		per/km	59537	SIV
Conductor	AAAC	150mm <sup>2</sup> , 19/3.48 (Ash)		per/km	114177	Esc
Conductor	AAAC	175mm <sup>2</sup> , 19/3.76 (Elm)		per/km	142721	Esc
Conductor	AAC	50 mm <sup>2</sup> , 7/3.10(Ant)		per/km	32200	Esc
Conductor	AAC	7/2.21(Gnat)		per/km	16435	Esc
Conductor	ACSS (HTLS / Composite)	(Linnet)		per/km	176203	Esc
Conductor	Covered Conductor	0.415 kV	(XLPE, AAAC, 0.6 kV, 100mm <sup>2</sup> ) [EN 50397-1:2006]	per/km	228342	Esc
Conductor	Covered Conductor	11kV	(XLPE, AAAC, 12kV, 245 Amps, 70mm <sup>2</sup> ) [EN 50397-1:2006]	per/km	349382	Esc
Conductor	Covered Conductor	11kV	(XLPE, AAAC, 12kV, 305 Amps, 99mm <sup>2</sup> ) [EN 50397-1:2006]	per/km	487541	Esc
Conductor	Covered Conductor	22kV	(XLPE, AAAC, 24kV, 245 Amps, 70mm <sup>2</sup> ) [EN 50397-1:2006]	per/km	406471	Esc
Conductor	Covered Conductor	22kV	(XLPE, AAAC, 24kV, 305 Amps, 99mm <sup>2</sup> ) [EN 50397-1:2006]	per/km	522932	Esc
Conductor	Covered Conductor	33kV	(XLPE, AAAC, 36kV, 245 Amps, 70mm <sup>2</sup> ) [EN 50397-1:2006]	per/km	463559	Esc
Conductor	Covered Conductor	33kV	(XLPE, AAAC, 36kV, 305 Amps, 99mm <sup>2</sup> ) [EN 50397-1:2006]	per/km	580020	Esc
Connector	Insulation Piercing Connector (IPC)	33 kV	Bare Conductor to cover conductor	per/No.	4073	Esc

**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Connector	Insulation Piercing Connector (IPC) with Aluminium bail	33 kV	For temporary Earthing (maintenance purpose)	per/No.	6276	Esc
Connector	Insulation Piercing Connector (IPC)	33 kV	Covered Conductor to cover conductor	per/No.	3876	Esc
Connector	Insulation Piercing Connector (IPC)	11 kV	Bare Conductor to cover conductor	per/No.	2499	Esc
Connector	Insulation Piercing Connector (IPC) with Aluminium bail	11 kV	For temporary Earthing (maintenance purpose)	per/No.	3981	Esc
Connector	Insulation Piercing Connector (IPC)	11 kV	Covered Conductor to cover conductor	per/No.	2314	Esc
Connector	Insulation Piercing Connector (IPC)	0.415 kV	For Street Light Connection	per/No.	136	Esc
Mid Span Joint	Covered Conductor	33 kV		per/No.	1778	Esc
Mid Span Joint	Covered Conductor	11 kV		per/No.	1333	Esc
Mid Span Joint	Covered Conductor	0.415 kV		per/No.	116	Esc
Cross Arms	11kV	HDGI	V-shape	per/No.	1127	Esc
Cross Arms	33kV	HDGI	V-shape	per/No.	1723	Esc
CT-PT Unit	33kV	PT(1 Unit, 33 kV/110 V) ; CT(3 No, 25-400/1A)	Accuracy Class: 0.5S	per/Set	94220	Esc
CT-PT Unit	33kV	CT/PT combined unit 33 KV /110V 25/1 A		per/Set	65664	Esc
CT-PT Unit	11kV	PT(1 Unit, 11 kV/110 V) ; CT(3No, 10/5 A)		per/Set	29411	Esc
CT-PT Unit	11kV	CT/PT combined unit 15 KV /110V 200/5 A		per/Set	22577	Esc
CT-PT Unit	11kV	CT/PT combined unit 15 KV /110V 50/1 A		per/Set	22860	Esc
CT-PT Unit	11kV	CT/PT combined unit 15 KV /110V 100-300/1 A		per/Set	22859	Esc
CT-PT Unit	11kV	PT(1 Unit, 11 kV/110 V) ; CT(3No, 10/5A)	Accuracy Class: 0.5S	per/Set	29411	Esc
CT-PT Unit	22kV	CT PT Unit O/T Ratio(100/5A)		per/Set	55366	Esc
CT-PT Unit	22kV	CT PT Unit O/T Ratio(25/5A)		per/Set	55009	Esc

**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
CT-PT Unit	22kV	CT PT Unit O/T Ratio(50/5A)		per/Set	55261	Esc
CT-PT Unit	22kV	CT PT Unit O/T Ratio(200/5A)		per/Set	55068	Esc
Current Transformer	33kV	1200-600/1-1-1-1-0.577A		Each	59000	PO
Current Transformer	33kV	800-400/1-1-1-1-1 A		Each	49221	Esc
Current Transformer	33kV	400-200/1-1-1-1 A		Each	48127	Esc
Current Transformer	33kV	400-200/1-1-1 A		Each	43957	Esc
Current Transformer	33kV	600-300/1-1-1 A		Each	46958	Esc
Current Transformer	33kV	300-150/1-1-1 A		Each	41080	PO
Current Transformer	33kV	200-100/1-1-1-1 A		Each	48010	PO
Current Transformer	33kV	10-5/1-1-1-1 A		Each	48010	PO
Current Transformer	33kV	400-200/5-5 A		Each	53804	Esc
Current Transformer	33kV	400-200/1-1 A		Each	53804	Esc
Current Transformer	33kV	Resin cast 25/5 A		Each	31569	Esc
Current Transformer	33kV	Resin cast 50/5 A		Each	31569	Esc
Current Transformer	33kV	Resin cast 100/5 A		Each	31569	Esc
Current Transformer	22kV	400-200/1-1-1-1 A		Each	41080	PO
Current Transformer	22kV	200-100/1-1-1-1 A		Each	41080	PO
Current Transformer	22kV	150-75/1-1-1-1 A		Each	57089	Esc
Current Transformer	22kV	100-50/1-1-1-1 A		Each	57089	Esc
Current Transformer	11kV	Epoxy cast, Indoor, 50/5, 15VA, Class 0.5		Each	11932	Esc
Current Transformer	11kV	Epoxy cast, Indoor, 25/5, 15VA, Class 0.5		Each	11932	Esc
Current Transformer	11kV	Epoxy cast, Indoor, 12.5/5, 15VA, Class 0.5		Each	12434	Esc
Current Transformer	22kV	150-75/1-1-1-1 A		Each	41080	PO
Current Transformer	22kV	100-50/1-1-1 A		Each	41080	PO
Danger Plate	440 V				101	SIV
Danger Plate	11 KV				104	SIV
Danger Plate	22 KV				102	SIV
Earthing Set					656	SIV



**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Energy Meters	33 KV	110 V Trivectometer 600/1 A		Each	5015	Esc
Energy Meters	33 KV	110 V ATrivectometer 75/5 A		Each	5867	Esc
Energy Meters	33 KV	110 V ATrivectometer 300/5 A		Each	5813	Esc
Energy Meters	HT	3-φ, 3/4 wire CT-PT operated Static Tri-Vector meter. (PT ratio-/ 110 V, CT ratio-/5 A)	Accuracy Class: 0.5S, Category-B, DLMS Compliant with RS 232 & RS 485 port	Each	6453	Esc
Energy Meter	11 kV	11KV/110 V CT-PT Operated electronic Tri-Meter 200/5 A		Each	5551	Esc
Energy Meters	HT	3-φ, 3/4 wire CT-PT operated Static Tri-Vector meter- "Category-B" (PT ratio-/ 110 V, CT ratio-/5 A)	Accuracy Class: 0.5S, Category-C, DLMS Compliant with RS 232 & RS 485 port	Each	6453	Esc
Energy Meters	LT	3-φ, 4 wire CT operated Static Tri-Vector meter (CT-50/5A)	Accuracy Class: 0.5S, Category-C, DLMS Compliant	Each	14310	PO
Energy Meters	LT	3-φ, 4 wire CT operated Static Tri-Vector meter with Box (CT-100/5A)	Accuracy Class: 0.5S, Category-C, DLMS Compliant	Each	14250	PO
Energy Meters	LT	3-φ, 4 wire CT operated Static Tri-Vector meter (CT-300-400/5 A)	Accuracy Class: 0.5S, Category-C, DLMS Compliant	Each	13820	PO
Energy Meters	LT	3-φ, 4 wire CT operated Static Tri-Vector meter (CT-500/5A)	Accuracy Class: 0.5S, Category-C, DLMS Compliant	Each	13740	PO
Energy Meters	LT	3-φ, 4 wire CT operated Static Tri-Vector meter with Box (CT-600/5 A)	Accuracy Class: 0.5S, Category-C, DLMS Compliant	Each	14650	PO
Energy Meters	LT	3-φ, 4 wire CT operated Static Tri-Vector meter with Box (CT-1000/5 A)	Accuracy Class: 0.5S, Category-C, DLMS Compliant	Each	16200	PO
Energy Meters		3 phase, 4-Wire, Static Tri-Vector meter (DLMS compliant of accuracy class 0.5s , system of capacities- /110 V and CT ratio - /5 Amp of"Category C"meter )	Accuracy Class: 0.5	per No.	6600	PO
Energy Meters	LT	LTAC Single Phase kWh Meter (ISI Marked 1-Ph, Two Wire, 5-30 A)	Accuracy Class: 1.0	per/No	580	PO

**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Energy Meters	LT	LTAC Single Phase kWh Meter (ISI Marked 1-Ph, Two Wire, 10-60 A)	Accuracy Class: 1.0	per/No	630	PO
Smart Energy Meters	LT	Single Phase whole current smart meters(10-60A) with Box	Accuracy Class: 1.1	per/No	3295	Esc
Smart Energy Meters	LT	Three Phase whole current smart meters(10-60A) with Box	Accuracy Class: 1.2	per/No	5000	PO
Energy Meters	LT	LTAC Three- Phase kWh Meter (ISI Marked 3-Ph, 4-Wire, 10-60 A)	Accuracy Class: 1.0	per/No	5248	Esc
Energy Meters	LT	Metal Meter Box (MMBs) (CRCA M.S. Sheet Deep Drawn for housing 1-Ph Energy meters)		per/No	494	Esc
Modular RF Mesh Module		Installation with each smart meters		per/No	1726	Esc
Danger Plate		203X200X1.6 mm		per/No	132	Esc
Fault Path Indicator	7kV - 69kV	Clipon Type (3 No., 25KA / 170ms, conductor dia -5 to 22mm, Op temp - -40° to +85°)		Set	37678	Esc
Fitting	Top Fitting	HDGI for LT/11 kV RCC pole		No	186	Esc
Fitting	Top Fitting	HDGI for LT/11 kV RCC pole		No	186	Esc
Fitting	Packing Pieces	CI for Rail Pole 11 /13m		per/No	170	Esc
Fitting	Packing Pieces	CI for Rail Pole 9m		per/No	170	Esc
Fuse wire	Tinned Copper Wire	200 Amp		per/KG	833	SIV
Fuse wire	Tinned Copper Wire	300 Amp		per/KG	809	SIV
Fuse wire	Tinned Copper Wire	130 Amp	(13 SWG)	per/KG	845	SIV
Fuse wire	Tinned Copper Wire	78.0 Amp	(15 SWG)	per/KG	809	SIV
Fuse wire	Tinned Copper Wire	65 Amp	(17 SWG)	per/KG	845	SIV
Fuse wire	Tinned Copper Wire	34 Amp	(20 SWG)	per/KG	845	SIV
Fuse wire	Tinned Copper Wire	10 Amp	(29 SWG)	per/KG	845	SIV
Fuse wire	Tinned Copper Wire	16 Amp		per/KG	810	SIV
HRC Fuse		200 Amp			625	SIV
HRC Fuse		400 Amp			850	SIV

**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
HRC Fuse		315 Amp			640	PO
HRC Fuse		500 Amp			1030	PO
H.G. Fuse unit 11 kV 200 Amps				Set	8164	Esc
Heavy duty ball link 30/7/2.59 mm cond					165	SIV
Heavy duty ball link 1200 mm Long					127	SIV
11 KV HEAT SHRINK ST JT BOX 3X70MM XLPE			S/T	No	9676	SIV
11 KV HEAT SHRINK ST JT BOX 3X120MM XLPE			S/T	No	12120	SIV
11 KV HEAT SHRINK ST JT BOX 3X185MM XLPE			S/T	No	12005	SIV
11 KV HEAT SHRINK ST JT BOX 3X300MM XLPE			S/T	No	15895	SIV
11 KV HEAT SHRINK ST JT BOX For AB Cable 3X70MM			S/T	No	6915	SIV
11 KV HEAT SHRINK ST JT BOX 3X240MM			ID	No	6140	PO
11 KV HEAT SHRINK ID BOX 3X300MM			ID	No	5846	SIV
11 KV HEAT SHRINK ID BOX 3X400MM			ID	No	6017	SIV

**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
11 KV HEAT SHRINK ID BOX 3X240MM Cable PILC				No	5700	SIV
11 KV HEAT SHRINK ID BOX 3X300MM Cable PILC					5700	SIV
11 KV HEAT SHRINK OD BOX 3X70MM					6665	SIV
11 KV HEAT SHRINK OD BOX 3X95MM					6976	SIV
11 KV HEAT SHRINK OD BOX 3X120MM					6998	SIV
11 KV HEAT SHRINK OD BOX 3X185MM					7538	SIV
11 KV HEAT SHRINK OD BOX 3X240MM					7908	SIV
11 KV HEAT SHRINK OD BOX 3X300MM					7850	SIV
11 KV HEAT SHRINK OD BOX 3X400MM					8171	SIV
33 kV Heat Shrink Kit 3C X 300 mm XLPE O/D					6950	PO
33 kV Heat Shrink Kit 1X 95 mm XLPE O/D					18833	SIV
33 kV Heat Shrink STJT Box 3C X 300 mm XLPE					27057	SIV

**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
11 KV XLPE HEAT SHRINK Term KIT 3x95 mm(O/D)					774	SIV
33 kV Heat Shrink Term XLPE 1X1000 (OD)					19853	SIV
11 KV XLPE HEAT SHRINK Term KIT 3x185 mm(I/D)					4195	SIV
11 KV XLPE HEAT SHRINK Term KIT 3x240 mm(O/D)					8236	SIV
11 KV XLPE HEAT SHRINK Term KIT 3x300 mm(I/D)					5976	SIV
11 KV XLPE HEAT SHRINK Term KIT 3x400 mm(O/D)					8290	SIV
11 kV Heat Sahrink term kit ABC 3CX185 mm (O/D)					7190	SIV
22 KV XLPE HEAT SHRINK Box ST TH 3 C 300 mm					19162	SIV
33 KV HS End Termination Kit 300 mm(O/D)					11392	SIV

**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
22 KV HEAT SHRINK Term KIT 3x70 mm					14290	SIV
33 KV ID Termination Kit For ICX630 mm Cable					10049	SIV
33 kV Heat Shrink Term Kit 1X185 O/D					9995	SIV
33 kV Heat Shrink Term Kit 1X240 O/D					11449	SIV
33 kV Heat Shrink Term Kit 1X300 I/D					8700	SIV
33 kV Heat Shrink Term Kit 1X400 O/D					98342	SIV
33 kV Heat Shrink Term Kit 1X400 I/D					7485	SIV
33 kV Heat Shrink ST Box 1X500					21594	SIV
33 kV Heat Shrink Term Kit 1X500					19555	SIV
ICTPN		63A/415V		per/No	2385	Esc
Insulator	Dead End Clamp	6/1/4.72mm ACSR Cond			460	SIV

**MAIN COST DATABASE**

**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Insulator	Dead End Clamp	6/1/3.35mm ACSR Cond			460	PO
Insulator	Dead End Clamp	7/3.81mm ACSR Cond			450	PO
Insulator	Eye Hook				50	PO
Insulator	LT	D Iron		Nos	70	SIV
Insulator	Ball Cleave eye socket 11 kV 4500 GMS	11 KV			178	PO
Insulator	Ball Cleave eye socket 11 kV/22 kV 7500 GMS	11/22 KV			191	PO
Insulator	Eye socket				14	SIV
Insulator	Bend Staple				119	PO
Insulator	33 kV	Disc(Porcelain: 36kV,BS, 90 KN)	CD- 900mm	per/No	2379	Esc
Insulator	11 kV	Disc(Porcelain: 12kV,BS, 45 KN)	CD- 230mm	per/No	266	Esc
Insulator	11 kV	Disc(Porcelain: 12kV,BS, 45 KN)	CD- 400mm	per/No	343	Esc
Insulator	11 kV	Disc(Porcelain: 12kV, BS, 90 KN)	CD- 320mm	per/No	433	Esc
Insulator	11 kV	Disc(Porcelain: 12kV, BS, 90 KN)	CD- 400mm	per/No	457	Esc
Insulator	11 kV	Disc(Porcelain: 12kV, CT, 45 KN)	CD-320mm	per/No	224	Esc
Insulator	11 kV	Disc(Porcelain: 12kV, CT, 90 KN)		per/No	147	Esc
Insulator	15 kV	Disc(Glass: 15kV, BS, 90 KN)		per/No	514	Esc
Insulator	33kV	Pin(Porcelain, 36kV, 10 KN)	IS-731/1971	per/No	583	Esc
Insulator	33kV	Pin(Porcelain, 36kV)	CD- 580mm	per/No	397	Esc
Insulator	33kV	GI Pin for 33 KV Pin insulator		per/No	131	Esc
Insulator	22kV	Pin(Porcelain, 24kV, 10 KN)	CD 430	per/No	406	Esc
Insulator	22kV	GI Pin for 22 KV Pin insulator		per/No	106	Esc
Insulator	22 KV	Pin(Porcelain, 24kV, 10 KN)	CD-560 mm		348	SIV
Insulator	22kV	Pin(Porcelain, 24kV, 10KN)	IS-731/1971	per/No	404	Esc
Insulator	11kV	Pin(Porcelain, 12kV, 5KN)		per/No	154	Esc
Insulator	11kV	Pin(Porcelain, 12kV, 5KN)	CD- 230mm	per/No	135	Esc
Insulator	11kV	Pin(Porcelain)	CD- 320mm	per/No	154	Esc
Insulator	11kV	Disc(Polymeric,TC, 45 KN)	CD- 320mm	per/No	163	Esc

**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Insulator	11kV	Disc(Polymeric,TC, 90 KN)	CD- 320mm	per/No	263	Esc
Insulator	11kV	Disc(Polymeric,BS, 90 KN)	CD-320	per/No	372	Esc
Insulator	11kV	Disc(Polymeric, BS, 45 KN)	CD-320	per/No	165	Esc
Insulator	11kV	Disc(Polymeric, BS, 45 KN)	CD-400 B&S type	per/No	316	Esc
Insulator	11kV	Pin (Polymeric,BS, 5 KN)		per/No	171	Esc
Insulator	11kV	Pin (Polymeric,TC, 5 KN)		per/No	171	Esc
Insulator	33kV	Pin (Polymeric,BS, 10 KN)		per/No	371	Esc
Insulator	33kV	Pin (Polymeric, TC, 10 KN)		per/No	371	Esc
Insulator	33kV	Disc(Polymeric)	With fittings	per/No	1028	Esc
Insulator	HT	Egg		per/No	32	Esc
Insulator	LT	Egg		per/No	21	Esc
Insulator	LT	Shackle(16KN)	3X3 1/2"	per/No	42	Esc
Insulator	LT	Shackle(11.5KN)	4x4X1/2"	per/No	15	Esc
Insulator	LT	Pin(3.5KN)		per/No	8	Esc
Insulator	15kV	Break(88KN)		per/No	148	Esc
Insulator	8kV	Break(44KN)		per/No	126	Esc
Insulator	11kV	Post		per/No	457	Esc
Insulator	33kV	Rod		per/No	5252	Esc
Insulator	LT	Guy		per/No	20	SIV
Insulator	LT	Guy (90x65 mm, 44 KN)	Type-A	per/No	15	Esc
Insulator	LT	Guy (110x75 mm, 53KN)	Type-B	per/No	21	Esc
Insulator	HT	Guy		per/No	29	SIV
Kit Kat Fuse		500A, 415V		per/No	620	PO
Kit Kat Fuse		400A, 415V		per/No	536	PO
Kit Kat Fuse		100A, 415V		per/No	829	Esc
Kit Kat Fuse		320A, 415V	with extension strip	per/No	2778	Esc
Kit Kat Fuse		300A, 415V		per/No	490	PO
Kit Kat Fuse		16A, 240V		per/No	22	Esc
Kit Kat Fuse		32A, 240V		per/No	34	Esc
Kit Kat Fuse		32A, 415V		per/No	237	Esc
Kit Kat Fuse		63A, 415V		per/No	468	Esc
Kit Kat Fuse		200A, 415V		per/No	260	PO
LT Spacer 1 phase 2 wire					36	SIV
LT Spacer 2 phase 3 wire composite type					45	SIV



**MAIN COST DATABASE**

**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
LT Spacer 3 phase 4 wire composite type					52	SIV
Lightning Arrestor / Surge Arrestor	11kV	Porcelain(9kV, 5KA)		per/Set	1165	Esc
Lightning Arrestor / Surge Arrestor	11kV	Porcelain(9kV, 10KA, Station)		per/Set	5709	Esc
Lightning Arrestor / Surge Arrestor	33kV	Porcelain(30kV, 5KA, Station)		per/Set	6851	Esc
Lightning Arrestor / Surge Arrestor	33kV	Porcelain(30kV, 10KA, Station)		per/Set	16556	Esc
Lightning Arrestor / Surge Arrestor	33kV	Polymeric(30kV, 10KA)		per/Set	7192	Esc
Lightning Arrestor / Surge Arrestor	22kV	Polymeric(18kV, 5KA)		per/Set	987	Esc
Lightning Arrestor / Surge Arrestor	22kV	Polymeric(18kV, 10KA)		per/Set	5024	Esc
Lightning Arrestor / Surge Arrestor	11kV	Polymeric(9kV, 10KA)		per/Set	3004	Esc
Lightning Arrestor / Surge Arrestor	11kV	Polymeric(9kV, 5KA)		per/Set	1414	Esc
Muff 2000 mm long for the STP					850	PO
Muff (For ST Pole)		With concrete filling		per/No	1769	Esc
Megger	2500 V	/5000Ohm Hand op		per/No	17038	Esc
MCB	32 Amp				307	SIV
MCB	63 Amp				625	SIV
MCCB	LT	100A		per/No	10651	Esc
MCCB	LT	250A		per/No	20859	Esc
MCCB	LT	400A		per/No	25920	Esc
MCCB	LT	630A		per/No	37028	Esc

**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
MCCB	LT	1250A 50kA 4 Pole fixed ACB		per/No	209087	Esc
Nut & Bolt	150X16 mm				87	SIV
Nut & Bolt	175x16mm				90	SIV
Nut & Bolt	200X16 mm				136	SIV
Nut & Bolt	600X16 mm				10	SIV
Nut & Bolt	1"x1/2"				14	SIV
Pully	Single Sleeve	Cap 1 Ton Block			5711	SIV
Paints		Aluminium paint.	Water resistant & Fire Proof	per/Ltr	345	Esc
Paints		Red oxide paint.		per/Ltr	151	Esc
Paints		Aircraft Gray paint.		per/Ltr	188	Esc
Transformer Oil				per/Ltr	67	Esc
Panel(Bus Coupler)	11kV	With VCB(12 kV, 1250A, 25 kA)		Each	474977	Esc
Panel(Distribution Box LT)	25 kVA DTR	With MCCB(10KA, 4P, 1No) & SFU(32A, 4No, rewirable)		per/No	21825	Esc
Panel(Distribution Box LT)	63 kVA DTR	With MCCB(100A, 10KA, 4P, 1No) & SFU(32A, 4No, rewirable)		per/No	10600	PO
Panel(Distribution Box LT)	100 kVA DTR	With MCCB(160A, 10KA, 4P, 1No) & SFU(32A, 5No, rewirable)		per/No	30599	Esc
Panel(Distribution Box LT)	250 kVA DTR	With MCCB(400A, 36KA, 4P, 1No) & SFU(100A, 4No, rewirable)		per/No	82093	Esc
Panel(Distribution Box LT)	400kVA DTR	With ACB(630A, 50KA, 4P, 1No) & SFU(100A, 6No, rewirable)		per/No	217622	Esc
Panel(Distribution Box LT)	630 kVA DTR	With ACB(1000A, 50KA, 4P, 1No) & SFU(100A, 9No, rewirable)		per/No	263635	Esc
Panel(Distribution Box LT)	6.3 kVA DTR	With MCCB(15A, 10KA, 2P) & SFU(16A, 1No, rewirable)		per/No	4110	Esc
Panel(Distribution Box LT)	16kVA DTR	With MCCB(32A, 10KA, 2P) & SFU(16A, 2No, rewirable)		per/No	4795	Esc
Panel(Distribution Box LT)	25 kVA DTR	With MCCB(40A, 35KA, 4P) & SFU(16A, 4No, rewirable)		per/No	22036	Esc
Distribution Box LTAB	Single Phase	I/C- 1, O/G-4-9 (140 -200 A, 0.230 kV)	Spring Loaded, I/C cable- upto 70 mm <sup>2</sup> ; O/G cable- 2.5 to 50 mm <sup>2</sup>	per/No	3369	Esc
Distribution Box LTAB	Three Phase	I/C- 1, O/G-2-4 (140 -200 A, 0.415 kV)	Spring Loaded, I/C cable- upto 70 mm <sup>2</sup> ; O/G cable- 2.5 to 50 mm <sup>2</sup>	per/No	4447	Esc

**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Pole	Steel Tubular	8m		per/No	8820	PO
Pole	Steel Tubular	9m		per/No	12600	PO
Pole	Steel Tubular	10m		per/No	20611	SIV
Pole	Steel Tubular	11m		per/No	18706	SIV
Pole	Steel Tubular	13m		per/No	28086	Esc
Pole	Rail	I Beam (19.6 Kg/m, 9m long)		per/No	13865	MR
Pole	Rail	H Beam (37.1Kg/m, 11m)		per/No	32077	MR
Pole	Rail	H Beam (37.1Kg/m, 13m)		per/No	37909	MR
Pole	PSCC	8m		per/No	3429	Esc
Pole	PSCC	9.5m		per/No	3768	Esc
Pole	PSCC	7.5m		per/No	4561	Esc
Pole	PCC	8m		per/No	3940	PO
Pole	PCC	9m		per/No	4330	PO
Pole	PCC	9.75m		per/No	6540	PO
Pole	PCC	10m		per/No	6926	Esc
Pole	PCC	11m		per/No	7422	Esc
Pole	Lattice Structure	13m		per/No	36537	Esc
Pole Top Bracket				Per/No	197	PO
Potential Transformer	33kV	(33 kV/√3/ 110V/√3-110/√3-110V)		Each	34320	PO
Potential Transformer	22 KV	(22 kV/√3/ 110V/√3-110/√3-110V)		Each	34320	PO
Potential Transformer	11 KV	(11 kV/√3/ 110V/√3-110/√3-110V)		Each	17670	PO
Reactor	33kV			Each	162132	Esc
Rope	PP	18mm		Per /mtr	152	SIV
Rope	PP	24mm		Per /mtr	180	SIV
Rope	PP	21mm		Per /mtr	150	SIV
Rope	PP	32mm		Per /mtr	150	SIV
Silica Gel				per /kg	198	SIV
Safety & Protective Gear	Rain Coat				800	SIV
Safety & Protective Gear	Snow Kit			per/No	5252	Esc
Safety & Protective Gear	Safety Belt / Safety Harness	Full body Harness Type with adjustable leg and shoulder straps and scaffolding hooks	Tensile Strength (Max 24KN)	per/No	1887	Esc
Safety & Protective Gear	Earth Discharge Rod	Fibre Glass Material, Telescopic Type (4m - 20m)		per/No	7680	Esc

**MAIN COST DATABASE**  
**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Safety & Protective Gear	Gum Boots		Industrial Grade	per/Pair	560	SIV
Safety & Protective Gear			Industrial Grade	per/Pair	7092	Esc
Safety & Protective Gear	Hand Gloves		11kV Grade	per/Pair	878	SIV
Safety & Protective Gear	Shelmet (Helmet)			per/No	174	Esc
Safety & Protective Gear	Fire Extinguisher	ABC Type(Portable, Dry Chemical, 2 kg)		per/No	1256	Esc
Safety & Protective Gear	Fire Extinguisher	ABC Type(Portable, Dry Chemical, 4 kg)		per/No	1827	Esc
Safety & Protective Gear	Fire Extinguisher	ABC Type(Portable, Dry Chemical, 6 kg)		per/No	2226	Esc
Safety & Protective Gear	Fire Extinguisher	ABC Type(Portable, Dry Chemical, 9 kg)		per/No	2740	Esc
Safety & Protective Gear	Fire Extinguisher	ABC Type(Portable, Dry Chemical, 25 kg)		per/No	12559	Esc
Spacer	LT	Spiral 3-Φ		per/No	69	Esc
Spacer	LT	Spiral 2-Φ		per/No	59	Esc
Safety & Protective Gear	Examination Glove				654	SIV
Safety & Protective Gear	Earthing Discharge Rod				7021	SIV
Safety & Protective Gear	Helmets				151	SIV
Safety & Protective Gear	Head And Face cover shield				63	SIV
Safety & Protective Gear	Safety belt harness				1720	SIV
Steel Sections		MS Channel	75x40x6	Rs/Mtr	622	MR
Steel Sections		MS Channel	100x50x5	Rs/Mtr	884	MR
Steel Sections		MS Channel	125x65x6	Rs/Mtr	1239	MR
Steel Sections		MS Channel	150x75x6.5	Rs/Mtr	1720	MR

**MAIN COST DATABASE**

**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Steel Sections		MS Angle	50x50x6	Rs/Mtr	416	MR
Steel Sections		MS Angle	65x65x6	Rs/Mtr	536	MR
Steel Sections		MS Angle	75x75x6	Rs/Mtr	629	MR
Steel Sections		MS Angle	35x35x6	Rs/Mtr	277	MR
Steel Sections		MS Flat	25x5	Rs/Mtr	92	MR
Steel Sections		MS Flat	50x6	Rs/Mtr	222	MR
Steel Sections		MS Flat	40x6	Rs/Mtr	176	MR
Steel Sections		MS Joist	250x125	Rs/Mtr	3450	MR
Stay set		LT		Set	886	PO
Stay set		HT		Set	1077	PO
Stay set		HT(33 kV)		Set	1270	PO
Stay Clamp					217	PO
Support Clamp					207	PO
Straight Through Joining kit	11 KV	3 CORE	300 mm2	per/No	16628	Esc
Switchgear [Gas Insulated (GIS) Panel]	33kV	1250A, 25kA/3-sec, Double Bus-Bar Gas Insulated, Fixed Type VCB Panel, Indoor Type	Incomer VCB-3 Nos; Outgoing VCB- 2 Nos; Bus Coupler- 1 No; Bus PT Panel- 1 Nos; Industrial Grade Networking Switch- 1 Nos; Touchproof Cable Termination kit- 5 Nos etc	LS	22119306	Esc
Switchgear [Gas Insulated (GIS) Panel]	33kV control and relay and pannel	33kv Indoor GIS Switchgear 2000A	(2 Incomer with VCB + 4 Outgoing with VCB) etc	LS	16401783	Esc
Switchgear [Control and	33kV control and relay and pannel	Transformer panel with differential relay and REF relay			332940	PO
	33kV control and relay and pannel	Transformer C&R pannel with differential relay and without REF relay			297890	PO
	33kV control and relay and pannel	Transformer pannel without differntial relay and without REF relay			239480	PO

**MAIN COST DATABASE**

**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
relay Pannel]	33kV control and relay and pannel	Feeder Pannel			271600	PO
	33kV control and relay and pannel	Bus coupler pannel			271600	PO
	22 KV Control and relay pannel	Transformer panel with differential relay and without REF relay			238310	PO
		Feeder Pannel			207940	PO
Switchgear	11 kV	Control and Relay (CR) Panel with VCB (12 kV, 1250 A, 25KA) [Numeric Relay, IEC 61850]			631620	PO
Switchgear (Air Insulated Panel)	11 kV	1250A, 25kA/3-sec, Single Bus-Bar Air Insulated VCB for BIL 38kV/95kVp, SCADA compatible, Indoor Type	Incomer VCB- 2 Nos; Outgoing VCB- 6 Nos; Bus Sectionalizer Panel- 1 No; Industrial Grade Networking Switch- 1 Nos etc	LS	6930331	Esc
Switchgear (Auto Recloser)	11kV	Auto Recloser(interruption: Vaccum, Insulation: Solid Dielectric, with C/R Panel and without Communication) etc	15.5 kV, 630 A, 12.5KA	per/No	629436	Esc
Switchgear (Auto Recloser)	33kV	Auto Recloser(interruption: Vaccum, Insulation: SF6, With C/R Panel & Without Communication) etc	38 kV, 800 A, 16KA	per/No	799240	Esc
Switchgear	33kV	VCB (36 kV, 1250A, 26.2 kA, Outdoor Type)		per/No	239422	Esc
Switchgear	33kV	SF6(36kV, 1250A, 31.5KA, Outdoor)		per/No	342532	Esc
Switchgear	22kV	SF6(24kV, 1250A, 31.5KA, Outdoor)		per/No	285443	Esc
Switchgear	11kV	VCB(12 kV, 1250A, 25 KA, Outdoor)		per/No	182684	Esc
Switchgear	11kV	SF6(12kV, 1250A, 31.5KA, Outdoor)		per/No	228354	Esc
Switchgear	33kV	Isolator(2000 A with ES)		Each	114177	Esc
Switchgear	33kV	Isolator(1600 A with ES)		Each	140710	PO
Switchgear	33kV	Isolator(1600 A without ES)		Each	111530	PO
Switchgear	33kV	Isolator(1250 A with ES)		Each	106770	PO
Switchgear	33kV	Isolator(2000 A without ES)		Each	91342	Esc
Switchgear	33kV	Isolator(1600 A without ES)		Each	57089	Esc

**MAIN COST DATABASE**

**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Switchgear	33kV	Isolator(1250 A without ES)		Each	51380	Esc
Switchgear	33kV	Isolator(2000 A with ES, Motorised)		Each	137013	Esc
Switchgear	33kV	Isolator(1600 A with ES, Motorised)		Each	70790	Esc
Switchgear	33kV	Isolator(1250 A with ES, Motorised)		Each	68506	Esc
Switchgear	33kV	Isolator(2000 A without ES, Motorised)		Each	100476	Esc
Switchgear	33kV	1600 A without ES, Motorised		Each	62797	Esc
Switchgear	33kV	Isolator(1250 A without ES, Motorised)		Each	60514	Esc
Switchgear	22kV	Isolator(630 A, 25 kA, with ES)		Each	39178	Esc
Switchgear	22kV	Isolator(630 A, 25 kA, without ES)		Each	34065	Esc
Switchgear	11kV	Isolator(630 A, 25 KA, with ES)		Each	28542	Esc
Switchgear	11kV	Isolator(630 A, 25 KA, without ES)		Each	25678	Esc
Switchgear	11kV	Sectionaliser(11kV, 400 A, 12.5KA, SF6/ Vaccum, Outdoor)	With Remote Communication	Each	393302	Esc
Switchgear	415V	FSU(100A)		per/No	3768	Esc
Switchgear	415V	FSU(200A)		per/No	5309	Esc
Switchgear	415V	FSU(315A)		per/No	8335	Esc
Switchgear	415V	FSU(400A)		per/No	9248	Esc
Switchgear	415V	FSU(63A)		per/No	2284	Esc
Switchgear	11kV	GOABS(800 Amps)	Triple Pole, O/D Type	Set	6970	Esc
Switchgear	11kV	GOABS(400 Amps)	Triple Pole, O/D Type	Set	6970	Esc
Switchgear	22kV	GOABS(400 Amps)	Triple Pole, O/D Type	Set	9061	SIV
Substation (Package)	11/0.4 kV	400 kVA, (Oil Type Hermeatically sealed Transformer) with 11kV SF6 Insulated compact switchgear with SF6 / Vacuum Circuit Breaker as protection to transformer LT Switchgear	Outdoor, HV: 3 WAY (2 Nos Isolators + 1 No Breaker), 630A, 21 KA; LV Incomer: 4P ACB, 1000 A, 50KA; Outgoing TPN MCCB 250/125 A, 35KA 5No.	LS	2397721	Esc
Substation (Package)	11/0.4 kV	630 kVA, (Oil Type Hermeatically sealed Transformer) with 11kV SF6 Insulated compact switchgear with SF6 / Vacuum Circuit Breaker as protection to transformer LT Switchgear	Outdoor, HV: 3 WAY (2 Nos Isolators + 1 No Breaker), 630A, 21 KA; LV Incomer: 4P ACB, 1000 A, 50KA; Outgoing TPN MCCB 250/125 A, 35KA 5No.	LS	2854430	Esc

**MAIN COST DATABASE****(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

= 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Substation (E-House / Container)	33/11 kV	1x8 MVA (2 panels– 33kV, 1250A, 25kA/3sec ; 4 panels -11kV, 630A, 25kA/3sec)	L 8 x W 4.5 x 3.5H (m) (without stair & platform)	LS	51977481	Esc
Substation (E-House / Container)	33/11 kV	2x3.15 MVA (4 panels– 33kV, 1250A, 25kA/3sec ; 5 panels - 11kV, 630A, 25kA/3sec)	L 9.5 x W 4.5 x 3.5H (m) (without stair & platform)	LS	61217922	Esc
Transformer Oil					68	SIV
Tape	PVC			Roll	10	PO
Tape	Black	20mmX0.125X 20 Mtr Roll		Roll	100	PO
Tape	Empire Tape			Roll	50	PO
Thimble	Aluminium	70mm <sup>2</sup>			11	SIV
Thimble	Aluminium	95 mm <sup>2</sup>			15	SIV
Thimble	Aluminium	120mm <sup>2</sup>			21	SIV
Thimble	Aluminium	150 mm <sup>2</sup>			26	SIV
Thimble	Aluminium	185 mm <sup>2</sup>			30	PO
Thimble	Aluminium	240 mm <sup>2</sup>			40	PO
Thimble	Aluminium	300 mm <sup>2</sup>			60	PO
Thimble	Aluminium	400 mm <sup>2</sup>			70	PO
Thimble	Aluminium	500 mm <sup>2</sup>			80	PO
Twisted Flexible Wire					18	SIV
Tools / Plants / Tackles	Megger / Insulation Tester	1000V (Hand operated, 200 MΩ)		per/No	5309	Esc
Tools / Plants / Tackles	Megger / Insulation Tester	2500V (Hand operated, 5000 MΩ)		per/No	9077	Esc
Tools / Plants / Tackles	Megger / Insulation Tester	5000V (Hand operated, 10000 MΩ)		per/No	10504	Esc
Tools / Plants / Tackles	Earth Tester			per/No	9988	Esc
Tools / Plants / Tackles	Tong Tester	Clipon Type		per/No	11149	Esc
Tools / Plants / Tackles	Lighting	Emergency Solar (complete fitting including pole and LED lamp (as per HIMURJA rates))		Set	17515	Esc
Tools / Plants / Tackles	Earthing Rods			per/No	343	Esc



**MAIN COST DATABASE**

**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Tools / Plants / Tackles	Pliers			per/No	171	Esc
Tools / Plants / Tackles	Screw Driver			Set	228	Esc
Tools / Plants / Tackles	Rope	25mm		Kg	114	Esc
Transformer	33/11	Power(1.6 MVA)		per/No	1333022	Esc
Transformer	33/11	Power(3.15 MVA)		per/No	2336400	PO
Transformer	33/11	Power(5 MVA)		per/No	3996202	Esc
Transformer	33/11	Power(6.3 MVA)		per/No	3887982	Esc
Transformer	33/11	Power(10 MVA, ONAN, with OLTC)		per/No	6029458	Esc
Transformer	33/11	Power(10/ 12 MVA, ONAF, with OLTC)		per/No	6726630	Esc
Transformer	22/11	O/D copper wound 3 phase oil immeresed transformer	winding connection as delta star	per/No	6726630	Esc
Transformer	11/0.4kV	DTR (16kVA, OD)		per/No	48870	Esc
Transformer	11/0.4kV	DTR(25kVA, O/D)		per/No	49988	Esc
Transformer	11/0.4kV	DTR(63kVA, O/D)		per/No	101060	PO
Transformer	11/0.4kV	DTR(100kVA, O/D)		per/No	121580	PO
Transformer	11/0.4kV	DTR(250kVA, O/D)		per/No	239700	PO
Transformer	11/0.4kV	DTR(250kVA, I/D)		per/No	192260	Esc
Transformer	11/0.4kV	DTR(400kVA, O/D)		per/No	713300	PO
Transformer	11/0.4kV	DTR(400kVA, I/D)		per/No	629901	Esc
Transformer	11/0.4kV	DTR(630kVA, O/D)		per/No	979600	PO
Transformer	11/0.4kV	DTR(630kVA, I/D)		per/No	933137	Esc
Transformer	11/0.4kV	DTR(1000kVA, O/D)		per/No	1289300	PO
Transformer	11/0.23kV	DTR (16 kVA, OD)		per/No	39049	Esc
Transformer	11/0.23kV	DTR (10 kVA, OD)		per/No	21335	Esc
Transformer	11/0.4kV	DTR(100kVA, O/D, Star)		per/No	1142332	Esc
Transformer	22/0.4kV	DTR(200kVA, O/D, Star)		per/No	200290	Esc
Transformer	11/0.4kV	6.3 kVA (CSP)		per/No	38405	Esc
Transformer	11/0.4kV	6.3 kVA (DRY TYPE)		per/No	33438	Esc
Transformer	22/0.4kV	DTR(25kVA, O/D)		per/No	98030	SIV
Transformer	22/0.4kV	DTR(63kVA, O/D)		per/No	192300	PO
Transformer	22/0.4kV	DTR(100kVA, O/D)		per/No	209735	SIV
Transformer	22/0.4kV	DTR(250kVA, O/D)		per/No	479800	PO
Transformer	22/0.4kV	DTR(250kVA, I/D)		per/No	402710	Esc
Transformer	22/0.4kV	DTR(400kVA, I/D)		per/No	707899	Esc
Transformer	22/0.4kV	DTR(400kVA, O/D)		per/No	787300	PO
Transformer	22/0.4kV	DTR(630kVA, I/D)		per/No	987727	Esc
Transformer	22/0.4kV	DTR(630kVA, O/D)		per/No	754166	Esc
Transformer	33/0.4kV	SSTR(100kVA)		per/No	299439	Esc
Transformer	33/0.4kV	SSTR(250kVA)		per/No	452240	Esc
Transformer	22/0.4kV	DTR(630kVA, O/D)		per/No	1069300	PO

**MAIN COST DATABASE**

**(including optional scope of items)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Item	Type	Broad Spec	Minor Spec (opt)	Unit	Rate FY22-23 (Rs)	PO/SIV Esc / Est/MR
Transformer	33/0.4 kV	Substaion Transformer 100 KVA O/D	3-Phase oil immersed outdoor type, copper wound transformer Winding connection as delta star	per/No	265500	PO
Transformer	33/0.4 kV	Substaion Transformer 250 KVA O/D	3-Phase oil immersed outdoor type, copper wound transformer Winding connection as delta star	per/No	647650	PO
Transformer	33/0.4 kV	Substaion Transformer 630 KVA O/D	3-Phase oil immersed outdoor type, copper wound transformer Winding connection as delta star	per/No	1261660	PO
Transformer	22/11 kV	Power Transformer 5 MVA	Outdoor copper wound, Winding connection star star and OLTC	per/No	5151800	PO
Transformer	33/11 kV	Power Transformer 3.15MVA	3-Phase oil immersed outdoor type, copper wound transformer Winding connection as delta star	per/No	1662110	PO
Transformer	33/11 kV	Power Transformer 6.3 MVA	3-Phase oil immersed outdoor type, copper wound transformer Winding connection as delta star	per/No	3393100	PO
Wire	GI	6 SWG (5 mm)	Earth, Hot Dip	MT	67816	Esc
Wire	GI	8 SWG (4 mm)	Earth, Hot Dip	MT	67816	Esc
Wire	GI	10 SWG (3.15 mm)	Earth, Hot Dip	MT	67816	Esc
Wire	GI	7/8 SWG (7/4.00 mm)	Stay, Strand, Galvanised	MT	76358	Esc
Wire	GI	7/10 SWG (7/3.15 mm)	Stay, Strand, Galvanised	MT	76358	Esc
Wire	Barbed	HDGI		MT	78782	Esc
	Stay	7/10.0	LT	kg	70	SIV
Wire	Stay	7/8.00		kg	70	SIV
Wire	Stay	7/4.00		kg	76	Esc
Wire	Stay	7/3.15		kg	76	Esc

**ABSTRACT COST**

S. N.	Description	Material Cost	Erection Cost	Transportation Cost	Contingency @3%	Labour Cess@1%	GST @ 18% on Trans+Erect	Deptt Charges @ 11%	G.Total (in Rs)	Say Rs. (in Lac)
1	2	3	4	5	6	7	8	9	10	11
1	<b>Configuration 1:</b> Estimated Cost (per Km) for 33 kV Single Circuit Line on Single Pole Structure (Delta Formation) using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72 and Double continuous Earth wire	855238	346420	61845	25657.1344	12892	73487.7	151309.32	<b>1526849</b>	<b>15.27</b>
2	<b>Configuration 2:</b> Estimated Cost (per Km) for 33 kV Single Circuit (SC) Line on Double Pole (DP) Structure (Horizontal Formation); using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and Double continuous Earth wire	1279139	431920	95294	38374.1584	18447	94898.43	215387.92	<b>2173460</b>	<b>21.73</b>
3	<b>Configuration 3:</b> Estimated Cost (per Km) for 33 kV Double Circuit (DC) Line on Double Pole (DP) Structure (Vertical Formation); using Dog Conductor (100mm <sup>2</sup> : ACSR 6/1/4.72) and Double continuous Earth wire	1997240	501870	103513	59917.1899	26625	108968.94	307794.76	<b>3105929</b>	<b>31.06</b>
4	<b>Configuration 3A:</b> i) Estimated Cost (per Km): [For 33 kV Multi Circuit (MC) Line on Multi Circuit Tower in Snow Zone using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and single continuous Earth wire] <b>[MC Type Tower] - For Snow Zone</b>	5543545	1734550	277177	166306.35	77216	362110.845	897699.54	<b>9058604</b>	<b>90.59</b>
	ii) Estimated Cost (per Km): [For 33 kV Multi Circuit (MC) Line on Multi Circuit Tower in Snow Zone using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and single continuous Earth wire] <b>[MD Type Tower] - For Snow Zone</b>	6339456	3512513	316973	190183.679	103591	689307.489	1226722.7	<b>12378747</b>	<b>123.79</b>
5	<b>Configuration 3B:</b> i) Estimated Cost (per Km): [For 33 kV Multi Circuit (MC) Line on Multi Circuit Tower in Snow Zone using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and single continuous Earth wire] <b>[MA Type] - For Non-Snow Zone</b>	3901419	916948	195071	117042.576	51305	200163.494	592014.44	<b>5973964</b>	<b>59.74</b>
	ii) Estimated Cost (per Km): [For 33 kV Multi Circuit (MC) Line on Multi Circuit Tower in Snow Zone using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and single continuous Earth wire] <b>[MB Type] - For Non-Snow Zone</b>	4922635	1114524	246132	147679.064	64310	244918.106	741421.83	<b>7481620</b>	<b>74.82</b>
6	<b>Configuration 4:</b> Estimated Cost (per Km) for 11 kV Single Circuit (SC) Line on Single Pole (SP) Structure (Delta Formation); using Dog Conductor (100mm <sup>2</sup> : ACSR 6/1/4.72) and Single continuous Earth wire	726935	226098	54392	21808.063	10292	50488.2	119901.54	<b>1209916</b>	<b>12.10</b>
7	<b>Configuration 5:</b> Estimated Cost (per Km) for 11 kV Double Circuit (DC) Line on Double Pole (DP) Structure (Vertical Formation); using Dog Conductor (100 mm <sup>2</sup> / ACSR 6/1/4.72) and Single continuous Earth wire	1459925	367920	108784	43797.7639	19804	85806.72	229464.2	<b>2315502</b>	<b>23.16</b>

S. N.	Description	Material Cost	Erection Cost	Transportation Cost	Contingency @3%	Labour Cess@1 %	GST @ 18% on Trans+Erect	Deptt Charges @ 11%	G.Total (in Rs)	Say Rs. (in Lac)
1	2	3	4	5	6	7	8	9	10	11
8	<b>Configuration 6:</b> Estimated Cost (per Km) for 11 kV Line on Single Pole (SP) Structure; using AB Cable (3x70+95 mm <sup>2</sup> ) [ 2 No Ckt]	1882607	337957	98724	56478.2142	23758	78602.58	272593.93	<b>2750721</b>	<b>27.51</b>
9	<b>Configuration 7:</b> Estimated Cost (per Km) for 11 kV Line Underground XLPE Cable (3Cx300 mm <sup>2</sup> )	2258998	246721	118844	67769.93	26923	65801.7	306356.34	<b>3091414</b>	<b>30.91</b>
10	<b>Configuration 8:</b> Estimated Cost (per Km) for 3Φ LT Line on Single Pole (SP) Structure (Vertical Formation); using Conductor (Dog / 100 mm <sup>2</sup> / ACSR 6/1/4.72) and Single continuous Earth wire	592619	190713	33975	17778.581	8351	40443.84	97226.871	<b>981108</b>	<b>9.81</b>
11	<b>Configuration 9:</b> Estimated Cost for 25 kVA, 11/0.4 kV Pole Mounted Distribution Substation	196749	83922	22697	5902.48045	3093	19191.42	36471.045	<b>368026</b>	<b>3.68</b>
12	<b>Configuration 10:</b> Estimated Cost for 25 kVA, 22/0.4 kV Pole Mounted Distribution Substation	253748	83922	22697	7612.44744	3680	19191.492	42993.653	<b>433845</b>	<b>4.34</b>
13	<b>Configuration 11:</b> Estimated Cost for 400 kVA, 11/0.4 kV Outdoor Type Distribution Substation	1170145	83922	30056	35104.3362	13192	20516.112	148822.92	<b>1501759</b>	<b>15.02</b>
14	<b>Configuration 12:</b> Estimated Cost for 6.3 kVA, 11/0.23 kV, 1-Ø Distribution Substation	127737	20981	11349	3832.1146	1639	5819.238	18849.225	<b>190206</b>	<b>1.90</b>
15	<b>Configuration 13:</b> 1-Ø, 0.230 kV Domestic Service (DS) Connection upto 8 kW	2699	1023	135	80.9623196	39	208.428696	460.39935	<b>4646</b>	<b>0.05</b>
16	<b>Configuration 14:</b> A) 1-Ø, 0.230 kV DS/NDNC/CS/ SIP/IDWPS Connection ≤ 20 kW B) 3-Ø, 0.415 kV DS/ NDNC/ CS/ SIP Connection ≤ 20 kW	4249	1287	212	127.465644	59	269.899693	682.48626	<b>6887</b>	<b>0.07</b>
17	<b>Configuration 15:</b> 3-Ø, 0.415 kV DS/ NDNC/ CS/ SIP/IDWPS Connection ≤ 50KW	29409	2300	1470	882.267684	341	678.590305	3858.8372	<b>38939</b>	<b>0.39</b>
18	<b>Configuration 16:</b> Erection of 3-Ø, 11 kV DS/ CS/ MIP/ IDWPS Connection above 50 kW to upto 100 kW	138549	83922	22697	4156.46745	2493	19191.492	29811.047	<b>300821</b>	<b>3.01</b>
19	<b>Configuration 17:</b> Estimated Cost of Street Light	4357	436	218	130.71825	51	117.646425	584.17114	<b>5895</b>	<b>0.06</b>
20	<b>Configuration 18:</b> Estimated Cost of 33/11 kV, 3.15 MVA Substation (with Single Power Transformer) (With Single 33 kV Incomer Bus / Bay, Single 11 kV Bus from Transformer, Single 11 kV Outgoing feeder) i/c CR Building (Note: GST on Civil work included in Col. 8)	23757377	1349500	427800	712721.322	262474	1609525.93	3093133.8	<b>31212532</b>	<b>312.13</b>

**CONFIGURATION 1: (33 kV LINE)**

**Cost Data**

**A) Estimated Cost (per Km): [For 33 kV Single Circuit Line on Single Pole Structure (Delta Formation) using Conductor (Dog / 100 mm<sup>2</sup> / ACSR 6/1/4.72 and Single continuous earth wire]**

(Assume: Wind pressure upto 100 kg/m<sup>2</sup>; Ice / Snow Loading: Moderate ; Span (Max= 90m, Sag=1.73m; Ruling= 75m, Sag=1.20m)

**Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6**

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	ACSR 6/1/4.72 (100 mm <sup>2</sup> ) {Includes 3 conductor lengths for 3Φ and Additional 1% (Sag, Jumpering and wastage)}	80362	Km	3.03	243497	Esc
2	Steel Tubular Poles (11 m, Working Load > 227 kg) (with Ruling Span 75 m, 10 No. Run thro' and 3 No. Double Pole Dead End Structures)	18706	No	16	299296	SIV
3	Muffs with concrete filling	1769	No	16	28304	Esc
4	<b>Run Thro' Structures (Δ Formation):</b> on Single Pole Structures (Adopt Ten (10) No. Run-through Structures per Km) -					
a	<b>X-Arms:</b> [MS Channel Iron (100x50x5 mm), Length: 1.725 m (φ Pin to φ Pin: 1525 mm + Tolerance 100 mm on either side)	1525	No	10.00	15251	MR
b	MS Angle Iron(50x50x6 mm), Length: 2 x 950mm x 10 No. Structures	395	No	20.00	7907	MR
5	33 kV Pin Insulators (Porcelain, 36 kV, 10 kN): 3 No per single pole structure	583	No	30	17490	Esc
6	Pole top Bracket (On single Pole Structure) [ MSCI:100x50x6- 100 mm]	43	No	10	430	Esc
7	<b>Dead End Structures:</b> (Adopt three (3) No. per Km) on Double Pole (Prefer along road side):-					
a	Belt Set - MS Angle Iron: 65x65x6, Length:(1800 mm x 2 No. )	966	No	6	5793	MR
b	X-Bracing Set - MS Angle Iron: 50X50x6, Length: 2700 mm x 2 No.	1124	No	6	6742	MR
c	X-Arm (Horizontal) - MS Channel Iron: 100x50x5, Length: 3250 mm i/c tolerance 100 mm on either side x 2 No.	2873	No	6	17240	MR
d	Discs insulator String sets on Dead End structures (comprising 3 No. Discs in each string: ^\Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.) x (3 No. conductors) x (2 No. sides)	2356	Set	18	42408	Esc
e	33 kV Pin Insulators (Porcelain, 36 kV, 10 kN): 3 No per double pole structure	583	No	9	5247	Esc
8	<b>Stay / Guy Arrangement</b>					
a	Stay set complete in all respect (1No. / Single Pole , 4 No. / Double Pole Structures)	1270	No	22	27940	PO
b	Stay Wire (7/4.00 mm) (10.0 kg Per Stay Set)	70	Kg	220.0	15400	SIV
9	<b>Earthing:-</b>					
a	HT Earthing set complete	2853	No	13	37089	Esc
b	Earth wire (GI, 6 SWG) {Includes Single wire length and Additional 1% (Sag and wastage)}@ 150 kg/km	68	Kg	152	10302	Esc
c	Eye Hook for earth wire	46	No	26	1196	Esc
d	Earth Reel (as per site requirement)	24	No	26	624	Esc
e	MS Channel Iron: 75x40x6, [Length: 1800 mm for Run Throu' Structure]	1119	No	10	11188	MR
f	MS Channel Iron: 75x40x6, [Length: 3300 mm for Dead Structure]	2051	No	3	6154	MR
10	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm Φ or more (with flat and spring washers)]	98	Kg	75.0	7350	Esc

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
11	Half clamps: [On Double Pole structure: 6 No, On Single Pole structures: 3 No.]	158	No	48	7584	Esc
12	Full clamps: [On Double Pole structure: 4 No, On Single Pole structures: 2 No.]	273	No	32	8736	Esc
13	Barbed wire	78	Kg	80.0	6240	Esc
14	Danger Plate (203X200X1.6 mm)	133	No	10	1330	Esc
15	Red oxide	157	Ltr	32	5024	Esc
16	Aluminium Paint	344	Ltr	32	11008	Esc
17	<b>Add:</b> [Cost of Essential Optional Sub-Configurations Required as per Site Conditions (such as Guarding for Road Crossing, 4 pole structures for 90° spans etc not included here)] (Per Km)				X	
	<b>Estimated Cost of the material</b>		X	+	846770	
18	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)		0.01X	+	8468	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.01X	+	855238	
	<b>Erection Charges</b>				346420	
	<b>Transportation Charges</b>				61845	
	<b>Contingency @3%</b>				25657	
	<b>Labour Cess @1%</b>				12892	
	<b>GST @ 18% on Trans+Erect.</b>				73488	
	<b>Deptt Charges @ 11%</b>				151309	
	<b>G. Total</b>				1526849	

The Span / Sag shown are for Level Spans. For Non Level Spans recalculate Spans / Sags. For Areas where Ice / Snow loading are absent recalculate span / sag (In absence of data assume: Max Span= 95m, Sag =1.67m, Ruling Span= 80m, Sag= 1.19m), For Areas where there is Extreme High Ice / snow / wind loading (150kg/m<sup>2</sup>) recalculate span / sag (In absence of data assume: Max Span= 75m, Sag = 1.77 m, Ruling Span= 65m, Sag= 1.33m)  
Higher conductor sizes / DC Line shall be preferred for feeding 33 / 11 kV Sub Stations of capacities >15MVA; Insulated conductors may be preferred when lines pass through cities / townships. AAAC conductors to be used in plain areas.

PCC Poles, H Beams, ST Poles of higher sizes may be used as per site conditions. Drilling/Punching of Steel Tubular Poles are strictly prohibited.

Concrete Filling not included in earlier Cost Data; Where Muffs are not available we may opt for concreting  
Use of additional Dead End Structures depend on Site Conditions such as large span angles, Non Level Spans, Ridge spans, River crossing spans etc . Where necessary and justified 3 or 4 pole structures shall be preferred.

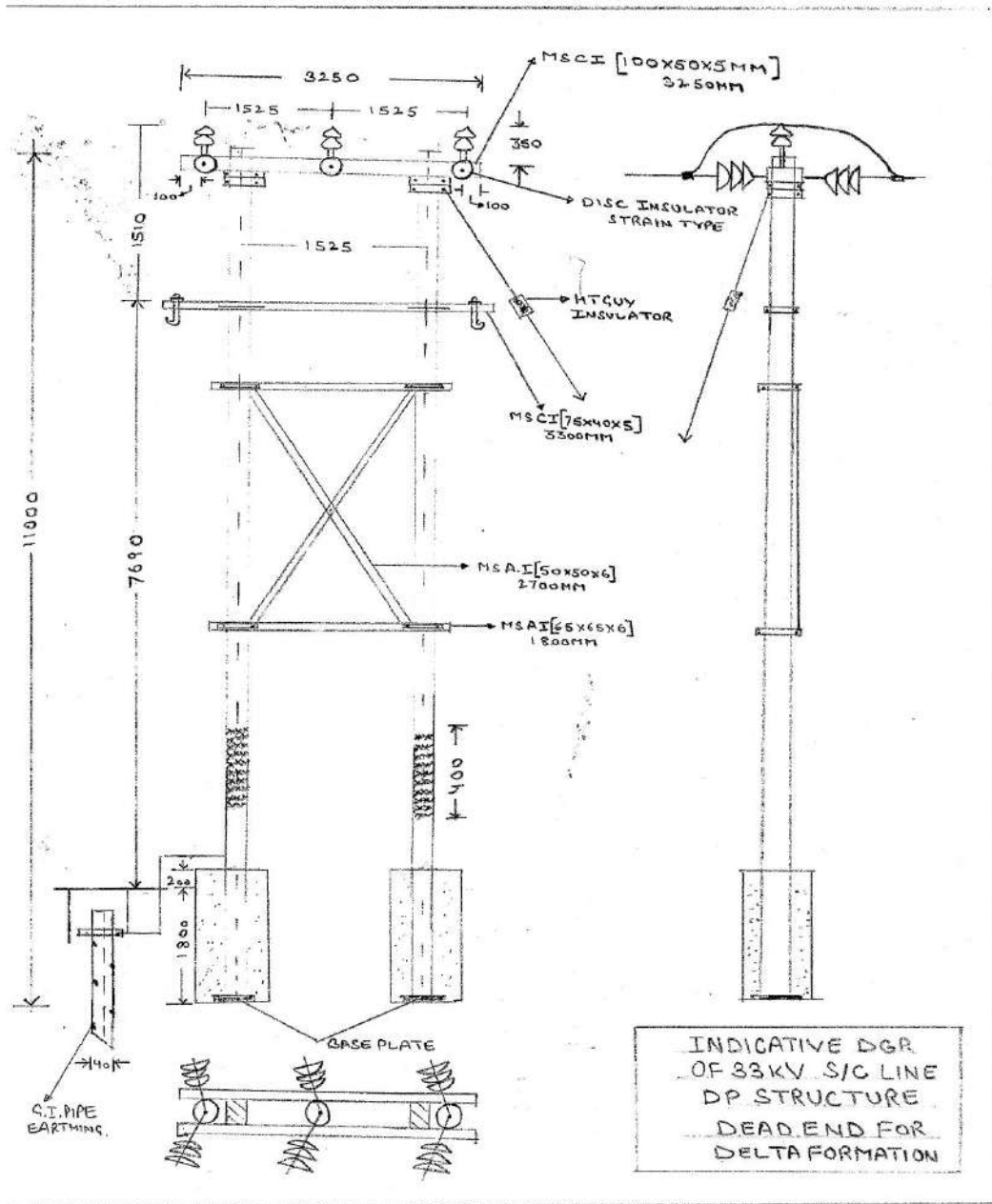
For Lesser Discs per string, 15 KV Glass Disc Insulators may be preferred; Composite Polymeric Insulators may also be preferred but shall not be used for Snow bound areas. Discs of strength 45 kN may be used where ever feasible.

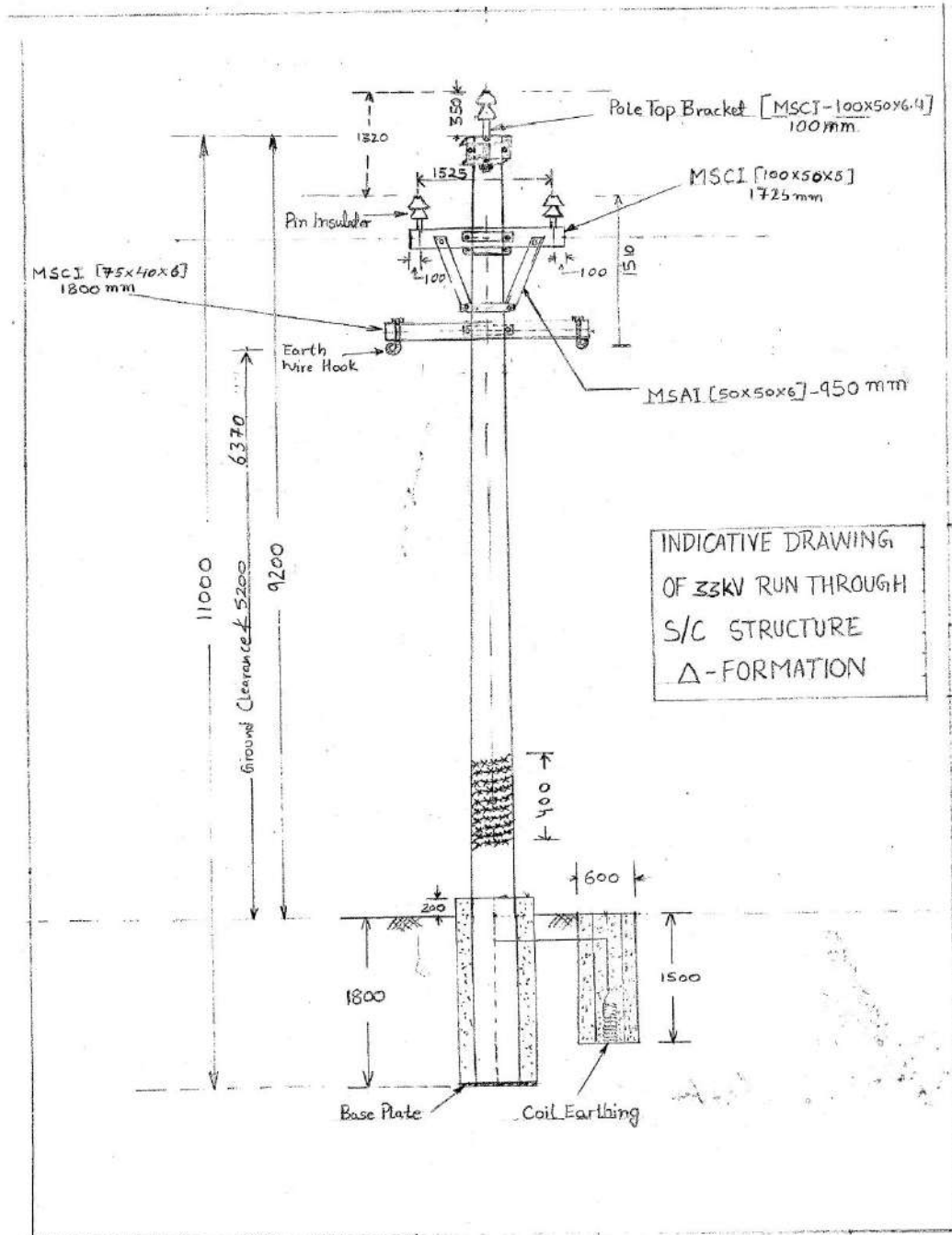
Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):**

**Refer Main Cost Database**

- C) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendements there to.







**CONFIGURATION 2: (33 kV LINE)** **Cost Data**  
**A) Estimated Cost (per Km): [For 33 kV Single Circuit (SC) Line on Double Pole (DP) Structure (Horizontal Formation); using Conductor (Dog / 100 mm<sup>2</sup> / ACSR 6/1/4.72) and Single continuous Earth wire]**

(Assume: Wind pressure upto 100 kg/m<sup>2</sup>; Ice / Snow Loading: Moderate ; Span (Max= 110m, Sag= 2.58m; Ruling= 90m, Sag= 1.73m;)

**Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6**

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	ACSR 6/1/4.72 (100mm <sup>2</sup> ) {Includes 3 conductor lengths for 3Φ and Additional 1% (Sag, Jumpering and wastage)}	80362	Km	3.03	243497	Esc
2	Steel Tubular Poles (11 m, Working Load > 227 kg) (with Ruling Span 90 m, 10 No. Run thro' and 3 No. Dead End Structures)	18706	No	26	486356	SIV
3	Muffs with concrete filling	1769	No	26	45994	Esc
4	<b>Run Thro' Structures: (Horizontal Formation) on Double Pole Structures (Adopt Ten (10) No. Run-through Structures per Km) -</b>					
a	X-Arms: [MS Channel Iron (100x50x6 mm, Length: 3250 mm i/c tolerance 100 mm on either side) x 10 No. Structures	2873	No	10.00	28734	MR
b	Disc insulator String (Suspension) sets: 3 No. Discs in each string: (Porcelain, CT, 12 kV, 90 kN) including dead end clamps etc) x (Single circuit : 3No conductors) x 1 No sides) /Run Thro' structures.	2254	No	30	67620	Esc
c	Belt Set - MS Angle Iron: 65x65x6, Length:(1800 mm) x 2 No.	966	No	20.00	19310	MR
d	X-Bracing Set - MS Angle Iron: 50X50x6, Length [2700 mm] x 2 No.]	1124	No	20	22473	MR
5	<b>Dead End Structures (Adopt three (3) No. per Km) on Double Pole (Prefer along road side)</b>					
a	Belt Set - MS Angle Iron: 65x65x6, Length:(1800 mm) x 2 No.	966	No	6	5793	MR
b	X-Bracing Set - MS Angle Iron: 50X50x6, Length [2700 mm] x 2 No.]	1124	No	6	6742	MR
c	X-Arm (Horizontal) - MS Channel Iron: (100x50x6 mm), Length: 3250 mm i/c tolerance 100 mm on either side x 2 No.]	2873	No	6	17240	MR
d	Disc insulator String (Strain) sets: 3 No. Discs in each string: (Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.) x (Single Circuit: 3 No. conductors) x (2 No. sides) /Dead Structures	2356	Set	18	42408	Esc
e	33 kV Pin Insulators (Porcelain, 36 kV, 10 kN): 3 No per double pole structure	583	No	9	5247	Esc
6	<b>Stay / Guy Arrangement</b>					
a	Stay set complete in all respect (2 No./Run Thro & 4 No. / Dead End)	1270	No	32	40640	PO
b	Stay Wire (7/4.00 mm) (9.0 kg Per Stay Set)	70	Kg	320	22400	SIV
7	<b>Earthing</b>					
a	HT Earthing set complete	7873	No	13	102349	Esc
b	Earth wire (GI, 6 SWG) {Includes Single wire length and Additional 1% (Sag and wastage)}@ 150 kg/km	67	Kg	152	10151	Esc
c	Eye Hook for earth wire	45	No	26	1170	Esc
d	Earth Reel	24	No	26	624	Esc
e	MS Channel Iron: 75x40x6, Length :3300 mm	2051	No	13	26665	MR
8	Half clamps: [On Double Pole Dead End structure: 6 No, Double Pole Run Thro' structure: 8 No]	156	No	98	15288	Esc
9	Full clamps: [On Double Pole Dead End structure: 4 No, Double Pole Run Thro' structure: 4 No]	271	No	58	15718	Esc
10	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 20 mm Φ or more (with flat and spring washers)]	97	Kg	90	8730	Esc
11	Barbed wire	77	Kg.	80	6160	Esc
12	Danger Plate (203X200X1.6mm)	131	No	10	1310	Esc
13	Red Oxide	157	Ltr	39	6123	Esc
14	Aluminium Paint	341	Ltr	52	17732	Esc
15	<b>Add: [Cost of Essential Optional Sub-Configurations Required as per Site Conditions (such as Guarding for Road Crossing, 4 pole structures for 90° spans etc not included here)] (Per Km)</b>					
	<b>Estimated Cost of the material</b>		X	+	1266474	
16	<b>Add: [Cost of Optional Miscellaneous Items (Protective Gear, T&amp;P etc) not included here] (Per Km) (After Justification and with Approval)</b>					
			0.01X	+	12665	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.01X	+	1279139	

<b>Erection Charges</b>				<b>431920</b>
<b>Transportation Charges</b>				<b>95294</b>
<b>Contingency @3%</b>				<b>38374</b>
<b>Labour Cess @1%</b>				<b>18447</b>
<b>GST @ 18% on Trans+Erect.</b>				<b>94898</b>
<b>Deptt Charges @ 11%</b>				<b>215388</b>
			<b>G. Total</b>	<b>2173460</b>

The Span / Sag shown are for Level Spans. For Non Level Spans recalculate Spans / Sags. For Areas where Ice / Snow loading are absent recalculate span / sag (In absence of data assume: Max Span= 120m, Sag = 2.67m, Ruling Span= 100m, Sag= 1.86m), For Areas where there is Extreme High Ice / snow / wind loading (150kg/m<sup>2</sup>) recalculate span / sag (In absence of data assume: Max Span= 90m, Sag = 2.55 m, Ruling Span= 75m, Sag= 1.77m)

Higher conductor sizes / DC Line shall be preferred for feeding 33 / 11 KV Sub Stations of capacities >15MVA; Insulated conductors may be preferred when lines pass through cities / townships. AAAC conductors to be used in plain areas.

**PCC Poles, H Beams, ST Poles of higher sizes may be used as per site conditions. Drilling/Punching of Steel Tubular Poles are strictly prohibited.**

Concrete Filling not included in earlier Cost Data; Where Muffs are not available we may opt for concreting.

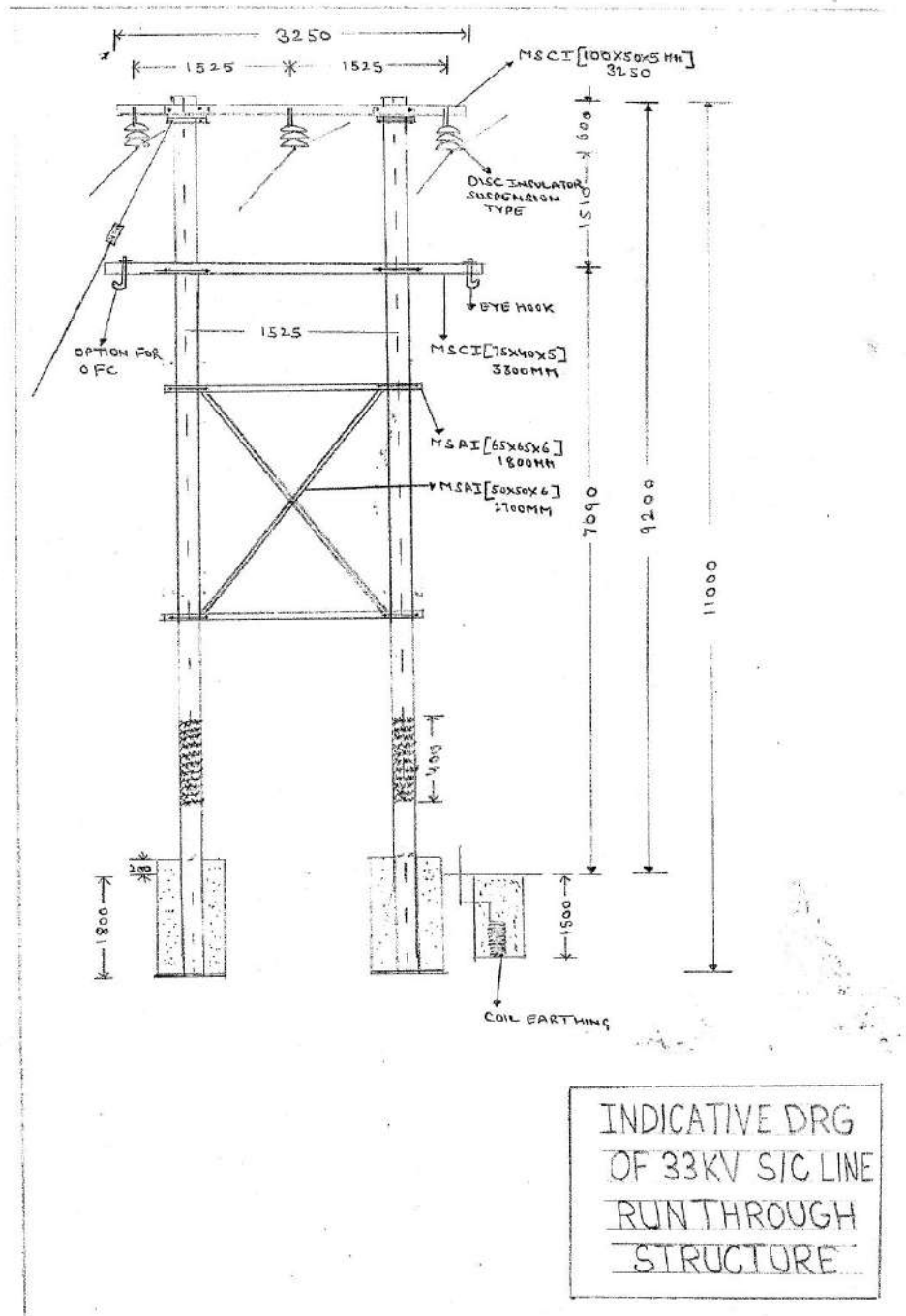
Use of additional Dead End Structures depend on Site Conditions such as large span angles, Non Level Spans, Ridge spans, River crossing spans etc . Where necessary and justified 3 or 4 pole structures shall be preferred.

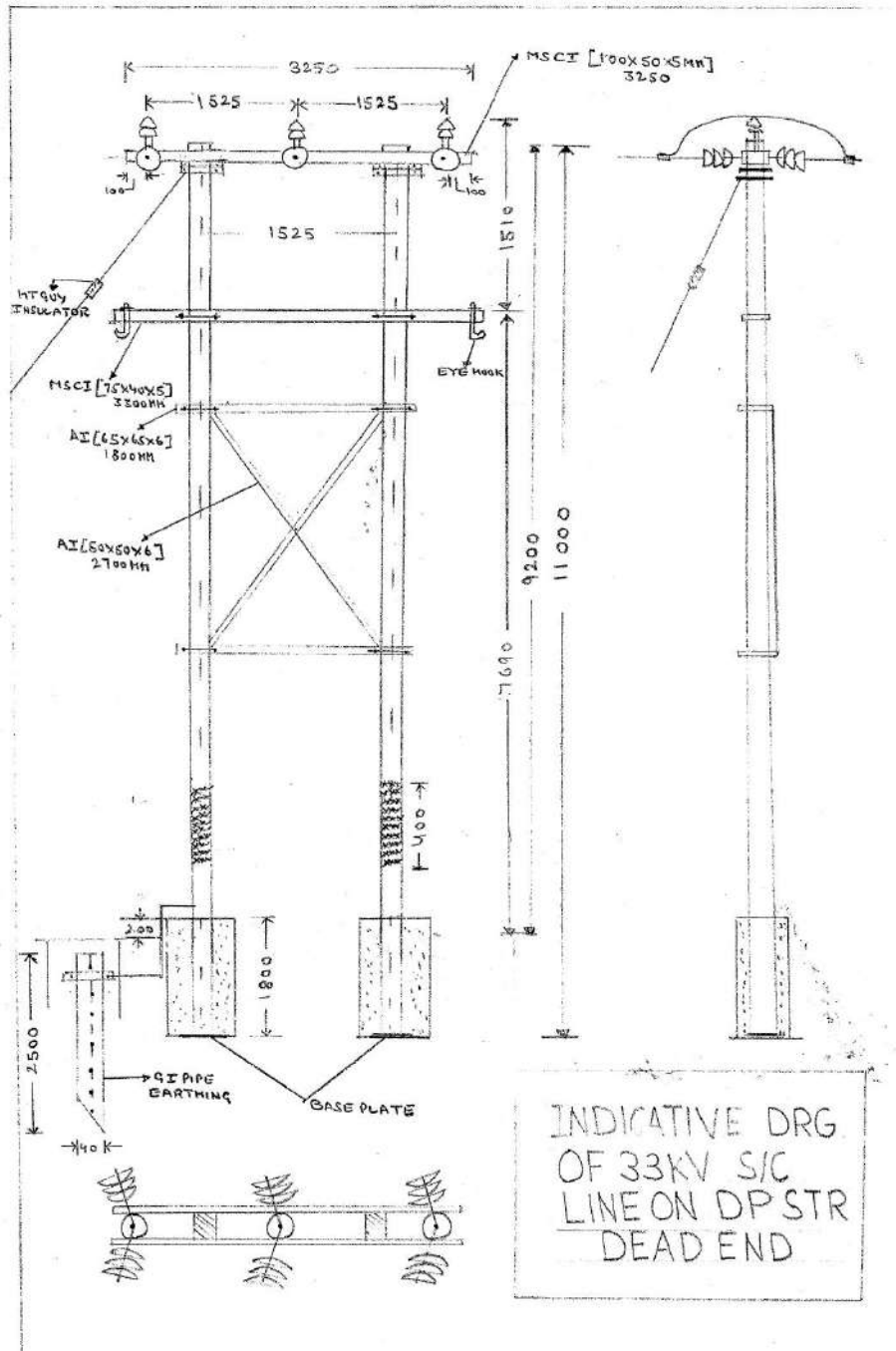
For Lesser Discs per string, 15 KV Glass Disc Insulators may be preferred; Composite Polymeric Insulators may also be preferred but shall not be used for Snow bound areas. Discs of strength 45 kN may be used where ever feasible.

Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):** **Refer Main Cost Database**

**C) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.





**CONFIGURATION 3: (33 kV LINE)**

**Cost Data**

A) **Estimated Cost (per Km): [For 33 kV Double Circuit (DC) Line on Double Pole (DP) Structure (Vertical Formation); using Conductor: (Dog : 100mm<sup>2</sup> : ACSR 6/1/4.72) and Double continuous Earth wire]**

<sup>A1</sup> (Assume: Wind pressure upto 100 kg/m<sup>2</sup>; Ice / Snow Loading: Moderate ; Span (Max= 100m, Sag= 2.13m; Ruling= 80m, Sag= 1.36m)

**Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6**

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	ACSR 6/1/4.72 (100mm <sup>2</sup> ) {Includes 3 conductor lengths for 3Φ and Additional 1% (Sag, Jumpering and wastage)}	80362	Km	6.06	486994	Esc
2	Steel Tubular Poles (13 m, Working Load > 227 kg) (with Ruling Span 80 m, 10 No. Run thro' and 3 No. Dead End Structures)	28086	No	26	730236	Esc
3	Muffs with concrete filling	1769	No	26	45994	Esc
4	<b>Run-through Structures (Vertical Formation) on Double Pole Structures (Adopt Ten (10) No. Run-through Structures per Km) -</b>					
a	X-Arm: [MS Channel Iron(100x50x6 mm), Length: 3200 x 2 No. (Including Tolerance) (2 No. circuits ; Left and Right) / Run Through Structure	2829	No	20	56584	MR
a	X-Arm: [MS Channel Iron(100x50x6 mm), Length: 3500 mm x 1 No (i/c tolerance) (2 No. circuits ; Left and Right / Run Through Structure	3094	No	10	30944	MR
b	33 kV Pin Insulators (Porcelain, 36 kV, 10 kN): Upper Circuit: 3 No. conductors) / Run Through Structure	583	No	60	34980	Esc
c	Half clamps: [On Run Through structure: ]	158	No		0	Esc
d	Full clamps: [On Run through structure: ]	273	No		0	Esc
5	<b>^^ Dead End Structures (Adopt three (3) No. per Km) on Double Pole (Prefer along road side)</b>					
a	X-Arm (Horizontal) - MS Channel Iron: 100x50x6, Length: 3200 mm x 4 No.(i/c tolerance) / Dead Structure]	2829	No	12	33950	MR
a	X-Arm (Horizontal) - MS Channel Iron: 100x50x6, Length: 3500 mm x 2 No.(i/c tolerance) / Dead Structure]	3094	No	6	18567	MR
b	Disc insulator String (Strain) sets: 3 No. Discs in each string: ^^{Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.) x (Left and Right Circuit: 6 No. conductors) x (2 No. sides) /Dead Structures	2356	No	36	84816	Esc
c	33 kV Pin Insulators (Porcelain, 36 kV, 10 kN):6 No. conductors) / Dead end Structure	583	No	18	10494	Esc
d	Half clamps: [Dead end structure: ]	154	No	18	2772	Esc
e	Full clamps: [Dead End structure: ]	267	No	24	6408	Esc
f	Belt Set - MS Angle Iron: 65x65x6, Length [(1800 mm x 2 No.)]	966	No	26	25103	MR
g	X-Bracing Set - MS Angle Iron: 50X50x6 mm, Length [(2700 mm) x 2 No.]	1124	No	26	29215	MR
6	<b>Stay / Guy Arrangement</b>					
a	Stay set complete in all respect (4No. / Dead Structure & 2 No./Run Thro.)	1270	No	32	40640	PO
b	Stay Wire (7/4.00 mm) (10.0 kg Per Stay Set)	70	Kg	320	22400	SIV
7	<b>Earthing</b>					
a	HT Earthing set complete	7873	No	26	204698	Esc
b	Earth wire (GI, 6 SWG) {Includes 2 wire lengths and Additional 1% (Sag and wastage)}@ 150 kg/km	68	kg	303	20604	Esc
c	Eye Hook for earth wire	47	No	26	1222	Esc
d	Earth Reel	24	No	26	624	Esc
e	MS Channel Iron X-Arm:75x40x6 mm, Length (4000 mm)	2486	No	13	32321	MR
8	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 20 mm Φ or more (with flat and spring washers)]	98	Kg	262	25676	Esc
9	Barbed wire	78	Kg.	78	6084	Esc
10	Danger Plate (203X200X1.6mm)	133	No	16	2128	Esc
11	Red oxide	157	Ltr	39	6123	Esc
12	Aluminium Paint	344	Ltr	52	17888	Esc
13	<b>Add:</b> [Cost of Optional Items Required as per Site Conditions (such as Guarding for Road Crossing, 4 pole structures for 90° spans etc not included here)] (Per Km)				X	
	<b>Estimated Cost of the material</b>		X	+	<b>1977465</b>	

**CONFIGURATION 3: (33 kV LINE)**

**Cost Data**

- A) **Estimated Cost (per Km): [For 33 kV Double Circuit (DC) Line on Double Pole (DP) Structure (Vertical Formation); using Conductor: (Dog : 100mm<sup>2</sup> : ACSR 6/1/4.72) and Double continuous Earth wire]**

14	Add: [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)	0.01X	+	19775
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>	<b>1.01X</b>	<b>+</b>	<b>1997240</b>
	<b>Erection Charges</b>			<b>501870</b>
	<b>Transportation Charges</b>			<b>103513</b>
	<b>Contingency @3%</b>			<b>59917</b>
	<b>Labour Cess @1%</b>			<b>26625</b>
	<b>GST @ 18% on Trans+Erect.</b>			<b>108969</b>
	<b>Deptt Charges @ 11%</b>			<b>307795</b>
	<b>G. Total</b>			<b>3105929</b>

<sup>A1</sup> The Span / Sag shown are for Level Spans. For Non Level Spans recalculate Spans / Sags. For Areas where Ice / Snow loading are absent recalculate span / sag (In absence of data assume: Max Span= 107m, Sag = 2.1m, Ruling Span= 90m, Sag= 1.5m), For Areas where there is Extreme High Ice / snow / wind loading (150kg/m<sup>2</sup>) recalculate span / sag (In absence of data assume: Max Span= 77m, Sag = 1.87 m, Ruling Span= 65m, Sag= 1.33m)

Higher conductor sizes shall be preferred for feeding 33 / 11 KV Sub Stations of capacities >15MVA; Insulated conductors may be preferred when lines pass through cities / townships. AAAC conductors to be used in plain areas.

Lattice Structure, PCC Poles or H Beam may be used as per site conditions for longer span lengths. Drilling /Punching of Steel Tubular Poles are strictly prohibited.

Concrete Filling not included in earlier Cost Data; Where Muffs are not available we may opt for concreting.

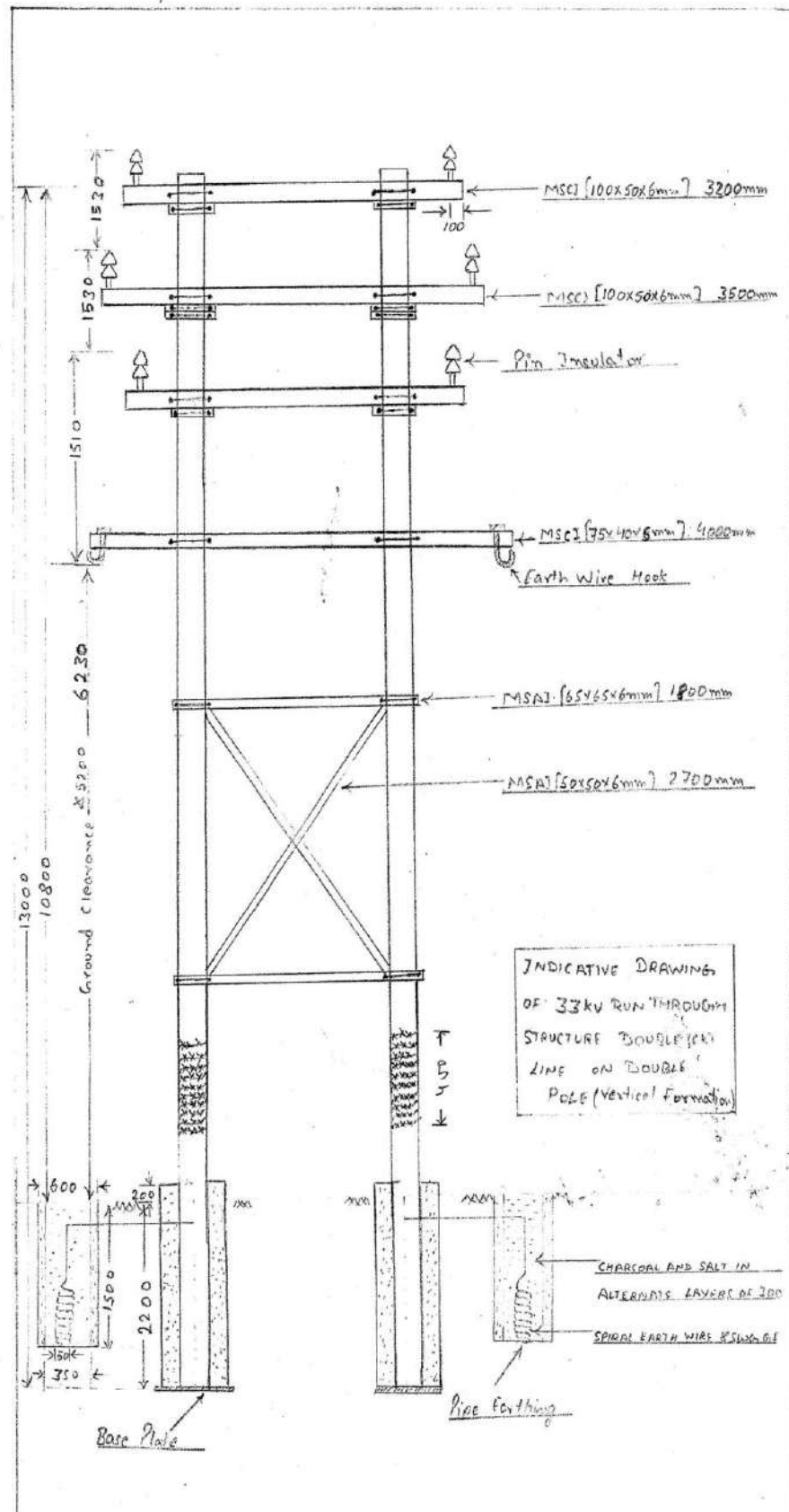
Use of additional Dead End Structures depend on Site Conditions such as large span angles, Non Level Spans, Ridge spans, River crossing spans etc . Where necessary and justified 3 or 4 pole structures shall be preferred.

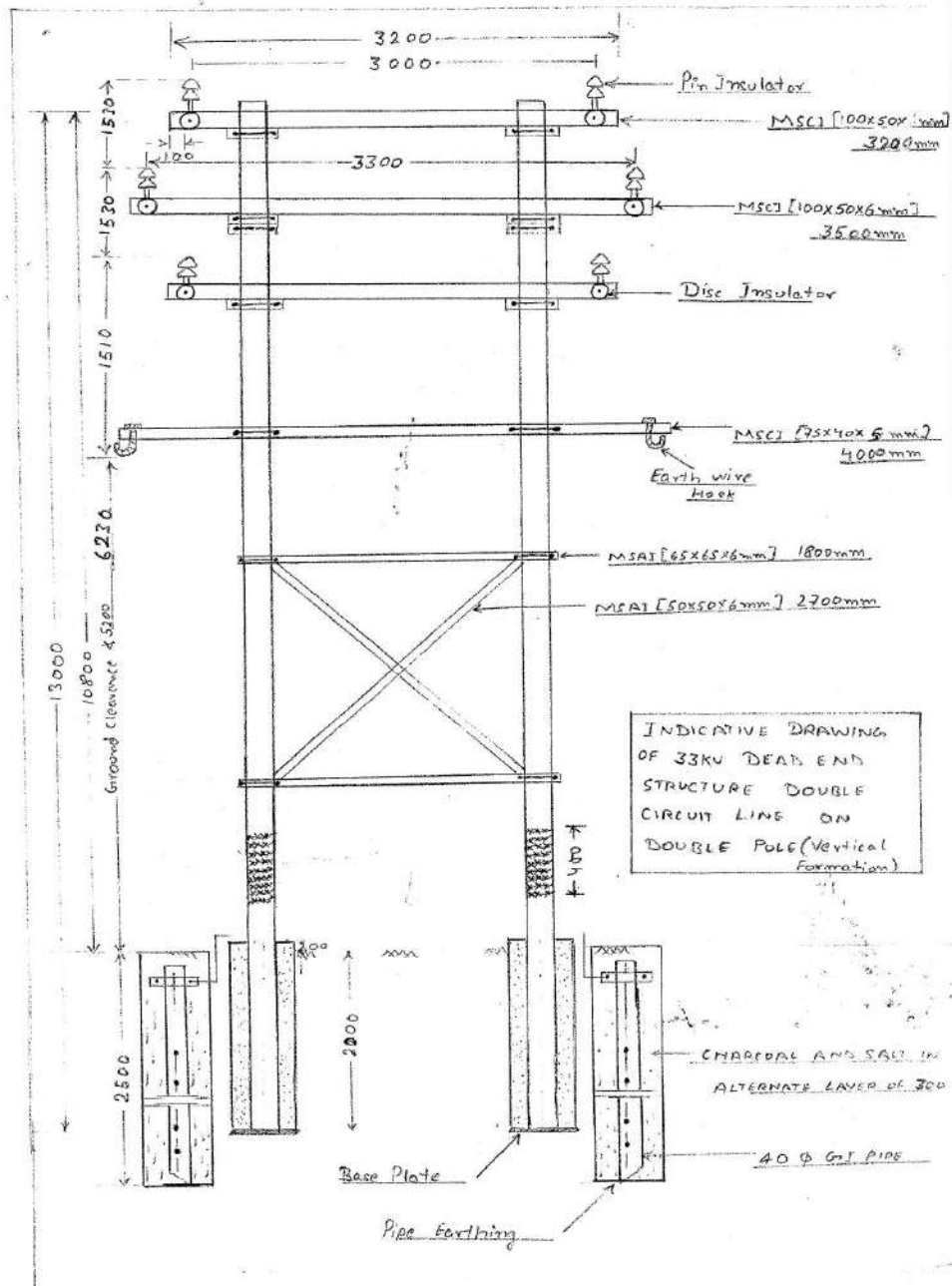
<sup>sd</sup> For Lesser Discs per string, 15 KV Glass Disc Insulators may be preferred; Composite Polymeric Insulators may also be preferred but shall not be used for Snow bound areas. Discs of strength 45 kN may be used where ever feasible.

\*\* Cost are inclusive of GST

- B) **Optional Scope of Items (if Included in Estimate):** **Refer Main Cost Database**

- C) **Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall conform to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.







**CONFIGURATION 3A: (33 kV LINE ON MULTI CIRCUIT TOWER)**

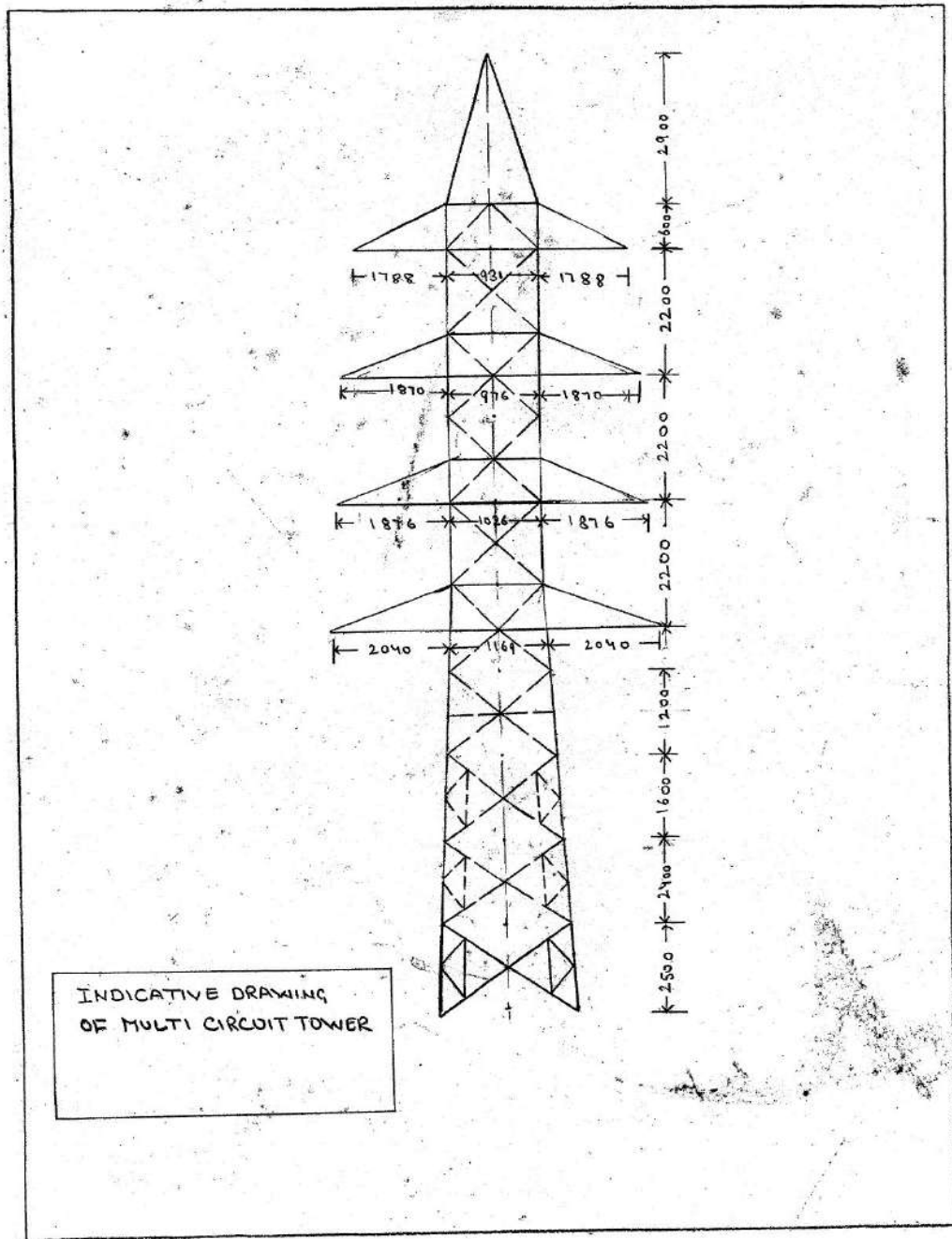
**A) Estimated Cost (per Km): [For 33 kV Four Circuit Line on Multi Circuit Tower in Snow Zone using Conductor (Wolf / 150 mm<sup>2</sup> / ACSR 30/7/2.59 mm) and single continuous Earth wire]**

(Assume: Wind pressure upto 100 kg/m<sup>2</sup>; Ice / Snow Loading: Moderate ; (Design Span - 200 m)

**Cost Escalation in FY23 over Cost Data for FY2021-22 (%)**

4.6

S.N.	Description of item	Rate	Unit	Qty	On MC type Tower	On MD type Tower	CD Basis (PO/ Esc / Est/ MR)
1	ACSR 30/7/2.59 (150 mm <sup>2</sup> ) {Includes 12 conductor lengths for 3Φ and Additional 1% (Sag, Jumpering and wastage)}	135412	km	12.1	1641193	1641193	Esc
A(1)	Multi circuit Tower (MC Type)	539465	Per Str.	6	3236790	-	Est
A(2)	Nuts and Bolts	114	kg	2486	283148	-	Est
A(3)	Packing Washer	114	kg	44	5015	-	Est
B(1)	Multi circuit Tower (MD Type)	661239	Per Str.	6	-	3967434	Est
B(2)	Nuts and Bolts	114	kg	2912	-	331577	Est
B(3)	Packing Washer	114	kg	123	-	13973	Est
2	Disc insulator String (Suspension) sets: 3 No. Discs in each string	2254	No	72	162288	162288	Esc
3	Disc insulator String (Strain/Tension) sets: 3 No. Discs in each string	2356	No	48	113088	113088	Esc
4	<b>Earthing</b>						
a	HT Earthing set complete (As per IS 3043)	7789	No	6	46734	46734	Esc
b	Earth wire (GI, 6 SWG) {Includes 1 wire lengths and Additional 1% (Sag and wastage)}@ 150 kg/km	67	No	6	402	402	Esc
	<b>Estimated Cost of the material</b>		X	+	5488658	6276689	
5	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)		0.01X	+	54887	62767	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>				5543545	6339456	
	<b>Erection Charges</b>				239185	276335	
	<b>Transportation Charges @5%</b>				277177	316973	
	<b>Estimated Cost of Civil work (Normal Dry Soil) for MC Type tower</b>	249228	Job	6	1495365	-	
	<b>Estimated Cost of Civil work (Normal Dry Soil) for MD Type tower</b>	539363	Job	6		3236179	
	<b>Contingency @3% on estimated cost of material</b>				166306	190184	
	<b>Labour Cess @1%</b>				77216	103591	
	<b>GST @ 18% on Trans+Erection+Civil work</b>				362111	689307	
	<b>Deptt. Cess @ 11%</b>				897700	1226723	
	<b>G. Total</b>				9058604	12378747	



Annex- I to 33SC\_MCT

**DETAIL OF WEIGHTS OF 33 KV MULTI CIRCUIT TOWERS (SNOW ZONE) (TENTATIVE) ALONGWITH COSTING DETAIL AS PER COST DATA 2020-21**

Sr. No.	Description	Unit Weight		Total	Bolts & Nuts	Pack Washer	Total	Amount (Rs.)				Total Amount (Rs.)
		MS Steel	HT Steel					MS Steel	HT Steel	Bolts & Nuts	Pack Washer	
		(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)
<b>1</b>	<b>Multi Circuit Tower "MC" (Snow Zone)</b>											
i)	Stub Template	638.34		638.34	25.02		25.02	48926.85	0.00	2414.56	0.00	51341.40
ii)	Stubs for above (Set of 4)	65.60	408.08	473.68	7.20		7.20	5028.04	34405.92	694.84	0.00	40128.80
	Basic body	2631.25	1732.65	4363.90	358.57	6.39	364.96	201677.42	146082.67	34603.80	616.67	382980.55
	Full Body Extension +0M	473.05	399.97	873.02	48.64	0.95	49.59	36257.86	33722.15	4694.00	91.68	74765.70
iii)	Normal tower (Stubs+Basic body+0M FB)	3169.90	2540.70	5710.60	414.41	7.34	421.75	242963.33	214210.74	39992.64	708.35	497875
	Full Body Extension +3M	1094.24	799.93	1894.17	144.14	2.84	146.98	83870.21	67443.46	13910.23	274.07	165497.98
iv)	Normal tower with +3M Full Body Extension	3791.09	2940.66	7604.77	558.55	10.18	568.73	290575.68	247932.04	53902.87	982.42	593393.01
v)	Normal tower with +6M Full Body Extension	4270.74	4140.56	9284.32	602.78	10.35	613.13	327339.41	349097.65	58171.28	998.83	735607.17
vi)	Normal tower with +9M Full Body Extension	4703.72	5674.17	9904.21	555.01	9.83	564.84	360526.03	478398.92	53561.24	948.64	893434.83
				33615.92								
<b>2</b>	<b>Multi Circuit Tower "MD" (Snow Zone)</b>											
i)	Stub Template	722.34		722.34	18.52		18.52	55365.19	0.00	1787.27	0.00	57152.47
ii)	Stubs for above (Set of 4)	137.76	535.28	673.04	15.17		15.17					
iii)	Normal tower (Stubs+Basic body+0M FB)	3419.21	3538.06	6957.27	485.29	20.45	505.74	262072.19	298299.85	46832.91	1973.53	609178.48
iv)	Normal tower with +3M Full Body Extension	4155.19	4275.98	9430.35	623.17	21.02	644.19	318482.85	360515.14	60139.02	2028.34	741165.35
v)	Normal tower with +6M Full Body Extension	5784.13	5834.62	12617.93	805.34	21.76	827.10	443336.21	491926.73	77719.34	2099.76	1015082.04
vi)	Normal tower with +9M Full Body Extension	8057.40	7831.17	15215.53	931.30	22.36	953.66	617575.54	660259.26	89875.11	2157.66	1369867.56

**Note:** Design Span for Multi-Circuit Towers will be 200 meter and there will be 6 (Six) Towers per Kilometer.

Rate of MS Steel (Per Kg.) 76.647 As per Cost Data 2020-21

Rate of HT Steel (Per Kg.) 84.312 Rates are not available in Cost Data, therefore, Rates for HT Steel has been taken 10% higher than MS steel in cost data 2020-21

Rate of Nut & Bolt & pack washer (Per Kg.) 96.505 As per Cost Data 2020-21

**Note:** Rates are exclusive of GST.

## Annex-II to 33SC\_MCT

**DETAIL OF CIVIL WORK OF 33 KV MULTI CIRCUIT TOWERS (SNOW ZONE)  
(TENTATIVE) ALONGWITH COSTING DETAIL AS PER ANALYSED RATE**

Sr. No.	Description	Unit	Qty.	Rate	Amount
<b>1</b>	<b>Multi Circuit Tower "MC"</b>				
	<b>Hard Rock</b>				
i)	M20 Grade	M <sup>3</sup>	14.01	6947	97334
ii)	M10 Grade	M <sup>3</sup>		5820	0
iii)	Formwork	M <sup>2</sup>	36.40	290	10556
iv)	Excavation	M <sup>3</sup>	32.00	652	20878
v)	Reinforcement	Kg.	982.03	67	65776
	<b>Total</b>				<b>194544</b>
	<b>Normal Dry Soil</b>				
i)	M20 Grade	M <sup>3</sup>	13.27	6947	92193
ii)	M10 Grade	M <sup>3</sup>	1.59	5820	9254
iii)	Formwork	M <sup>2</sup>	32.26	290	9355
iv)	Excavation	M <sup>3</sup>	95.43	652	62262
v)	Reinforcement	Kg.	1137.10	67	76163
	<b>Total</b>				<b>249228</b>
	<b>Wet Fissured Rock</b>				
i)	M20 Grade	M <sup>3</sup>	19.48	6947	135337
ii)	M10 Grade	M <sup>3</sup>	4.76	5820	27704
iii)	Formwork	M <sup>2</sup>	35.18	290	10202
iv)	Excavation	M <sup>3</sup>	142.83	652	93188
v)	Reinforcement	Kg.	1621.88	67	108634
	<b>Total</b>				<b>375064</b>
	<b>Wet Soil</b>				
i)	M20 Grade	M <sup>3</sup>	19.03	6947	132210
ii)	M10 Grade	M <sup>3</sup>	4.38	5820	25492
iii)	Formwork	M <sup>2</sup>	34.77	290	10083
iv)	Excavation	M <sup>3</sup>	131.47	652	85776
v)	Reinforcement	Kg.	1399.01	67	93706
	<b>Total</b>				<b>347268</b>
<b>2</b>	<b>Multi Circuit Tower "MD"</b>				
	<b>Hard Rock</b>				
i)	M20 Grade	M <sup>3</sup>	14.01	6947	97334
ii)	M10 Grade	M <sup>3</sup>		5820	0
iii)	Formwork	M <sup>2</sup>	36.40	290	10556
iv)	Excavation	M <sup>3</sup>	32.00	652	20878
v)	Reinforcement	Kg.	1476.51	67	98897
	<b>Total</b>				<b>227665</b>

Sr. No.	Description	Unit	Qty.	Rate	Amount
	<b>Normal Dry Soil</b>				
i)	M20 Grade	M <sup>3</sup>	28.12	6947	195363
ii)	M10 Grade	M <sup>3</sup>	6.08	5820	35386
iii)	Formwork	M <sup>2</sup>	39.84	290	11554
iv)	Excavation	M <sup>3</sup>	181.52	652	118431
v)	Reinforcement	Kg.	2666.91	67	178630
	<b>Total</b>				<b>539363</b>
	<b>Wet Fissured Rock</b>				
i)	M20 Grade	M <sup>3</sup>	36.16	6947	251220
ii)	M10 Grade	M <sup>3</sup>	7.74	5820	45048
iii)	Formwork	M <sup>2</sup>	43.24	290	12540
iv)	Excavation	M <sup>3</sup>	232.32	652	151575
v)	Reinforcement	Kg.	3546.96	67	237575
	<b>Total</b>				<b>697958</b>
	<b>Wet Soil</b>				
i)	M20 Grade	M <sup>3</sup>	35.31	6947	245315
ii)	M10 Grade	M <sup>3</sup>	7.57	5820	44058
iii)	Formwork	M <sup>2</sup>	42.92	290	12447
iv)	Excavation	M <sup>3</sup>	227.07	652	148150
v)	Reinforcement	Kg.	3077.92	67	206159
	<b>Total</b>				<b>656129</b>
	<b>Erection Charges per km 33 kV Line on Multi ckt tower</b>				
3	Erection of Towers (MC)	MT	5.71	29720	169701
4	Erection of Towers (MD)	MT	6.96	29720	206851
5	Stringing of Conductor	ckm	1	49620	49620
6	Fixing of Tower accessories	Nos	6	2162	12973
7	Stringing of Earth Wire	km	1	6890	6890
	<b>Sub total (3 to 6 except 4)[MC Type]</b>				<b>239185</b>
	<b>Sub total (4 to 6)[MD Type]</b>				<b>276335</b>

**CONFIGURATION 3B: (33 kV LINE ON MULTI CIRCUIT TOWER)**

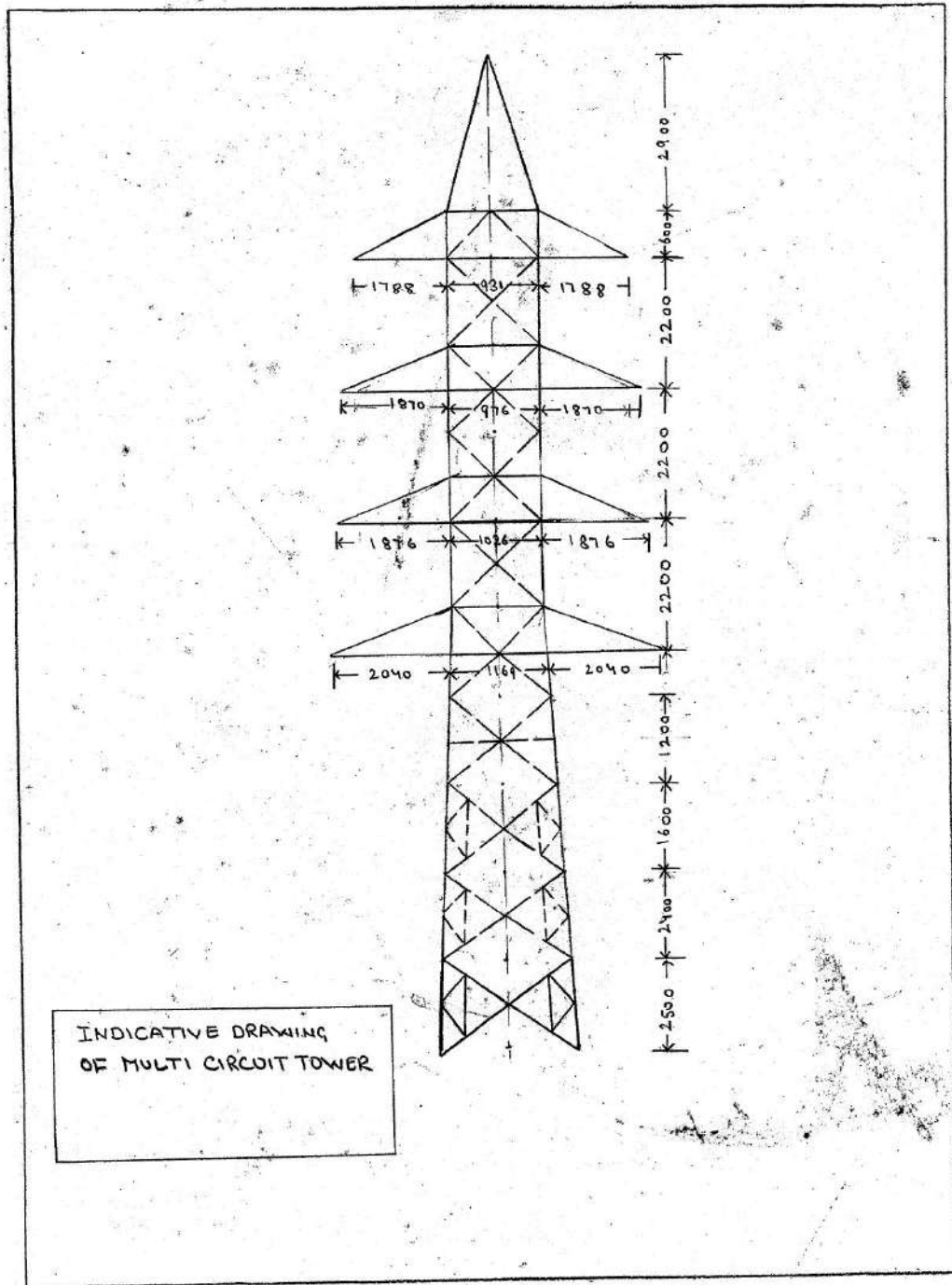
**A) Estimated Cost (per Km): [For 33 kV Four Circuit Line on Multi Circuit Tower in Non-Snow Zone using Conductor (Wolf / 150 mm<sup>2</sup> / ACSR 30/7/2.59 mm) and single**

(Assume: Wind pressure upto 100 kg/m<sup>2</sup>; (Design Span - 200 m)

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

4.6

S.N.	Description of item	Rate	Unit	Qty	On MA type Tower	On MB type Tower	CD Basis (PO/ Esc / Est/ MR)
1	ACSR 30/7/2.59 (150 mm <sup>2</sup> ) (Includes 12 conductor lengths for 3Φ and Additional 1% (Sag, Jumpering and wastage)	135412	Km	12.1	1641193	1641193	Esc
A (1)	Multi circuit Tower (MA Type)	283808	Per Str.	6	1702850	-	Est
A(2)	Nuts and Bolts	114	kg	1588	180885	-	Est
A(3)	Packing Washer	114	kg	49	5603	-	Est
B(1)	Multi circuit Tower (MB Type)	442814	Per Str.	6	-	2656882	Est
B(2)	Nuts and Bolts	114	kg	2090	-	237957	Est
B(3)	Packing Washer	114	kg	49	-	5603	Est
2	Disc insulator String (Suspension) sets: 3 No. Discs in each string	2254	No	72	162288	162288	Esc
3	Disc insulator String (Strain/Tension) sets: 3 No. Discs in each string	2356	No	48	113088	113088	Esc
4	<b>Earthing</b>						
a	HT Earthing set complete (As per IS 3043)	7789	No	6	46734	46734	Esc
b	Earth wire (GI, 6 SWG) (Includes 1 wire lengths and Additional 1% (Sag and wastage))@ 150 kg/km	67	Kg	152	10151	10151	Esc
	<b>Estimated Cost of the material</b>		<b>X</b>	<b>+</b>	<b>3862791</b>	<b>4873896</b>	
5	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)		<b>0.01X</b>	<b>+</b>	<b>38628</b>	<b>48739</b>	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>				<b>3901419</b>	<b>4922635</b>	
	<b>Erection Charges</b>				<b>164587</b>	<b>214814</b>	
	<b>Transportation Charges @5%</b>				<b>195071</b>	<b>246132</b>	
	<b>Estimated Cost of Civil work (Normal Dry Soil) for MA Type tower</b>	<b>125394</b>	<b>Job</b>	<b>6</b>	<b>752361</b>		
	<b>Estimated Cost of Civil work (Normal Dry Soil) for MB Type tower</b>	<b>149952</b>	<b>Job</b>	<b>6</b>		<b>899710</b>	
	<b>Contingency @3% on estimated cost of material</b>				<b>117043</b>	<b>147679</b>	
	<b>Labour Cess @1%</b>				<b>51305</b>	<b>64310</b>	
	<b>GST @ 18% on Trans+Erection+Civil work</b>				<b>200163</b>	<b>244918</b>	
	<b>Deptt. Cess @ 11%</b>				<b>592014</b>	<b>741422</b>	
	<b>G. Total</b>				<b>5973964</b>	<b>7481620</b>	



Annex-I to 33SC\_MCT (NSZ)

**OF WEIGHTS OF 33 KV MULTI CIRCUIT TOWERS (NON SNOW ZONE) (TENTATIVE) ALONGWITH COSTING DETAIL AS PER COST DATA**

Sr. No.	Description	Unit Weight		Total	Bolts & Nuts	Pack Washer	Total	Amount (Rs.)				Total Amount (Rs.)
		MS Steel	HT Steel					MS Steel	HT Steel	Bolts & Nuts	Pack Washer	
		(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)
<b>1</b>	<b>Multi Circuit Tower "MA" (Non Snow Zone)</b>											
i)	Stub Template	181.55		181.55	12.67		12.67	13286.56	0.00	1222.72	0.00	14509.27
ii)	Stubs for above (Set of 4)	70.56	223.86	294.42	6.82		6.82	5163.86	18021.27	658.16	0.00	23843.29
iii)	Normal tower (Basic body+stubs)	2346.84	854.19	3201.03	264.74	8.20	272.94	171751.14	68764.35	25548.73	791.34	266855.56
iv)	Normal tower with +3M Full Body Extension	2545.67	1114.03	3659.70	298.22	8.53	306.75	186302.31	89682.09	28779.72	823.38	305587.50
v)	Normal tower with +6M Full Body Extension	2730.13	1373.87	4104.00	331.70	8.86	340.56	199801.83	110599.83	32010.71	855.42	343267.80
vi)	Normal tower with +9M Full Body Extension	2933.15	1410.29	4272.88	354.26	9.20	363.46	214659.65	113531.73	34187.86	887.46	363266.70
<b>2</b>	<b>Multi Circuit Tower "MB" (Non Snow Zone)</b>											
i)	Stub Template	274.40		274.40	12.02		12.02	20081.69	0.00	1159.99	0.00	21241.68
ii)	Stubs for above (Set of 4)	110.40	416.69	527.09	12.64		12.64	8079.51	33544.55	1219.82	0.00	42843.88
iii)	Normal tower (Basic body+stubs)	2501.96	2387.04	4889.00	348.27	8.20	356.47	183103.44	192162.45	33609.80	791.34	409667.03
iv)	Normal tower with +3M Full Body Extension	2715.14	2853.66	5568.80	383.14	8.53	391.67	198704.81	229726.48	36974.93	823.38	466229.59
v)	Normal tower with +6M Full Body Extension	2914.15	3320.28	6234.43	418.01	8.86	426.87	213269.15	267290.51	40340.06	855.42	521755.14
vi)	Normal tower with +9M Full Body Extension	3123.85	3370.21	6383.66	437.71	9.20	446.91	228615.84	271309.99	42241.20	887.46	543054.50



Sr. No.	Description	Unit Weight		Total	Bolts & Nuts	Pack Washer	Total	Amount (Rs.)				Total Amount (Rs.)
		MS Steel	HT Steel					MS Steel	HT Steel	Bolts & Nuts	Pack Washer	
		(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Kg.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)
<b>3</b>	<b>Multi Circuit Tower "MC" (Non Snow Zone)</b>											
i)	Stub Template	312.49		312.49	13.66		13.66	22869.27	0.00	1318.26	0.00	24187.53
ii)	Stubs for above (Set of 4)	110.40	469.27	579.67	12.00		12.00	8079.51	37777.36	1158.06	0.00	47014.93
iii)	Normal tower (Basic body+stubs)	2510.63	2529.24	5039.87	537.46	13.89	551.35	183737.95	203609.89	51867.58	1340.45	440555.87
iv)	Normal tower with +3M Full Body Extension	2714.21	3062.46	5776.67	692.42	14.39	706.81	198636.74	246535.38	66821.99	1389.09	513383.21
v)	Normal tower with +6M Full Body Extension	2929.73	3595.68	6525.41	847.38	14.90	862.28	214409.36	289460.87	81776.41	1437.73	587084.37
vi)	Normal tower with +9M Full Body Extension	3164.14	3659.63	6713.37	986.92	15.40	1002.32	231564.42	294609.00	95242.71	1486.37	622902.50
<b>4</b>	<b>Multi Circuit Tower "MD" (Non Snow Zone)</b>											
i)	Stub Template	385.59		385.59	20.35		20.35	28219.02	0.00	1963.88	0.00	30182.90
ii)	Stubs for above (Set of 4)	329.76	654.94	984.70	19.49		19.49	24133.16	52724.24	1880.88	0.00	78738.28
iii)	Normal tower (Basic body+stubs)	3186.78	3924.40	7111.18	985.55	19.47	1005.02	233221.31	315923.62	95110.50	1878.95	646134.38
iv)	Normal tower with +3M Full Body Extension	3452.96	4723.39	8176.35	1319.80	19.72	1339.52	252701.42	380244.23	127367.30	1903.27	762216.23
v)	Normal tower with +6M Full Body Extension	3745.81	5522.38	9268.19	1654.05	19.97	1674.02	274133.36	444564.84	159624.10	1927.59	880249.89
vi)	Normal tower with +9M Full Body Extension	4059.44	5666.43	9396.11	1965.55	20.23	1985.78	297086.06	456161.21	189685.40	1951.91	944884.58

**Note:** Design Span for Multi-Circuit Towers will be 200 meter and there will be 6 (Six) Towers per Kilometer and Rates are exclusive of GST.

Rate of MS Steel (Per Kg.)

73.18 As per Cost Data 2020-21

Rate of HT Steel (Per Kg.)

80.50 Rates are not available in Cost Data, therefore, Rates for HT Steel has been taken 10% higher than MS steel in cost data 2020-21

Rate of Nut & Bolt & pack washer (Per Kg.)

96.51 As per Cost Data 2020-21

## Annex-II to 33SC\_MCT (NSZ)

**DETAIL OF CIVIL WORK OF 33 KV MULTI CIRCUIT TOWERS (NON  
SNOW ZONE) (TENTATIVE) ALONGWITH COSTING DETAIL AS PER**

Sr. No.	Description	Unit	Qty.	Rate	Amount
<b>1</b>	<b>Multi Circuit Tower "MA"</b>				
	<b>Hard Rock</b>				
i)	M20 Grade	M <sup>3</sup>	8.01	6574	52654
ii)	M10 Grade	M <sup>3</sup>		5444	0
iii)	Formwork	M <sup>2</sup>	26.40	259	6838
iv)	Excavation	M <sup>3</sup>	13.50	525	7092
v)	Reinforcement	Kg.	546.29	65	35427
	<b>Total</b>				<b>102011</b>
	<b>Normal Dry Soil</b>				
i)	M20 Grade	M <sup>3</sup>	8.61	6574	56598
ii)	M10 Grade	M <sup>3</sup>	1.26	5444	6859
iii)	Formwork	M <sup>2</sup>	23.30	259	6035
iv)	Excavation	M <sup>3</sup>	42.03	525	22081
v)	Reinforcement	Kg.	521.52	65	33821
	<b>Total</b>				<b>125394</b>
	<b>Wet Fissured Rock</b>				
i)	M20 Grade	M <sup>3</sup>	8.59	6574	56466
ii)	M10 Grade	M <sup>3</sup>	1.26	5444	6859
iii)	Formwork	M <sup>2</sup>	23.30	259	6035
iv)	Excavation	M <sup>3</sup>	42.03	525	22081
v)	Reinforcement	Kg.	568.89	65	36893
	<b>Total</b>				<b>128334</b>
	<b>Wet Soil</b>				
i)	M20 Grade	M <sup>3</sup>	8.61	6574	56598
ii)	M10 Grade	M <sup>3</sup>	1.26	5444	6859
iii)	Formwork	M <sup>2</sup>	23.30	259	6035
iv)	Excavation	M <sup>3</sup>	42.03	525	22081
v)	Reinforcement	Kg.	521.52	65	33821
	<b>Total</b>				<b>125394</b>
<b>2</b>	<b>Multi Circuit Tower "MB"</b>				
	<b>Hard Rock</b>				
i)	M20 Grade	M <sup>3</sup>	8.01	6574	52654
ii)	M10 Grade	M <sup>3</sup>		5444	0
iii)	Formwork	M <sup>2</sup>	26.40	259	6838
iv)	Excavation	M <sup>3</sup>	13.50	525	7092
v)	Reinforcement	Kg.	546.43	65	35436
	<b>Total</b>				<b>102020</b>

Sr. No.	Description	Unit	Qty.	Rate	Amount
	<b>Normal Dry Soil</b>				
i)	M20 Grade	M <sup>3</sup>	9.98	6574	65604
ii)	M10 Grade	M <sup>3</sup>	1.52	5444	8274
iii)	Formwork	M <sup>2</sup>	23.94	259	6200
iv)	Excavation	M <sup>3</sup>	50.63	525	26599
v)	Reinforcement	Kg.	667.29	65	43274
	<b>Total</b>				<b>149952</b>
	<b>Wet Fissured Rock</b>				
i)	M20 Grade	M <sup>3</sup>	13.53	6574	88940
ii)	M10 Grade	M <sup>3</sup>	2.10	5444	11432
iii)	Formwork	M <sup>2</sup>	27.08	259	7014
iv)	Excavation	M <sup>3</sup>	70.23	525	36897
v)	Reinforcement	Kg.	921.24	65	59742
	<b>Total</b>				<b>204024</b>
	<b>Wet Soil</b>				
i)	M20 Grade	M <sup>3</sup>	16.22	6574	106622
ii)	M10 Grade	M <sup>3</sup>	2.61	5444	14208
iii)	Formwork	M <sup>2</sup>	28.04	259	7262
iv)	Excavation	M <sup>3</sup>	87.03	525	45723
v)	Reinforcement	Kg.	970.42	65	62932
	<b>Total</b>				<b>236747</b>
<b>3</b>	<b>Multi Circuit Tower "MC"</b>				
	<b>Hard Rock</b>				
i)	M20 Grade	M <sup>3</sup>	8.20	6574	53903
ii)	M10 Grade	M <sup>3</sup>		5444	0
iii)	Formwork	M <sup>2</sup>	27.20	259	7045
iv)	Excavation	M <sup>3</sup>	13.50	525	7092
v)	Reinforcement	Kg.	752.50	65	48800
	<b>Total</b>				<b>116840</b>
	<b>Normal Dry Soil</b>				
i)	M20 Grade	M <sup>3</sup>	13.56	6574	89143
ii)	M10 Grade	M <sup>3</sup>	2.10	5444	11432
iii)	Formwork	M <sup>2</sup>	27.08	259	7014
iv)	Excavation	M <sup>3</sup>	70.23	525	36897
v)	Reinforcement	Kg.	726.17	65	47092
	<b>Total</b>				<b>191578</b>
	<b>Wet Fissured Rock</b>				
i)	M20 Grade	M <sup>3</sup>	13.53	6574	88940
ii)	M10 Grade	M <sup>3</sup>	2.10	5444	11432
iii)	Formwork	M <sup>2</sup>	27.08	259	7014
iv)	Excavation	M <sup>3</sup>	70.23	525	36897
v)	Reinforcement	Kg.	921.66	65	59770
	<b>Total</b>				<b>204051</b>

Sr. No.	Description	Unit	Qty.	Rate	Amount
	<b>Wet Soil</b>				
i)	M20 Grade	M <sup>3</sup>	16.22	6574	106622
ii)	M10 Grade	M <sup>3</sup>	2.61	5444	14208
iii)	Formwork	M <sup>2</sup>	28.04	259	7262
iv)	Excavation	M <sup>3</sup>	87.03	525	45723
v)	Reinforcement	Kg.	970.13	65	62913
					<b>236729</b>
<b>4</b>	<b>Multi Circuit Tower "MD"</b>				
	<b>Hard Rock</b>				
i)	M20 Grade (1:1.5:3)	M <sup>3</sup>	8.20	6574	53903
ii)	M10 Grade (1:3:6)	M <sup>3</sup>		5444	0
iii)	Formwork	M <sup>2</sup>	27.20	259	7045
iv)	Excavation	M <sup>3</sup>	13.50	525	7092
v)	Reinforcement	Kg.	626.18	65	40608
	<b>Total</b>				<b>108648</b>
	<b>Normal Dry Soil</b>				
i)	M20 Grade	M <sup>3</sup>	20.20	6574	132785
ii)	M10 Grade	M <sup>3</sup>	2.70	5444	14698
iii)	Formwork	M <sup>2</sup>	29.80	259	7718
iv)	Excavation	M <sup>3</sup>	90.00	525	47283
v)	Reinforcement	Kg.	1237.88	65	80277
	<b>Total</b>				<b>282761</b>
	<b>Wet Fissured Rock</b>				
i)	M20 Grade	M <sup>3</sup>	20.20	6574	132785
ii)	M10 Grade	M <sup>3</sup>	2.70	5444	14698
iii)	Formwork	M <sup>2</sup>	29.80	259	7718
iv)	Excavation	M <sup>3</sup>	90.00	525	47283
v)	Reinforcement	Kg.	1059.01	65	68677
	<b>Total</b>				<b>271161</b>
	<b>Wet Soil</b>				
i)	M20 Grade	M <sup>3</sup>	26.70	6574	175513
ii)	M10 Grade	M <sup>3</sup>	3.67	5444	19978
iii)	Formwork	M <sup>2</sup>	31.80	259	8236
iv)	Excavation	M <sup>3</sup>	112.50	525	59104
v)	Reinforcement	Kg.	1585.70	65	102833
	<b>Total</b>				<b>365664</b>
	<b>Note:</b> Rates are exclusive of GST.				
	<b>Erection Charges per km 33 kV Line on Multi ckt tower</b>				
3	Erection of Towers (MA)	MT	3.2	29720	95104
4	Erection of Towers (MB)	MT	4.89	29720	145331
5	Stringing of Conductor	ckm	1	49620	49620
6	Fixing of Tower accessories	Nos	6	2162	12973
7	Stringing of Earth Wire	km	1	6890	6890
	<b>Sub total (3 to 6 except 4)[MA Type]</b>				<b>164587</b>
	<b>Sub total (4 to 6)[MB Type]</b>				<b>214814</b>

**CONFIGURATION 4: (11 kV LINE)**

**Cost Data**

- A) **Estimated Cost (per Km): [For 11 kV Single Circuit (SC) Line on Single Pole (SP) Structure (Delta Formation); using Conductor: (Dog : 100mm<sup>2</sup> : ACSR 6/1/4.72) and Single continuous Earth wire]**

(Assume: Wind pressure upto 100 kg/m<sup>2</sup>; Ice / Snow Loading: Moderate ; Span (Max= 110m, Sag=2.58m; Ruling= 90m, Sag=1.73m)

= 4.6

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

S. No.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	ACSR 6/1/4.72 (100mm <sup>2</sup> ) {Includes 3 conductor lengths for 3Φ and Additional 1% (Sag, Jumping and wastage)}	80362	km	3.03	243497	Esc
2	Steel Tubular Poles (11 m, Working Load > 227 kgf/m <sup>2</sup> ) (with Ruling Span 90 m, 8 No. Run thro' and 3 No. Double Pole Dead End Structures)	18706	No	14	261884	SIV
3	Muffs with concrete filling	1769	No	14	24766	Esc
4	<b>Run Thro' Structures (Δ Formation):</b> on Single Pole Structures (Adopt Eight (8) No. Run-through Structures per Km) -					
a	Cross Arm: [Channel Iron (100x50x5 mm), Length: 1270 mm i/c tolerance of 100 mm either side) x 8 structure	1123	No	8	8983	MR
b	Angle Iron (50x50x6 mm), Length: 750 mm x 2 No. x 8 structures	312	No	16	4994	MR
c	Pole Top Bracket [MSCI:100x50x6 mm- 100 mm]	57	No	8	456	Esc
d	11 kV Pin Insulators (Porcelain, 12 kV, 10 KN): 3 No per pole structure	154	No	24	3696	Esc
5	<b>Dead End Structures:</b> (Adopt three (3) No. per Km) on Double Pole (Prefer along road side)					
a	Belt Set - MS Angle Iron: 50x50x6, Length :1800 mm x 2 No.	749	No	6	4495	MR
b	X-Bracing Set - MS Angle Iron: 50x50x6, Length: 2125 mm x 2 No.	895	No	6	5369	MR
c	X-Arm (Horizontal) - MS Channel Iron: 100X50x5, Length: 2340 mm x 2 No.] Δ Formation	2069	No	6	12413	MR
d	Discs insulator sets on Dead End structures (comprising 1 No. Disc: ^^ (Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.) x (3 No. conductors) x (2 No. sides)	1450	Set	18	26100	Esc
e	11 kV Pin Insulators (Porcelain, 12 kV, 10 kN): 3 No per double pole structure	154	No	9	1386	Esc
6	<b>HT Stay / Guy Arrangement</b>					
a	Stay set complete in all respect (1No. / Single Pole , 4 No. / Double Pole Structures)	1077	No	20	21540	PO
b	Stay Wire (7/3.15 mm) (10.0 kg Per Stay Set)	70	kg	200	14000	SIV
7	<b>Earthing</b>					
a	HT Earthing set complete (REC Constr. Stand. J-1)	2853	Nos	11	31383	Esc
b	Single Continous Earth wire (GI, 8 SWG) {alongwith 2 wire lengths for avg. one road crossing @ 20 m and Additional 1% (Sag and wastage)} @ 0.102 kg/m	68	kg	105.08	7145	Esc
c	Cross Lacings (GI, 8 SWG) [ 2.2 m x 9 Nos @ 2 m spacing] {0.102 kg/m}	68	kg	2.02	137	Esc
d	Eye Hook for earth wire	28	No	11	308	Esc
e	Earth Wire Clamp	273	No	11	3003	Esc
f	MS Angle Iron: 50x50x6, Length : 2800 mm for Road crossing	1165	No	2.00	2331	MR
8	Half clamps: [On Double Pole Dead End structure: 4 No; On Run Thro' structure: 2 No ]	158	No	28	4424	Esc
9	Full clamps: [On Double Pole Dead End structure: 4 No, Single Pole Run Thro' structure: 2 No]	273	No	28	7644	Esc
10	Danger Plate (250X200X1.6 mm)	133	No	10	1330	Esc

= 4.6

**Cost Escalation in FY23 over Cost Data for FY2021-22 (%)**

S. No.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
11	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm Φ or more (with flat and spring washers)]	98	Kg	125	12250	Esc
12	Barbed Wire	78	Kg	42	3276	Esc
13	Red Oxide	157	Ltr	21	3297	Esc
14	Aluminium Paint	344	Ltr	28	9632	Esc
	<b>Add:</b> [Cost of Essential Optional Sub-Configurations Required as per Site Conditions (such as Guarding for Road Crossing, 4 pole structures for 90° spans etc not included here)] (Per Km)				X	
	<b>Estimated Cost of Material</b>		X +		719738	
	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)	1.0%	0.01X +		7197	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.01X +		726935	
	<b>Erection Charges</b>				226098	
	<b>Transportation Charges</b>				54392	
	<b>Contingency @3%</b>				21808	
	<b>Labour Cess @1%</b>				10292	
	<b>GST @ 18% on Trans+Erect.</b>				50488	
	<b>Deptt Charges @ 11%</b>				119902	
	<b>G. Total</b>				1209916	

The Span / Sag shown are for Level Spans. For Non Level Spans recalculate Spans / Sags. For Areas where Ice / Snow loading are absent recalculate span / sag (In absence of data assume: Max Span= 115m, Sag =2.45m, Ruling Span= 100m, Sag= 1.86m), For Areas where there is Extreme High Ice / snow / wind loading (150kg/m<sup>2</sup>) recalculate span / sag (In absence of data assume: Max Span= 90m, Sag = 2.55 m, Ruling Span= 75m, Sag= 1.77m)

Higher conductor sizes / DC Line shall be preferred for feeding 11/0.4 KV Sub Stations of capacities >400 KVA; Insulated conductors may be preferred when lines pass through cities / townships. AAAC conductors to be used in plain areas.

PCC Poles, H Beams, ST Poles of higher sizes may be used as per site conditions. 9 m Poles may be used in places other than across or along streets. Drilling /Punching of Steel Tubular Poles are strictly prohibited.

Where Muffs are not available we may opt for concreting

On structural steel items (Channel, Angle and Flats), tolerance of (+) 100mm on either side of the length has been included in the quantity.

Use of additional Dead End Structures depend on Site Conditions such as large span angles, Non Level Spans, Ridge spans, River crossing spans etc . Where necessary and justified 3 or 4 pole structures shall be preferred.

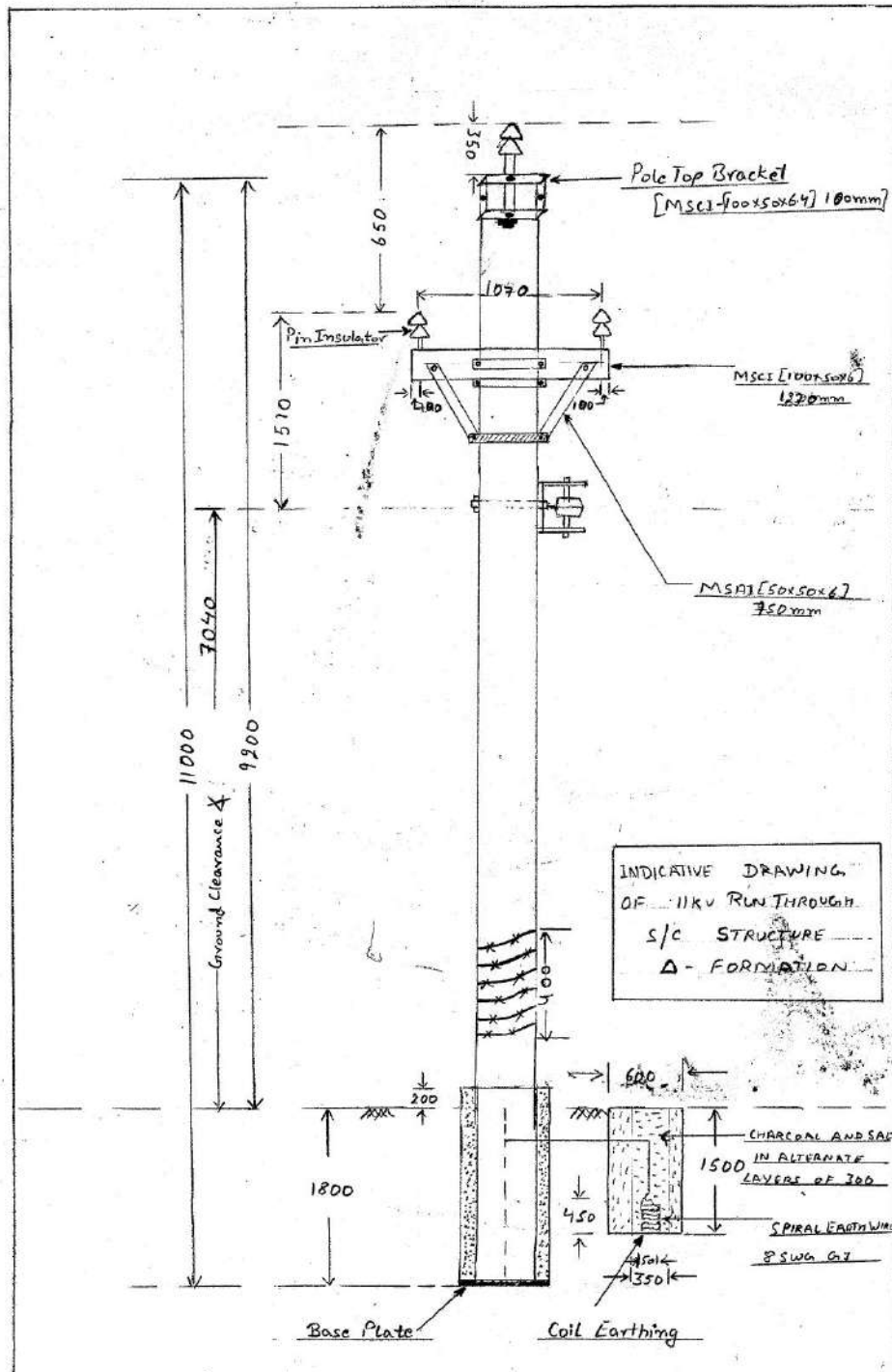
For Lesser Discs per string, 15 KV Glass Disc Insulators may be preferred; Composite Polymeric Insulators may also be preferred but shall not be used for Snow bound areas. Discs of strength 45 kN may be used where ever feasible.

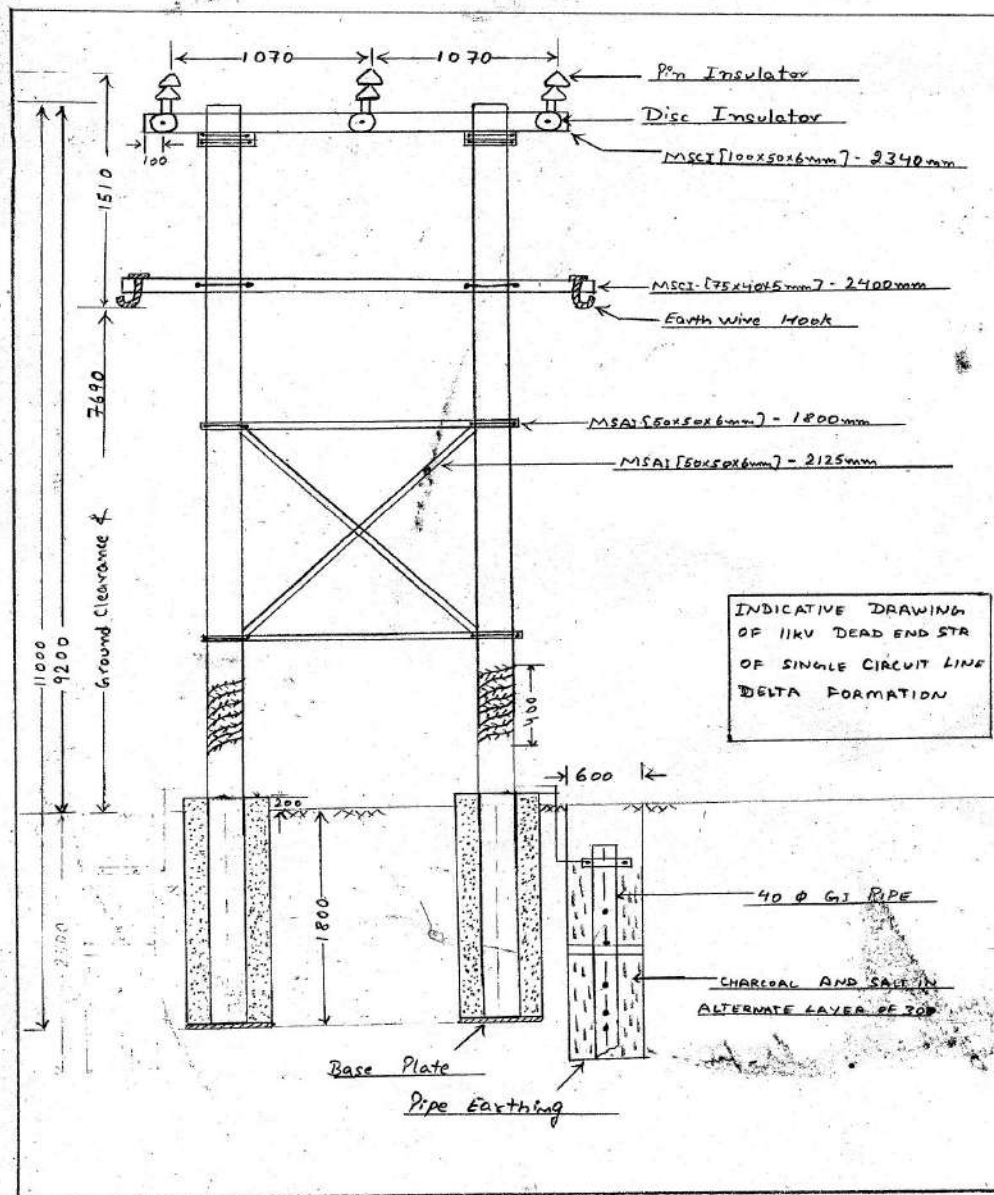
Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):**

**Refer Main Cost Database**

- C) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendements there to.







**CONFIGURATION 5: (11 kV LINE)**

**Cost Data**

**Estimated Cost (per Km): [For 11 kV Double Circuit (DC) Line on Double Pole (DP) Structure (**

**B) Vertical Formation); using Conductor (Dog / 100 mm<sup>2</sup> / ACSR 6/1/4.72) and Single continuous Earth wire]**

(Assume: Wind pressure upto 100 kg/m<sup>2</sup>; Ice / Snow Loading: Moderate ; Span (Max= 100m, Sag= 2.13m; Ruling= 80m, Sag= 1.36m)

**Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6**

S. No.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	ACSR 6/1/4.72 (100 mm <sup>2</sup> ) {Includes 3 conductor lengths for 3Φ and Additional 1% (Sag, Jumpering and wastage)}	80362	km	6.06	486994	Esc
2	Steel Tubular Poles (11 m, Working Load > 227 kgf/m <sup>2</sup> ) (with Ruling Span 80 m, 10 No. Run thro' and 3 No. Dead End Structures)	18706	No	26	486356	SIV
3	Muffs with concrete filling	1769	No	26	45994	Esc
4	<b>Run Thro' Structures: (Vertical Formation) on Double Pole Structures (Adopt Ten (10) No. Run-through Structures per Km) -</b>					
a)	X-Arm (Horizontal) - MS Channel Iron: 100X50x5, Length: 2340mm x 2 Nos	2069	No	20	41377	MR
a)	X-Arm (Horizontal) - MS Channel Iron: 100X50x5, Length: 2600mm x 1 Nos	2299	No	10	22987	MR
b)	11 kV Pin Insulators with GI Pin(Porcelain, 12 kV, 10 kN): 6 No per structure	154	No	60	9240	Esc
c)	Half clamps	158	No	120	18960	Esc
d)	Full clamps:	273	No	80	21840	Esc
5	<b>Dead end structure(Vertical Formation) on Double Pole Structure (3 Nos Dead End Structure per km)</b>					
a)	X-Arm (Horizontal) - MS Channel Iron: 100X50x6, Length: 2340mm x 4 Nos	2069	No	12	24826	MR
b)	X-Arm (Horizontal) - MS Channel Iron: 100X50x6, Length: 2600mm x 2 Nos	2299	No	6	13792	MR
b)	11 kV Pin Insulators (Porcelain, 12 kV, 10 kN): 6 No per structure	154	No	18	2772	Esc
e)	Discs insulator sets on Dead End structures (comprising 1 No. Disc: ^\^\(Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.) x (6 No. conductors) x (2 No. sides)	1450	Set	36	52200	Esc
c)	X-Bracing Set - MS Angle Iron: 50x50x6, Length: 2125 mm x 2 Nos	895	No	26	23264	MR
d)	Belt Set - MS Angle Iron: 50x50x6, Length [(1800 x 2 No.)]	749	No	26	19477	MR
6	Half clamps	151	No	18	2718	Esc
7	Full clamps:	273	No	24	6552	Esc
8	<b>HT Stay / Guy Arrangement</b>					
a	Stay set complete in all respect (4No. / Dead Structure & 2 No./Run Thro.)	1077	No	32	34464	PO
b	Stay Wire (7/3.15 mm) (10 kg Per Stay Set)	76	kg	320	24320	Esc
9	<b>Earthing</b>	0			0	Esc
a	HT Earthing set complete	2853	No	13	37089	Esc
b	Single Continous Earth wire (GI, 8 SWG) {alongwith 1 wire lengths for avg. one road crossing @ 20 m and Additional 1% (Sag and wastage))@ 0.102 kg/m	68	kg	105	7145	Esc
c	Cross Lacings (GI, 8 SWG) [ 2.2 m x 9 Nos @ 2 m spacing] {0.102 kg/m}	68	kg	2.02	137	Esc
d	Eye Hook for earth wire	28	No	13	364	Esc
e	Earth Wire Clamp	273	No	13	3549	Esc
f	MS Angle Iron 50x50x6, Length: 2800 mm	1165	No	2	2331	MR

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

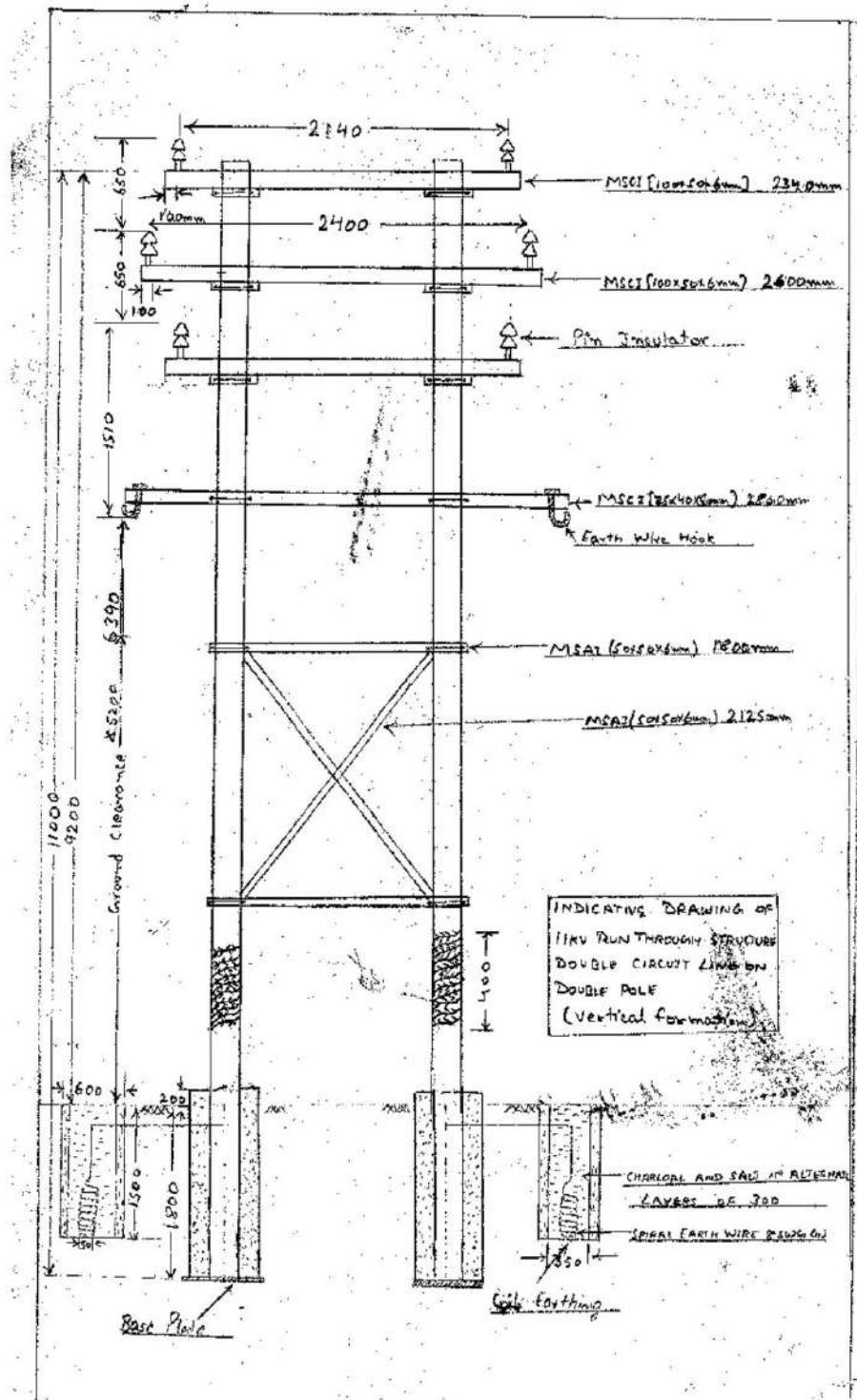
S. No.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
10	Danger Plate (250X200X1.6 mm)	133	No	16	2128	Esc
11	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm Φ or more (with flat and spring washers)]	98	Kg	250	24500	Esc
12	Barbed Wire	78	Kg	78	6084	Esc
13	Red Oxide	157	Ltr	39	6123	Esc
14	Aluminium Paint	344	Ltr	52	17888	Esc
	<b>Add:</b> [Cost of Essential Optional Sub-Configurations Required as per Site Conditions (such as Guarding for Road Crossing, 4 pole structures for 90° spans etc not included here)] (Per Km)				X	
	<b>Estimated Cost of Material</b>		X	+	1445471	
	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)	1.0%	0.01X	+	14455	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.01X	+	1459925	
	<b>Erection Charges</b>				367920	
	<b>Transportation Charges</b>				108784	
	<b>Contingency @3%</b>				43798	
	<b>Labour Cess @1%</b>				19804	
	<b>GST @ 18% on Trans+Erect.</b>				85807	
	<b>Deptt Charges @ 11%</b>				229464	
	<b>G. Total</b>				<b>2315502</b>	

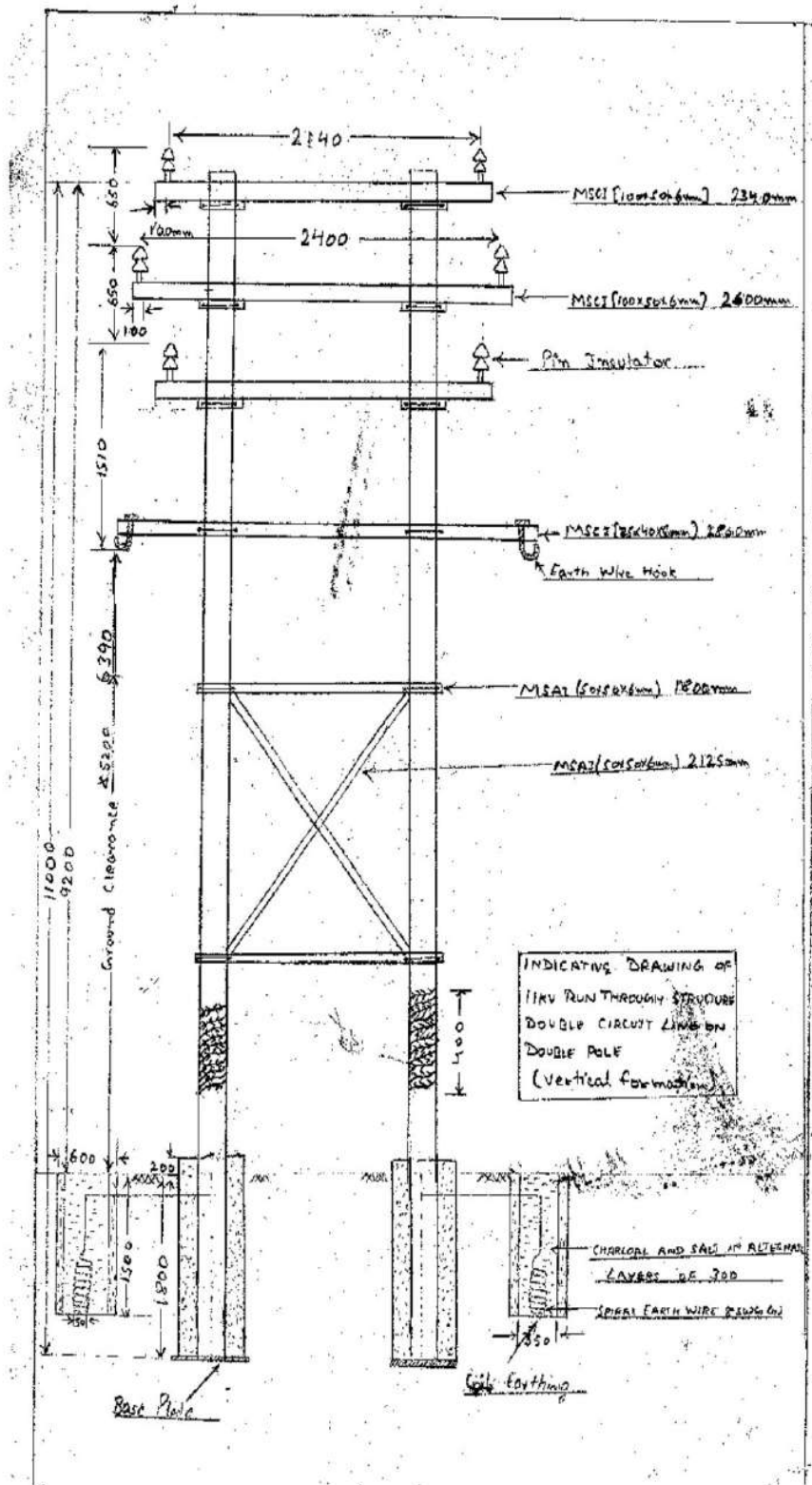
The Span / Sag shown are for Level Spans. For Non Level Spans recalculate Spans / Sags. For Areas where Ice / Snow loading are absent recalculate span / sag (In absence of data assume: Max Span= 100m, Sag =1.87m, Ruling Span= 80m, Sag= 1.19m), For Areas where there is Extreme High Ice / snow / wind loading (150kg/m<sup>2</sup>) recalculate span / sag (In absence of data assume: Max Span= 80m, Sag = 2.1 m, Ruling Span= 80m, Sag = 1.19m). Higher conductor sizes / DC Line shall be preferred for feeding 11/0.4 KV Sub Stations of capacities >400KVA; Insulated conductors may be preferred when lines pass through cities / townships. AAAC conductors to be used PCC Poles, H Beams, ST Poles of higher sizes may be used as per site conditions. Drilling /Punching of Steel Tubular Poles are strictly prohibited. Where Muffs are not available we may opt for concreting. Use of additional Dead End Structures depend on Site Conditions such as large span angles, Non Level Spans, Ridge spans, River crossing spans etc . Where necessary and justified 3 or 4 pole structures shall be preferred. For Lesser Discs per string, 15 KV Glass Disc Insulators may be preferred; Composite Polymeric Insulators may also be preferred but shall not be used for Snow bound areas. Discs of strength 45 kN may be used where ever Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):**

**Refer Main Cost Database**

- Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.





**CONFIGURATION 6: (11 kV LINE with AB Cable)**

**Cost Data**

**A) Estimated Cost (per Km): [For 11 kV Line on Single Pole (SP) Structure: using AB Cable (3x70+95 mm<sup>2</sup>) with Bare Messenger x 2 Cables]**

(Assume: Wind pressure upto 100 kg/m<sup>2</sup>; Ice / Snow Loading: Moderate ; Span (Max= 48m, Sag= 1.69m; Ruling= 30 m, Sag= 0.66m)

**Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6**

S. No.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	11 kV AB Cable [Size: (3x70+95 mm <sup>2</sup> ) x 2 Cables {additional 1% sagging & wastage}]	539368	km	2.02	1089523	SIV
2	Steel Tubular Poles (9 m, Working Load > 200 kgf/m <sup>2</sup> )	12600	No	33	415800	PO
3	Muffs with concrete filling	1769	No	33	58377	Esc
4	Stay Set Complete	1077	No	33	35541	PO
5	Stay Wire (7/3.15 mm) (7.0 kg Per Stay Set)	70	Kg	231	16170	SIV
6	Full Clamp for stay	273	No.	33	9009	Esc
7	X-Arm (Horizontal) - MS Channel Iron: 100X50x5, Length [600 mm]	530	Mtr	33	17506	MR
8	Half Clamp for Cross Arm	153	No	33	5049	Esc
8	Anchoring Assembly for HT	345	No	34	11730	Esc
9	Suspension Assembly for HT	273	No	32	8736	Esc
10	Facade Hooks for HT	95	No	66	6270	Esc
11	Heat Shrinkable Straight Through Jointing Kit	5470	Set	2	10940	Esc
12	Cable Termination kit	7657	Set	4	30628	Esc
13	T-Jointing kit	6016	Set	4	24064	Esc
14	HT Earthing set complete (preferably coil earthing)	2853	No	33	94149	Esc
	Red Oxide	157	Ltr	49.5	7772	Esc
15	Aluminium paint	344	Ltr	66	22704	Esc
	<b>Add:</b> [Cost of Essential Optional Sub-Configurations Required as per Site Conditions (such as Guarding for Road Crossing, 4 pole structures for 90° spans etc not included here)] (Per Km)				X	
	<b>Estimated Cost of Material</b>		X	+	<b>1863967</b>	
	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)	1.0%	0.01X	+	<b>18640</b>	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.01X	+	<b>1882607</b>	
	<b>Erection Charges</b>				<b>337957</b>	
	<b>Transportation Charges</b>				<b>98724</b>	
	<b>Contingency @3%</b>				<b>56478</b>	
	<b>Labour Cess @1%</b>				<b>23758</b>	
	<b>GST @ 18% on Trans+Erect.</b>				<b>78603</b>	
	<b>Deptt Charges @ 11%</b>				<b>272594</b>	
	<b>G. Total</b>				<b>2750721</b>	

The Span / Sag shown are for Level Spans. For Non Level Spans recalculate Spans / Sags. For Areas where Ice / Snow loading are absent recalculate span / sag (In absence of data assume: Max Span= 52m, Sag =1.76m, Ruling Span= 40m, Sag= 1.04m). For Areas where there is Extreme High Ice / snow / wind loading (150kg/m<sup>2</sup>) recalculate span / sag (In absence of data assume: Max Span= 44m, Sag = 1.71 m, Ruling Span= 25m, Sag= 0.55m)

PCC Poles, H Beams, ST Poles of higher sizes may be used as per site conditions. Drilling /Punching of Steel Tubular Poles are strictly prohibited.

Where Muffs are not available we may opt for concreting

Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate): Refer Main Cost Database**

**C) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.

**CONFIGURATION 7: (11 kV Underground Line with XLPE Cable) Cost Data**

A) **Estimated Cost (per Km): [For 11 kV Line, 3Cx300 mm<sup>2</sup> Underground XLPE Cable]**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

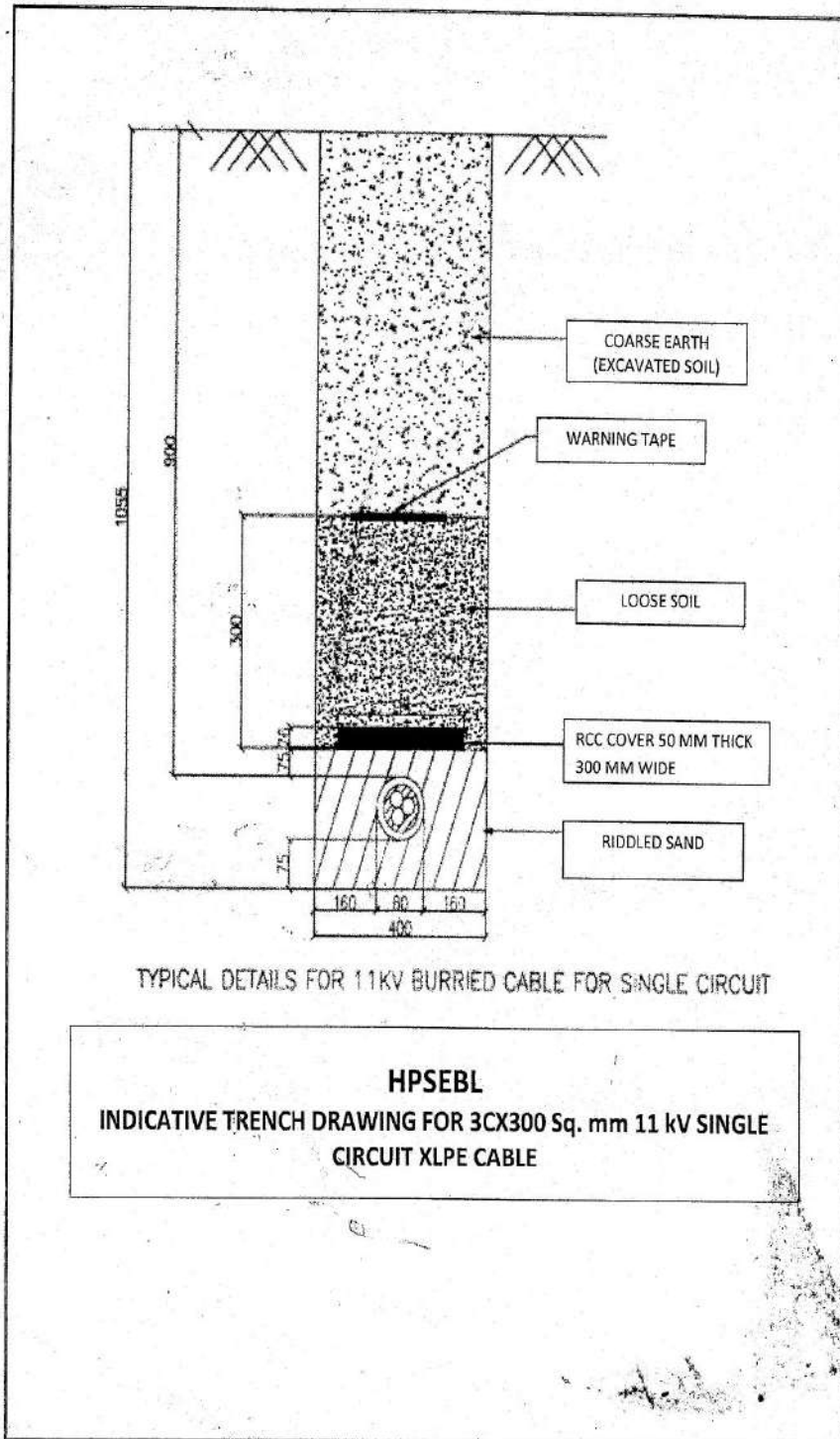
S. No.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	11 kV XLPE Cable [Size: (3x300 mm <sup>2</sup> ) {additional 1% wastage}]	1499393	km	1.01	1514387	Esc
2	11 kV Cable Straight Through Jointing Kit [Size: 3x300 mm <sup>2</sup> ]	13075	No	2	26150	Esc
3	11 kV Cable Indoor Termination Kit [Size: 3x300 mm <sup>2</sup> ]	6251	No	2	12502	Esc
4	11 kV Cable Outdoor Termination Kit [Size: 3x300 mm <sup>2</sup> ]	7500	No	2	15000	Est
5	RCC cable cover (2 feet long)	266	No	1666	443156	Esc
6	Sand Bag (50 Kg)	44	No	500	22000	Esc
7	Route and Joint indicating stone	142	No	30	4260	Esc
8	Inspection Chamber	4047	No	4	16188	Esc
9	GI Pipe earthing 40 mm x 2.5/3 m 'B' class	667	No	2	1334	Esc
10	Pipe HDPE Size 25 mm	110	Mtr	6	660	Esc
10	Lug AL Crimping 70 SQMM XLPE Single HOLE	22	No	8	176	Esc
11	Flat GI Size 25x6 mm	56	Kg	7	392	Esc
12	Cleat HDPE for Cable Support	835	Kg	4	3340	Esc
13	G.I. Pipe 100 mm DIA 'B' CLASS	820	No	6	4920	Esc
14	Flat GI Size 50x6 mm	56	No	10	560	Esc
15	Channel MS Size 75x40 mm	71	No	60	4260	Esc
16	Warning Tape (Printed PE UG utility protection)	157	Mtr	1000	157000	Esc
17	Misc. Material like nuts & Bolts, Lugs etc. @ 0.5% of the material cost				10346	
	<b>ADD:</b> [Cost of digging and road restoration charges per km shall be as per the PWD/ MC/ NAC rates+ excavation charges as per HPPWD HPSR]				X	
	<b>Estimated Cost of Material</b>		X	+	2236631	
	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)	1.0%	0.01X	+	22366	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.01X	+	2258998	
	<b>Erection Charges</b>				246721	
	<b>Transportation Charges</b>				118844	
	<b>Contingency @3%</b>				67770	
	<b>Labour Cess @1%</b>				26923	
	<b>GST @ 18% on Trans+Erect.</b>				65802	
	<b>Deptt Charges @ 11%</b>				306356.3	
	<b>G.Total</b>				3091414	

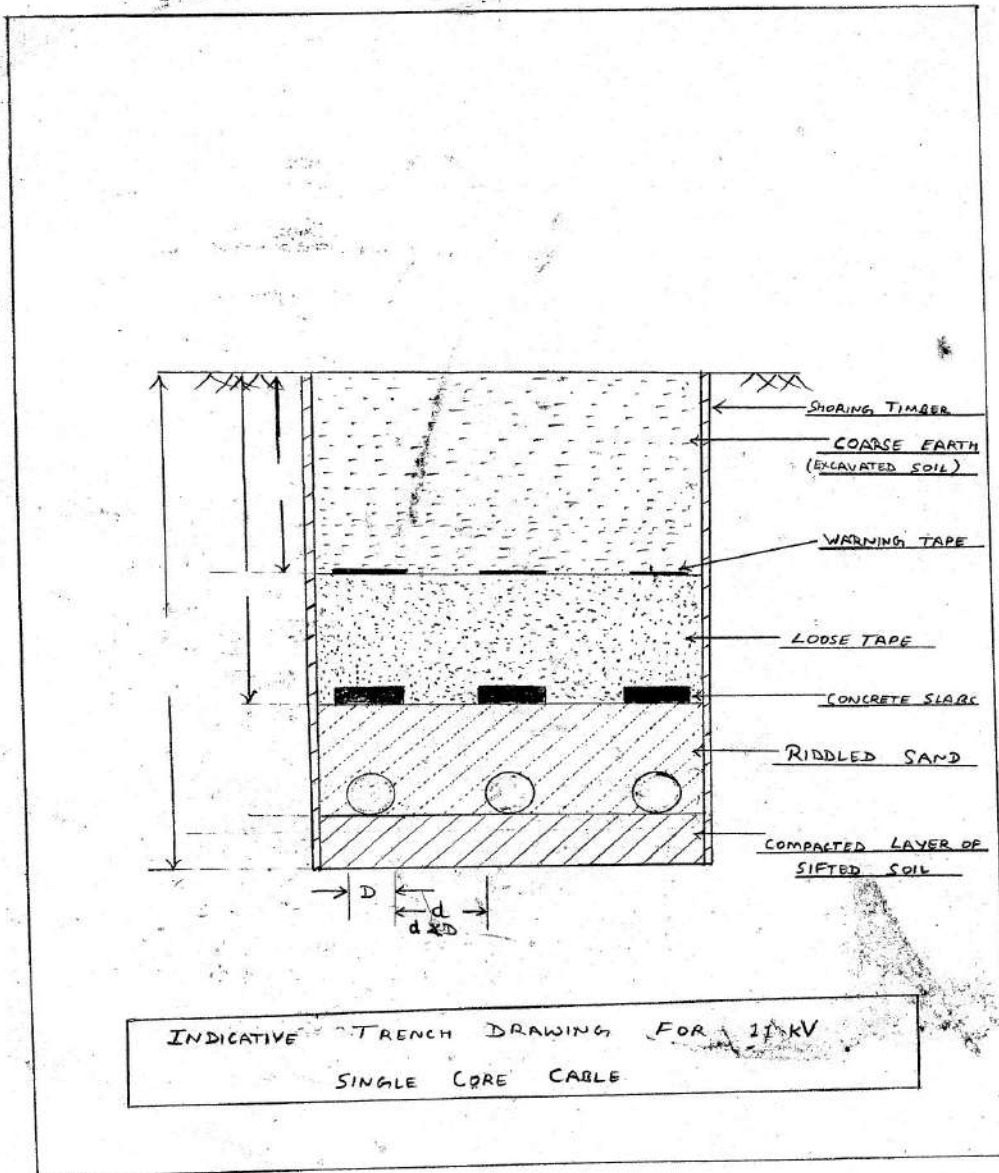
\* Material Cost are inclusive of GST

B) **Optional Scope of Items (if Included in Estimate): Refer Main Cost Database**

C) **Note: i)** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line and below shall conform to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.

ii) Installation and maintenance of Power Cables upto and including 33 kV ratings should be as per IS: 1255







**CONFIGURATION 8: (3Φ LT LINE)**

**Cost Data**

**A) Estimated Cost (per Km): [For 3Φ LT Line on Single Pole (SP) Structure (Vertical Formation); using Conductor (Dog / 100 mm<sup>2</sup> / ACSR 6/1/4.72) and Single continuous Earth wire]**

(Assume: Wind pressure upto 100 kg/m<sup>2</sup>; Ice / Snow Loading: Moderate ; Span (Max= 70 m, Sag= 2.13m; Ruling= 67m, Sag= 1.36m)

**Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6**

S. No	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1 a	ACSR 6/1/4.72 (100mm <sup>2</sup> ) {Includes 3 conductor lengths for 3Φ and Additional 1% (Sag, Jumpering and wastage)}	80362	km	3.03	243497	Esc
b	ACSR 6/1/3.35 (50mm <sup>2</sup> ) { Neutral conductor including 1% (Sag, Jumpering and wastage)}	47146	km	1.01	47617	SIV
2	Steel Tubular Poles (9 m, Working Load > 200 kgf/m <sup>2</sup> ) (with Ruling Span 67 m)	12600	No	15	189000	SIV
3	Muffs with concrete filling	1769	No	15	26535	Esc
4	Angle Iron (75x75x6) [Length- 1.50 Mtr + 0.2 Mtr]	1069	No	15.00	16036	MR
5	Shackle Insulator (16 kN)	42	No	60	2520	Esc
6	D-Iron (U- Clamps)	70	No	60	4212	SIV
7	Earth Knob	13	No	15	195	Esc
8	LT Stay Set	886	No	12	10632	PO
9	Stay Wire (7/3.15 mm) (6.0 kg Per Stay Set)	70	Kg	72	5040	SIV
10	Kit Kat I.C.	143	No	12	1716	Esc
11	Full Clamps [ 2 No for A.I + 1 No for Stay Set]	273	No	45	12285	Esc
12	Earthing Set complete	667	No	6	4002	Esc
13	Earth wire (GI, 8 SWG) (Additional 1% (Sag and wastage)) @ 0.102 kg/m	68	Kg	103	7005	Esc
14	Spool Tie	26	No	60	1560	Esc
15	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm Φ or more (with flat and spring washers)]	98	Kg	25	2450	Esc
16	Aluminium Paint	344	Ltr	22.5	7740	Esc
17	Red Oxide	157	Ltr	17	2669	Esc
17	Spiral PVC Spacer	68	No	30	2040	Esc
	<b>Add:</b> [Cost of Essential Optional Sub-Configurations Required as per Site Conditions (such as Guarding for Road Crossing, Dead End Structures not included here)] (Per Km)					X
	<b>Estimated Cost of Material</b>		X	+	<b>586752</b>	
	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (Per Km) (After Justification and with Approval)	1.0%	0.01X	+	<b>5868</b>	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		<b>1.01X</b>	<b>+</b>	<b>592619</b>	
	<b>Erection Charges</b>				<b>190713</b>	
	<b>Transportation Charges</b>				<b>33975</b>	
	<b>Contingency @3%</b>				<b>17779</b>	
	<b>Labour Cess @1%</b>				<b>8351</b>	
	<b>GST @ 18% on Trans+Erect.</b>				<b>40444</b>	
	<b>Deptt Charges @ 11%</b>				<b>97226.87</b>	
	<b>G.Total</b>				<b>981108</b>	

Horizontal Formation may be adopted where necessary

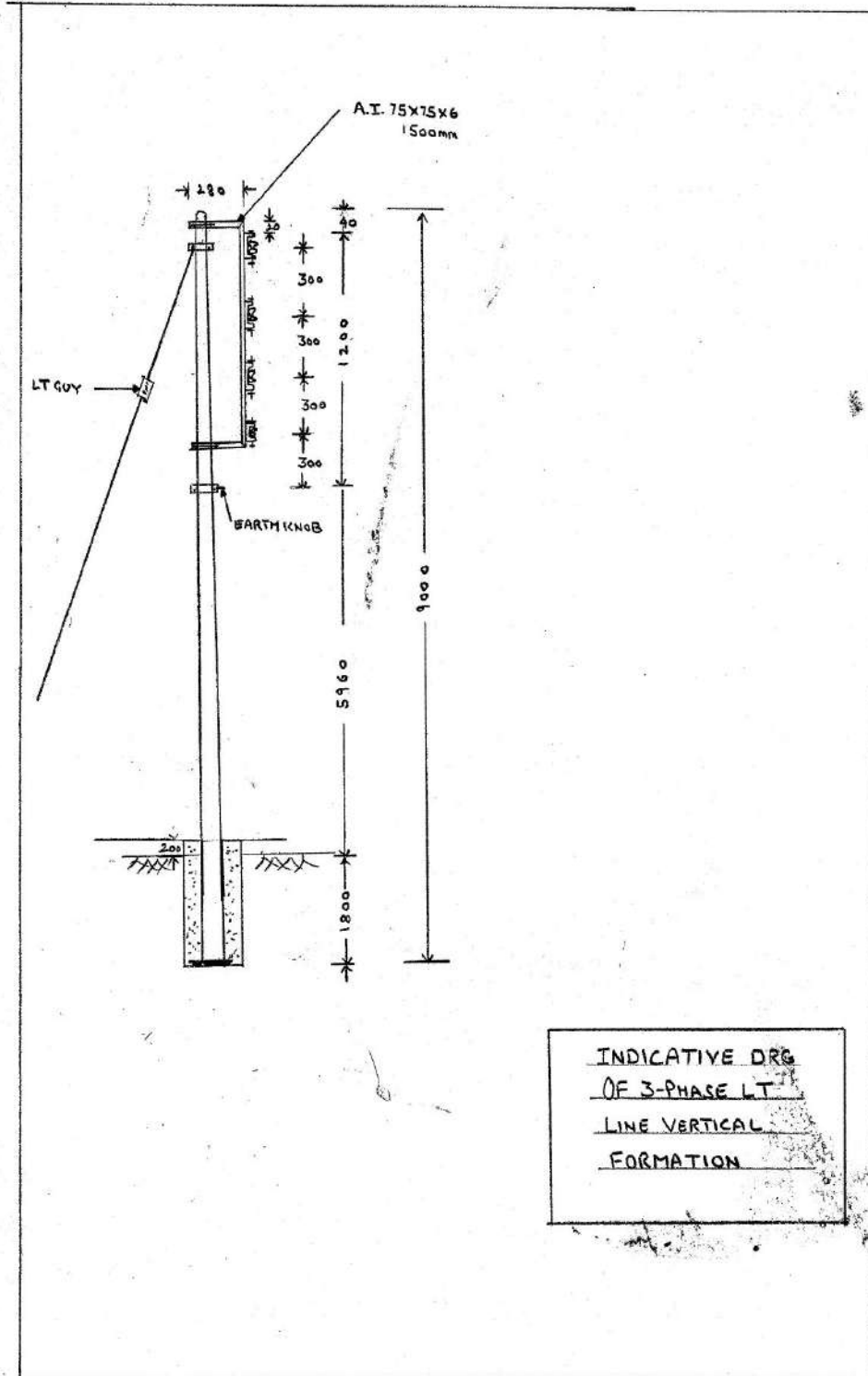
It is desirable that the length of LT feeders do not increase beyond 500m from the feeding DTR. Higher conductor sizes / DC Line shall be preferred when feeding from 400KVA or higher DTR or feeding areas greater than 400m. PCC, I Beams, ST Poles of higher sizes may be used as per site conditions. Drilling /Punching of Steel Tubular Poles are strictly prohibited.

Where Muffs are not available we may opt for concreting.

Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):** **Refer Main Cost Database**

**D) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall conform to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.



INDICATIVE DRG  
OF 3-PHASE LT  
LINE VERTICAL  
FORMATION

**Optional Configurations**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%)

4.6

S.N.	Item	Qty	Unit	Rate FY 2022	Cost	PO/ Est/ Esc
<b>1</b>	<b>Material for surveying and stacking of 1 km Line</b>					
a	Wooden pegs	12	No.	30	360	Esc
b	Stone Pillar/ RCC Pillars	7	No.	1361	9527	Esc
<b>2</b>	<b>LT Guarding for Road Crossing @ 10 m (As per REC Std B-1)</b>					
a	Cross Arm: [Channel Iron (75x40x6 mm), Length 1400 mm x 2 structure	1	No	870	1218	Esc
b	Cross Lacings (GI, 8 SWG) [ 1.2 m x 5 Nos @ 2 m spacing] {0.102 kg/m}	1	kg	65	40	Esc
c	LT Pin Insulator	8	No	54	432	Esc
d	Earth Knob	2	No	12	24	Esc
e	Spool Insulator	5	No	12	60	Esc
f	Pole Top Bracket	2	No	197	394	PO
g	Pole Clamps (M.S. Flat 50X6 mm)	2	No	65	130	Esc
<b>3</b>	<b>33 KV // 11 KV Line Guarding</b>					
	<b>Material for guarding of one road crossing point</b>					
a	PCC poles 11 Mtr Long	2	No	7097	14194	Esc
b	Stay set	2	No	886	1772	PO
c	Stay Wire 7/3.15 mm ( @ 6.0 kg Per Stay Set)	12	kg	70	840	SIV
d	Earthing set	2	No	7616	15232	Esc
e	Catenary wire	15	m	65	975	Esc
f	Cross Arm ( 2 Nos of Angle iron 2240x65x65x6mm) @ 5.80Kg/m	2	No	1202	2403	MR
g	Half clamps	2	No	151	302	Esc
<b>4</b>	<b>Material cost of 11 kV, 4 Pole Structure for installation of Auto Voltage Booster/ Auto Line Sectionliser</b>					
1	Steel tubular pole 9 m long	4	No	12600	50400	PO
2	Cross Arm: [Channel Iron (100x50x5 mm), (Length 2400+200 mm)					
	I For line & four pole structure =6 nos.					
	II For G.O. switch & G.O. fuse unit =4 nos.					
	III For foundation of Auto Voltage Booster =6 nos.					
	Total = 16 nos.	16	No	2299	36779	
3	Half Clamps with nuts & bolts	14	No	151	2114	Esc
4	Full Clamps with nuts & bolts	8	No	276	2208	Esc
5	11 kV Strain Insulator complete with fittings	6	No	1386	8316	Esc
6	11 kV Pin Insulators (Porcelain, 12 kV, 10KN)	6	No	146	876	Esc
7	Stay Set complete	5	Set	1077	5385	PO
8	Earthing set complete	3	Set	2729	8187	Esc
9	Danger plate	2	No	127	254	Esc
10	Barbed wire	10	Kg	71	710	Esc
11	Set of jumpers with PG clamps (each of 3 nos.)	2	Set	413	826	Esc

S.N.	Item	Qty	Unit	Rate FY 2022	Cost	PO/ Est/ Esc
<b>4</b>	<b>Material Cost of Double Pole Structure on 11 kV line for installation of Auto Voltage Booster/ Auto Line Sectionalizer</b>					
1	Steel Tubular poles 9 mtr long	2	No.	12600	25200	Esc
2	Cross Arm: [Channel Iron (100x50x5 mm), (Length 2400+200 mm)]	4	No.	2299	9195	MR
3	Knee Bracing: [Angle Iron (50x50x6 mm), (Length 2x750 mm )	2	No.	312	624	MR
4	Channel Iron (100x50x5 mm), (Length 2x 980 mm)	2	No.	866	1733	MR
5	11 kV Strain Insulators complete with fittings	6	No.	1386	8316	Esc
6	Stay set complete with guy trip	5	Set	851	4255	Esc
7	Earthing Set complete	2	Set	2729	5458	Esc
8	Danger plate	2	No.	127	254	Esc
9	Barbed wire	8	Kg	71	568	Esc
10	MS Half clamps with nuts & bolts	2	No.	151	302	Esc
11	MS Full clamps with nuts & bolts	6	No.	262	1572	Esc
12	Set of Jumpers with PG clamps( each set of 3 no.)	2	Set	413	826	Esc
					<b>58303</b>	Esc

**CONFIGURATION 9: (Distribution Substation 11/0.4 kV)****Cost Data****A) Estimated Cost for 25 kVA, 11/0.4 kV Pole Mounted Distribution Substation**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Sr.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	Distribution Transformer (Ordinary), 11/0.4 kV, 25 KVA	49988	No	1	49988	Esc
2	Steel Tubular Poles (9 m, Working Load > 200 kgf/m <sup>2</sup> )	12600	No	2	25200	SIV
3	Muffs with concrete filling	1769	No	2	3538	Esc
4	X-Arm: [Channel Iron (100x50x5 mm), Length : 2800 mm X 2 Nos] for incomer line	2476	Nos	2	4951	MR
5	MS Angle Iron (50X50x6 mm), Length: (2800 mm) x1 Nos for LA's	1165	Nos	1	1165	MR
6	X-Arm: [Channel Iron (75x40x6 mm), Length : (2800 mm X 4 Nos) for supporting DO fuse unit & GO switch	1740	Nos	4	6962	MR
7	<b>Transformer Bed, Belting &amp; Knee Bracing</b>					
a	X-Arm: [Channel Iron (100x50x5 mm), Length : 2800 mm X 2 Nos] for Transformer Bed	2476	Nos	2	4951	MR
b	X-Arm [Channel Iron (100x50x5 mm), Length : (460 mm) x 2 Nos for supporting Main Channel of Transformer]	407	Nos	2	813	MR
c	MS Angle Iron (50X50x6 mm), Length : (2800 mm) x 2 Nos	1165	Nos	2	2331	MR
d	MS Angle Iron (35X35x5 mm), Length : (460 ) x 2 Nos	128	Nos	2	255	MR
e	MS Angle Iron (50X50x6 mm), Length : (950 mm) x 2 Nos for Bed Knee Bracing	395	Nos	2	791	MR
8	<b>Transformer LT Dist. Box and GO Switch fixing Assembly</b>					
a	MS Angle Iron (50X50x6 mm), Length : (2800 mm) x 2 Nos	1165	Nos	2	2331	MR
b	MS Angle Iron (50X50x6 mm), Length : (450 mm) x 1 Nos	187	Nos	1	187	MR
c	GO Switch Handle Supporting: [Channel Iron (75x40x6 mm), Length : 460 mm	286	Nos	1	286	MR
9	GO AB Switch Unit (11kV, 400A, 25 KA ) Tripple pole O/D type	6739	Set.	1	6739	Esc
10	D.O Fuse Unit	2173	Set.	1	2173	Esc
11	Surge Arrester, 9 kV Station Class (Porcelain Type)	388	No	3	1164	Esc
12	Discs insulator sets (comprising 1 No. Disc: ^{Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.)	1464	Set.	3	4392	Esc
13	Stay set complete	881	Set.	4	3524	Esc
14	Stay Wire (7/3.15 mm) (7.0 kg Per Stay Set)	70	Kg.	28	1960	SIV
15	Pipe Earthing Set	3390	Set.	3	10170	Esc
16	LT Distribution Panel Box with MCCB(40A, 25 kA, 4P) and SFU(16A, 4No, rewirable)	22036	Set.	1	22036	Esc
17	Half Clamp (M.S. Flat 50X6 mm)	158	No.	17	2686	Esc
18	Full Clamps (M.S. Flat 50X6 mm)	273	No.	9	2457	Esc
19	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm $\Phi$ or more (with flat and spring washers)]	98	Kg.	27	2646	Esc
20	Aluminium Thimble	42	No	16	672	Esc
21	Aluminium Thimble	337	No	4	1348	Esc
22	Danger Plate	133	No	1	133	Esc
23	Barbed Wire	78	Kg.	15	1170	Esc
24	LT Cable (3.5 Core) 35 mm <sup>2</sup>	108	m	15	1620	Esc
25	Energy Meter (3-Phase, 4-Wire) DLMS compliant 50 A CT Type for 25KVA Transformer	14310	No	1	14310	PO
26	a). Aluminium Paint.	344	Ltr	4	1376	Esc
	b). Red Oxide	157	Ltr	3	471	Esc
27	LT Switched Capacitors 9- KVAR for 25 KVA (rate per KVAR)	795	No	9	7155	Esc
	<b>Add: [Cost of Essential Optional Sub-Configurations Required as per Site Conditions</b>				X	
	<b>Estimated Cost of Material</b>			X +	<b>191951</b>	

	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (After Justification and with Approval)	<b>2.5%</b>	<b>0.025X</b>	<b>+</b>	<b>4799</b>
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		<b>1.025X</b>	<b>+</b>	<b>196749</b>
	<b>Erection Charges</b>				<b>83922</b>
	<b>Transportation Charges</b>				<b>22697</b>
	<b>Contigency @3%</b>				<b>5902</b>
	<b>Labour Cess @1%</b>				<b>3093</b>
	<b>GST @ 18% on Trans+Erect.</b>				<b>19191</b>
	<b>Deptt Charges @ 11%</b>				<b>36471</b>
	<b>G.Total</b>				<b>368026</b>

Pole Mounted Sub Stations shall be used upto 100 KVA transformer rating. Sub Stations of capacities > 100 KVA shall be floor mounted - civil platform / bed based.

For Transformer Ratings > 25KVA, the allied structure and equipment specifications shall be worked out accordingly

Where Muffs are not available we may opt for concreting

Isolators may be preferred

Polymeric Lightening Arrestors may be used except in snow bound areas

On structural steel items (Channel, Angle and Flats), tolerance of (+) 100mm on either side of the length has been included in the quantity.

Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):** **Refer Main Cost Database**

**C) ADD: Additional Charges and Taxes (Including Overhead Charges):** **Refer Annexure 'A'**

**D) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 47 to 73 under Chapter IV (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.

**CONFIGURATION 10: (Distribution Substation 22/0.4**

**A) Estimated Cost for 25 kVA, 22/0.4 kV Pole Mounted Distribution Substation**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Sr.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	Distribution Transformer (Ordinary), 22/0.4 kV, 25 KVA	98030	No	1	98030	PO
2	Steel Tubular Poles (9 m, Working Load > 200 kgf/m²)	12600	No	2	25200	PO
3	Muffs with concrete filling	1769	No	2	3538	Esc
4	X-Arm: [Channel Iron (100x50x6 mm), Length : 2800 mm X 2 Nos] for incommer line	2476	Nos	2	4951	MR
5	MS Angle Iron (50X50x6 mm), Length: 2800 x1 Nos for LA's	1165	Nos	1	1165	MR
6	X-Arm: [Channel Iron (75x40x6 mm), Length : 2800 mm X 4 Nos] for supporting DO fuse unit & GO switch	1740	Nos	4	6962	MR
<b>7 Transformer Bed, Belting &amp; Knee Bracing</b>						
a	X-Arm: [Channel Iron (100x50x6 mm), Length : 2800 mm X 2 Nos] for Transformer Bed	2476	Nos	2	4951	MR
b	X-Arm [Channel Iron (100x50x6 mm), Length : (460 mm) x 2 Nos for supporting Main Channel of Transformer]	407	Nos	2	813	MR
c	MS Angle Iron (50X50x6 mm), Length : (2800 mm) x 2 Nos	1165	Nos	2	2331	MR
d	MS Angle Iron (35X35x5 mm), Length : 460 x 2 Nos	128	Nos	2	255	MR
e	MS Angle Iron (50X50x6 mm), Length : 950 mm x 2 Nos for Bed Knee Bracing	395	Nos	2	791	MR
<b>8 Transformer LT Dist Box and GO Switch fixing Assembly</b>						
a	MS Angle Iron (50X50x6 mm), Length : (2800 mm) x 2 Nos	1165	Nos	2	2331	MR
b	MS Angle Iron (50X50x6 mm), Length : (450 mm) x 1 Nos	187	Nos	1	187	MR
c	GO Switch Handle Supporting: [Channel Iron (75x40x5 mm), Length : 460 mm	286	Nos	1	286	MR
9	GO AB Switch Unit (11kV, 400A, 25 KA ) Tripple pole O/D type	9575	Set.	1	9575	Esc
10	D.O Fuse Unit	4157	Set.	1	4157	Esc
11	Surge Arrester, 9 kV Station Class (Porcelain Type)	987	No	3	2961	Esc
12	Discs insulator sets (comprising 1 No. Disc: ^^ (Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.)	1874	Set.	3	5622	Esc
13	Stay set complete	881	Set.	4	3524	Esc
14	Stay Wire (7/3.15 mm) (6.0 kg Per Stay Set)	70	Kg.	24	1680	SIV
15	Pipe Earthing Set	3390	Set.	3	10170	Esc
16	LT Distribution Panel Box with MCCB(50A, 25 kA, 4P)	22036	Set.	1	22036	Esc
17	Half Clamp (M.S. Flat 50X6 mm)	158	No.	17	2686	Esc
18	Full Clamps (M.S. Flat 50X6 mm)	273	No.	9	2457	Esc
19	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm Φ or more (with flat and spring washers)]	98	Kg.	27	2646	Esc
20	Aluminium Thimble	42	No	16	672	Esc
21	Aluminium Thimble	337	No	4	1348	Esc
22	Danger Plate	133	No	1	133	Esc
23	Barbed Wire	78	Kg.	15	1170	Esc
24	LT Cable (3.5 Core) 35 mm²	108	m	15	1620	Esc



Sr.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
25	Energy Meter (3-Phase, 4-Wire) DLMS compliant 50 A CT Type for 25KVA Transformer	14310	No	1	14310	PO
26	a)Aluminium Paint.	344	Ltr	4	1376	Esc
	b) Red Oxide	157	Ltr	3	471	Esc
27	LT Switched Capacitors 9- KVAr for 25 KVA (rate per KVAr)	795	No	9	7155	Esc
	Add: [Cost of Essential Optional Sub-Configurations Required as per Site Conditions				X	
	<b>Estimated Cost of Material</b>		X	+	247559	
	Add: [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (After Justification and with Approval)	2.5%	0.025X	+	6189	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.025X	+	253748	
	<b>Erection Charges</b>				83922	
	<b>Transportation Charges</b>				22697	
	<b>Contingency @3%</b>				7612	
	<b>Labour Cess @1%</b>				3680	
	<b>GST @ 18% on Trans+Erect.</b>				19191	
	<b>Deptt Charges @ 11%</b>				42994	
	<b>G.Total</b>				433845	

Pole Mounted Sub Stations shall be used upto 100 KVA transformer rating. Sub Stations of capacities > 100 KVA shall be floor mounted - civil platform / bed based.

For Transformer Ratings > 25KVA, the allied structure and equipment specifications shall be worked out

Where Muffs are not available we may opt for concreting

Isolators may be preferred

Polymeric Lightening Arrestors may be used except in snow bound areas

On structural steel items (Channel, Angle and Flats), tolerance of (+) 100mm on either side of the length has been included in the quantity.

Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):**

**Refer Main Cost Database**

**C) ADD: Additional Charges and Taxes (Including Overhead Charges):**

**Refer Annexure 'A'**

**D) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall conform to relevant REC standards and regulations 47 to 73 under Chapter IV (Part-B) of CEA (Technical standard) Regulation 2010 and amendements there to.

**CONFIGURATION 11: (Distribution Substation 11/0.4 kV)**

A) **Estimated Cost for 400 kVA, 11/0.4 kV Bed Based Distribution Substation**  
 Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Sr.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	Distribution Transformer (Ordinary), 11/0.4 kV, 400 KVA	713300	No	1	713300	PO
2	Steel Tubular Poles (9 m, Working Load > 200 kgf/m <sup>2</sup> )	12600	No	2	25200	PO
3	Muffs with concrete filling	1769	No	2	3538	Esc
4	X-Arm: [Channel Iron (100x50x6 mm), Length : 2800 mm X 2 Nos] for incommmer line	2476	Nos	2	4951	MR
5	MS Angle Iron (50X50x6 mm), Length: (2800 mm) x1 Nos for LA's	1165	Nos	1	1165	MR
6	X-Arm: [Channel Iron (75x40x6 mm), Length : (2800mm) X 4 Nos] for supporting DO fuse unit & GO switch	1740	Nos	4	6962	MR
7	<b>Transformer Bed, Belting &amp; Knee Bracing</b>					
a	Transformer Bed( Civil Work	33388	Set.	1	33388	Esc
a	X-Arm: [Channel Iron (100x50x6 mm), Length : 2800 mm X 2 Nos] for Transformer Bed	2476	Nos	2	4951	MR
b	X-Arm [Channel Iron (100x50x6 mm), Length : 460 mm x 2 Nos for supporting Main Channel of Transformer]	407	Nos	2	813	MR
c	MS Angle Iron (50X50x6 mm), Length : (2800 mm) x 2 Nos	1165	Nos	2	2331	MR
d	MS Angle Iron (35X35x5 mm), Length : (460 ) x 2 Nos	128	Nos	2	255	MR
e	MS Angle Iron (50X50x6 mm), Length : (950 mm) x 2 Nos for Bed Knee Bracing	395	Nos	2	791	MR
8	<b>Transformer LT Distribution Box and GO Switch fixing Assembly</b>					
a	MS Angle Iron (50X50x6 mm), Length : (2800 mm) x 2 Nos	1165	Nos	2	2331	Est
b	MS Angle Iron (50X50x6 mm), Length : (450 mm) x 1 Nos	187	Nos	1	187	Est
c	GO Switch Handle Supporting: [Channel Iron (75x40x5 mm), Length : 460 mm	286	Nos	1	286	Est
9	GO AB Switch Unit (11kV, 400A, 25 KA ) Tripple pole O/D type	6443	Set.	1	6443	PO
10	D.O Fuse Unit	2173	Set.	1	2173	Esc
11	Surge Arrester, 9 kV Station Class (Porcelain Type)	388	No	3	1164	Esc
12	Discs insulator sets (comprising 1 No. Disc: ^^(Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.)	1464	Set.	3	4392	Esc
13	Stay set complete	881	Set.	4	3524	Esc
14	Stay Wire (7/3.15 mm) (6.0 kg Per Stay Set)	70	Kg.	24	1680	PO
15	Pipe Earthing Set	3390	Set.	3	10170	Esc
16	LT Distribution Panel Box with ACB(630A, 50 kA, 4P,1 No) and SFU(100A, 6No, rewirable)	217621	Set.	1	217621	Esc
17	Half Clamp (M.S. Flat 50X6 mm)	158	No.	17	2686	Esc
18	Full Clamps (M.S. Flat 50X6 mm)	273	No.	9	2457	Esc
19	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm Φ or more (with flat and spring washers)]	98	Kg.	27	2646	Esc
20	Aluminium Thimble	42	No	16	672	Esc
21	Aluminium Thimble	337	No	4	1348	Esc
22	Danger Plate	133	No	1	133	Esc
23	Barbed Wire	78	Kg.	15	1170	Esc
24	Chain Link fencing , Angle Iron ,Gate etc for transformer fencing	22835	Job	1	22835	Esc
25	LT Cable (3.5 Core) 400 mm <sup>2</sup> X 2 incommmer	1007	m	28	28196	Esc
26	LT Cable (3.5 Core) 70 mm <sup>2</sup> X 6 Outgoing	185	m	90	16650	Esc
27	Energy Meter (3-Phase, 4-Wire) DLMS compliant 400 A CT Type for 400KVA Transformer	13820	No	1	13820	PO
28	a)Aluminium Paint.	344	Ltr	4	1376	Esc
	b)Red oxide	157		3	471	Esc

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Sr.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
	<b>Add:</b> [Cost of Essential Optional Sub-Configurations Required as per Site Conditions or Hiring of machinery for the lifting,placing the transformer on the Bed etc.]				X	
	<b>Estimated Cost of Material</b>		X	+	1141604	
	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here] (After Justification and with Approval)	2.5%	0.025X	+	28540	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.025X	+	1170145	
	<b>Erection Charges</b>				83922	
	<b>Transportation Charges</b>				30056	
	<b>Contingency @3%</b>				35104	
	<b>Labour Cess @1%</b>				13192	
	<b>GST @ 18% on Trans+Erect.</b>				20516	
	<b>Deptt Charges @ 11%</b>				148823	
	<b>G.Total</b>				1501759	

Pole Mounted Sub Stations shall be used upto 100 KVA transformer rating. Sub Stations of capacities > 100 KVA shall be floor mounted - civil platform / bed based.

For Transformer Ratings > 25KVA, the allied structure and equipment specifications shall be worked out

Where Muffs are not available we may opt for concreting

Isolators may be preferred

Polymeric Lightning Arrestors may be used except in snow bound areas

On structural steel items (Channel, Angle and Flats), tolerance of (+) 100mm on either side of the length has been included in the quantity.

Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):**

**Refer Main Cost Database**

- C) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall conform to relevant REC standards and regulations 47 to 73 under Chapter IV (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.

**CONFIGURATION 12: (Distribution Substation 11/0.23 kV)**

**Cost Data**

**A) Estimated Cost for 6.3 KVA, 11/0.23 kV, 1-Ø Distribution Substation**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Sr. No.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	1-Ø Distribution Transformer (Ordinary), 11/0.23 kV, 6.3 kVA	33437	No	1	33437	Esc
2	Steel Tubular Poles (9 m, Working Load > 200 kgf/m <sup>2</sup> )	12600	No	1	12600	PO
3	Muffs with concrete filling	1769	No	1	1769	Esc
4	X Arm [Channel Iron : (100X50x5 mm), Length : 1500 mm]	1326	No	1	1326	MR
5	X Arm [Channel Iron : (100X50x5 mm), Length : 1500 mm] for GO Switch	1326	No	1	1326	MR
6	Bracing Set - MS Angle Iron: 50x50x6, Length : [(750) mm x 2 No.]	312	No	2	624	MR
7	Double pole G.O Switch Unit (11kV, 400A, 25 kA )	6665	No	1	6665	Esc
8	Surge Arrester, 9 kV Station Class (Porcelain Type)	776	No	2	1552	Esc
9	Discs insulator sets (comprising 1 No. Disc: Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.)	2929	Set	2	5858	Esc
10	Stay set complete	1761	Set.	2	3522	Esc
11	Stay Wire (7/3.15 mm) (7.0 kg Per Stay Set)	70	Kg	14	980	PO
12	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm Φ or more (with flat and spring washers)]	98	Kg	15	1470	Esc
13	Pipe Earthing Set	10170	Set	3	30510	Esc
14	Aluminium Thimble	2021	No	6	12126	Esc
15	Danger Plate	133	No	1	133	Esc
16	Energy Meter (1-Phase) DLMS compliant 10-60 A CT Type	630	No	2	1260	PO
17	Aluminium Paint.	688	Ltr	2	1376	Esc
18	PVC Cable T/C 16 mm <sup>2</sup>	272	Mt.	10	2720	Esc
19	Barbed Wire	314	Kg.	4	1256	Esc
20	LT Distribution Panel Box with MCCB(40A, 25 kA, DP) and SFU(16A, 4No, rewirable)	4111	No	1	4111	Esc
	<b>Add: [Cost of Essential Optional Sub-Configurations Required as per Site Conditions]</b>				X	
	<b>Estimated Cost of Material</b>		X	+	124622	
	<b>Add: [Cost of Optional Miscellaneous Items (Protective Gear, T&amp;P etc) not included here] (After Justification and with Approval)</b>	2.5%	0.025X	+	3116	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.025X	+	127737	
	<b>Erection Charges</b>				20981	
	<b>Transportation Charges</b>				11349	
	<b>Contingency @3%</b>				3832	
	<b>Labour Cess @1%</b>				1639	
	<b>GST @ 18% on Trans+Erect.</b>				5819	
	<b>Deptt Charges @ 11%</b>				18849	
	<b>G.Total</b>				190206	

\*\* Cost are inclusive of GST

Where Muffs are not available we may opt for concreting

Polymeric Lightning Arrestors may be used except in snow bound areas

\* On structural steel items (Channel, Angle and Flats), tolerance of (+) 100mm on either side of the length has been included in the quantity.

**B) Optional Scope of Items (if Included in Estimate):**

Refer Main Cost Database

**C) ADD: Additional Charges and Taxes (Including Overhead Charges):**

Refer Annexure 'A'

**D) Note:** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall conform to relevant REC standards and regulations 47 to 73 under Chapter IV (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.

**CONFIGURATION 13: (Service Connections)**

**Cost Data**

**A) Estimated Cost of 1-Ø, 0.230 kV Domestic Service (DS) Connection**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

S. No.	Description	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
1	Pole Clamp	95	No	1	95	Esc
2	T/C PVC 10 mm <sup>2</sup>	15	m	4	59	PO
3	T/C PVC 6 mm <sup>2</sup>	11	m	36	384	PO
4	G.I Wire 8 SWG	68	Kg	3	204	Esc
5	Link Clip 80x8 mm	56	Pkt	2	112	Esc
6	Black Tape	10	m	1	10	Esc
7	Guy G.I. Wire with Clamp	20	No	1	20	Esc
8	Anchor Hook	48	No	2	96	Esc
9	Meter Box	495	No	1	495	Esc
10	MCCB 16 A, 240 V	121	No	1	121	Esc
11	GI Bolt for Earth Terminal (12X75) mm	53	No	3	159	Esc
12	Polycarbonate seal	56	No	3	168	Esc
13	1-Ø Energy Meter (5-30A)	580	No	1	580	PO
14	T-Connector	65	No	2	130	Esc
	<b>Add: Cost of Essential Optional Sub-Configurations Required as per Site Conditions</b>				X	
	<b>Estimated Cost of Material</b>		X	+	2633	
	<b>Add: [Cost of Optional Miscellaneous Items (Protective Gear, T&amp;P etc) not included here] (After Justification and with Approval)</b>	2.5%	0.025X	+	66	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.025X	+	2699	
	<b>Erection Charges</b>				1023	
	<b>Transportation Charges</b>				135	
	<b>Contingency @3%</b>				81	
	<b>Labour Cess @1%</b>				39	
	<b>GST @ 18% on Trans+Erect.</b>				208	
	<b>Deptt Charges @ 11%</b>				460	
	<b>G.Total</b>				4646	

\*\* Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):**

**Refer Main Cost Database**

<b>C) NOTE:-</b>
a) The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.
b) This is broad based Cost Data for cost estimation only and is not intended as a Design substitute. The Design for the construction shall be based on construction standards which shall be prepared separately at the time of Framing Estimates. The drawings given in the cost data are indicative and field units may make upward modification / improvements so as to include for or improve stability and safety.
c) Estimate for GSC should be prepared as per site requirement as well as on need basis.
d) Earthing of wiring should be mandatory.

**CONFIGURATION 14: (Service Connections)**

**Cost Data**

**A) Estimated Cost of 1-Ø, 0.230 kV DS/NDNC/CS/ SIP/IDWPS Connection ≤ 20 kW**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

S. No.	Description	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
1	Pole Clamp	92	No	1	92	Esc
2	T/C PVC Cable 25 mm <sup>2</sup>	46	Mtr	40	1838	PO
3	G.I. Wire 8 SWG	68	Kg	3	203	SIV
4	Eye Bolt (16X300) mm	37	No	1	37	Esc
5	Eye Hook/G.I. Wire Guy	20	No	1	20	Esc
6	Meter Box	495	No	1	495	Esc
7	Kit Kat Fuse Unit 63 A, 240 V	448	No	1	448	Esc
8	G.I Bolt for Earth terminal (12X75) mm	18	No	1	18	Esc
9	T-Connector	31	No	4	124	Esc
10	Black Tape	10	Roll	1	10	Esc
11	Link Clip	28	Pkt	2	56	Esc
12	Polycarbonate seal	19	No	6	114	Esc
13	Crimping Thimble	10	No	6	60	Esc
14	1-Ø 2 wire Static Energy Meter 10-60 A	630	No	1	630	PO
	<b>Add:</b> [Cost of Essential Optional Sub-Configurations Required as per Site Conditions				X	
	<b>Estimated Cost of Material</b>		X	+	4145	
	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P etc) not included here](After Justification and with Approval)	2.5%	0.025X	+	104	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.025X	+	4249	
	<b>Erection Charges</b>				1287	
	<b>Transportation Charges</b>				212	
	<b>Contegency @3%</b>				127	
	<b>Labour Cess @1%</b>				59	
	<b>GST @ 18% on Trans+Erect.</b>				270	
	<b>Deptt Cess @ 11%</b>				682	
	<b>G.Total</b>				6887	

**B) Estimated Cost of 3-Ø, 0.415 kV DS/ NDNC/ CS/ SIP/ IDWPS Connection ≤ 20**

S. No.	Description	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
1	Pole Clamp	95	No	1	95	Esc
2	3.5 Core PVC Cable 25 mm <sup>2</sup> for 3 Phase	85	m	40	3400	Esc
3	G.I. Wire 8 SWG	68	Kg	3	203	SIV
4	Eye Bolt (16X300) mm	35	No	1	35	Esc
5	Eye Hook/G.I. Wire Guy	19	No	1	19	Esc
6	Meter Box	495	No	1	495	Esc
7	Kit Kat Fuse Unit 63 A, 415 V	448	No	1	448	Esc
8	G.I Bolt for Earth terminal (12X75) mm	17	No	1	17	Esc
9	T-Connector	65	No	4	260	Esc
10	Black Tape	10	Roll	1	10	Esc
11	Link Clip	56	Pkt	2	112	Esc
12	Polycarbonate seal	56	No	6	336	Esc
13	Crimping Thimble	10	No	6	60	Esc
14	3 Phase 4 wire static energy Meter (10-60A)	5000	No	1	5000	PO
	<b>Add: Cost of Essential Optional Sub-Configurations Required as per Site Conditions</b>				X	
	<b>Estimated Cost of Material</b>		X	+	10490	
	<b>Add: [Cost of Optional Miscellaneous Items (Protective Gear, T&amp;P etc) not included here] (After Justification and with Approval)</b>	2.5%	0.025X	+	262	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.025X	+	10753	
	<b>Erection Charges</b>				2300	
	<b>Transportation Charges</b>				538	
	<b>Contingency @3%</b>				323	
	<b>Labour Cess @1%</b>				139	
	<b>GST @ 18% on Trans+Erect.</b>				511	
	<b>Dep'tt Charges @ 11%</b>				1602	
	<b>G.Total</b>				16164	

\* DS- Domestic Supply; NDNC- Non-Domestic Non- Commercial; CS- Commercial Supply; SIP- Small Industrial Power Supply;  
 IDWPS - Irrigation and Drinking Water Pumping Supply  
 \*\* Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate): Refer Main Cost Database**

<b>C) NOTE:</b>
a) The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall conform to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.
b) This is broad based Cost Data for cost estimation only and is not intended as a Design substitute. The Design for the construction shall be based on construction standards which shall be prepared separately at the time of Framing Estimates. The drawings given in the cost data are indicative and field units may make upward modification / improvements so as to include for or improve stability and safety.
c) Estimate for GSC should be prepared as per site requirement as well as on need basis.
d) Earth leakage circle breaker is required to be checked by the JE Concerned as the same has been provided in the wiring by the consumer.
e) Earthing of wiring should be mandatory.

**CONFIGURATION 15: (Service Connections)**

**Cost Data**

**A) Estimated Cost of 3-Ø, 0.415 kV DS/ NDNC/ CS/ SIP/IDWPS Connection ≤**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

S. NO.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	Pole Clamp	95	No	1	95	Esc
2	3.5 Core PVC Cable 95 mm <sup>2</sup>	233	Mtr	40	9320	Esc
3	G.I Wire 8 SWG	68	Kg	2	136	SIV
4	T-Connector	32	No	4	128	Esc
5	Eye Bolt (16x300) mm	37	No	1	37	Esc
6	Eye Hook with G.I Wire Guy	20	No	1	20	Esc
7	RAG Bolt (16x225) mm	33	No	4	132	Esc
8	RAG Bolt (16x150) mm	31	No	4	124	Esc
9	L.T Switch 200A	4253	No	1	4253	Esc
10	Black Tape	5	Roll	1	5	Esc
11	Polycarbonate seal	19	No	6	114	Esc
12	3-Ø, 4-Wire Trivector Meter with 200/5A CT. with meter box	14250	No	1	14250	PO
13	Crimping Thimbles	10	No	6	60	Esc
14	G.I. Bolt for earth Terminal (12x75) mm	18	No	1	18	Esc
	<b>Add: [Cost of Essential Optional Sub-Configurations Required as per Site Conditions]</b>				X	
	<b>Estimated Cost of Material</b>		X	+	28692	
	<b>Add: [Cost of Optional Miscellaneous Items (Protective Gear, T&amp;P etc) not included here](After Justification and with Approval)</b>	2.5%	0.025X	+	717	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		1.025X	+	29409	
	<b>Erection Charges</b>				2300	
	<b>Transportation Charges</b>				1470	
	<b>Contingency @3%</b>				882	
	<b>Labour Cess @1%</b>				341	
	<b>GST @ 18% on Trans+Erect.</b>				679	
	<b>Deptt Charges @ 11%</b>				3859	
	<b>G.Total</b>				38939	

\* **DS**- Domestic Supply; **NDNC**- Non-Domestic Non- Commercial; **CS**- Commercial Supply; **SIP**- Small Industrial Power Supply;  
**IDWPS** - Irrigation and Drinking Water Pumping Supply.  
 \*\* Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):**

**Refer Main Cost Database**

<b>C) NOTE:</b>
a) The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.
b) This is broad based Cost Data for cost estimation only and is not intended as a Design substitute. The Design for the construction shall be based on construction standards which shall be prepared separately at the time of Framing Estimates. The drawings given in the cost data are indicative and field units may make upward modification / improvements so as to include for or improve stability and safety.
c) Estimate for GSC should be prepared as per site requirement as well as on need basis.
d) Earth leakage circle breaker is required to be checked by the JE Concerned as the same has been provided in the wiring by the consumer.
e) Any connection above <b>50 kW</b> should be on <b>HT</b> .
f) Earthing of wiring should be mandatory.



**CONFIGURATION 16: (Service Connections)**

**Cost Data**

**A) Estimated Cost of 3-Ø, 11 kV DS/ CS/ MIP/ IDWPS Connection>50 kW ≤ 100 kW**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

Sr.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	CT-PT Combined Unit [PT:11 kV/110 V] ; CT:10-400/5A]	30181	No	1	30181	Esc
2	3-phase, 3/4-Wire CT-PT operated Static Trivector Meter (DLMS Compliant)	6454	No	1	6454	Esc
3	PVC Multistrand 4 mm <sup>2</sup> copper wire with Φ-1 inch GI pipe for concealing	3138	Job	1	3138	Esc
4	Steel Tubular Poles (9 m, Working Load > 200 kgf/m <sup>2</sup> ) [Optional- Other types of Poles may be used as per site condition]	12600	No	2	25200	PO
5	Muffs with concrete filling	1769	No	2	3538	Esc
6	X-Arm: [Channel Iron (100x50x6 mm), Length : 2800 mm X 4 Nos]	2476	Nos	4	9902	MR
7	X-Arm: [Channel Iron (75x40x6 mm), Length : 2800 mm X 4 Nos] for supporting DO fuse unit & GO switch	1740	Nos	4	6962	MR
8	X-Arm [Channel Iron (100x50x6 mm), Length : 460 mm x 2 Nos for supporting Main Channel of CT-PT Unit]	407	Nos	2	813	MR
9	MS Angle Iron (50X50x6 mm), Length: 2800 mm x1 Nos for LA's)	1165	Nos	1	1165	MR
10	<b>CT-PT Unit Belting &amp; Knee Bracing</b>					
a	MS Angle Iron (50X50x6 mm), Length : 2800 mm x 4 Nos	1165	Nos	4	4661	MR
b	MS Angle Iron (35X35x5 mm), Length : 460 mm x 2 Nos	128	Nos	2	255	MR
11	GO AB Switch Unit (11kV, 400A, 25 KA )	6739	Set.	1	6739	Esc
12	D.O Fuse Unit	2173	Set.	1	2173	Esc
13	Surge Arrester, 9 kV Station Class (Porcelain Type)	371	No	3	1113	Esc
14	Discs insulator sets (comprising 1 No. Disc: ^^ (Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.)	1450	Set.	3	4350	Esc
15	Stay set complete	881	Set.	4	3524	Esc
16	Stay Wire (7/3.15 mm) (7.0 kg Per Stay Set)	76	Kg.	28	2128	Esc
17	Pipe Earthing Set	3390	Set.	3	10170	Esc
18	Half Clamp (M.S. Flat 50X6 mm)	158	No.	17	2686	Esc
19	Full Clamps (M.S. Flat 50X6 mm)	273	No.	9	2457	Esc
20	Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm Φ or more (with flat and spring washers)]	98	Kg.	25	2450	Esc
21	Aluminium Thimble	42	No	16	672	Esc
22	Aluminium Thimble	337	No	4	1348	Esc
23	Danger Plate	133	No	1	133	Esc
24	Barbed Wire	74	Kg.	15	1110	Esc
26	Red Oxide	157	Ltr	3	471	Esc
	a)Aluminium Paint.	344	Ltr	4	1376	Esc
	<b>Add: [Cost of Essential Optional Sub-Configurations Required as per Site Conditions</b>				<b>X</b>	
	<b>Estimated Cost of Material</b>		<b>X</b>	<b>+</b>	<b>135170</b>	
	<b>Add: [Cost of Optional Miscellaneous Items (Protective Gear, T&amp;P etc) not included here] (After Justification and with Approval)</b>	<b>2.5%</b>	<b>0.025X</b>	<b>+</b>	<b>3379</b>	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		<b>1.025X</b>	<b>+</b>	<b>138549</b>	

<b>Erection Charges</b>				<b>83922</b>
<b>Transportation Charges</b>				<b>22697</b>
<b>Contingency @3%</b>				<b>4156</b>
<b>Labour Cess @1%</b>				<b>2493</b>
<b>GST @ 18% on Trans+Erect.</b>				<b>19191</b>
<b>Deptt Charges @ 11%</b>				<b>29811</b>
<b>G.Total</b>				<b>300821</b>

PCC may be used as per site conditions. Drilling /Punching of Steel Tubular Poles are strictly prohibited.

Where Muffs are not available we may opt for concreting

Polymeric Lightening Arrestors may be used except in snow bound areas

\* **DS**- Domestic Supply; **NDNC**- Non-Domestic Non- Commercial; **CS**- Commercial Supply; **SIP**- Small Industrial Power Supply;

**IDWPS** - Irrigation and Drinking Water Pumping Supply; **MIP**- Medium Industrial Power Supply (MIP).

\* On structural steel items (Channel, Angle and Flats), tolerance of (+) 100mm on either side of the length has been included in the quantity.

\*\* Material Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate):** **Refer Main Cost Database**

**C) ADD: Additional Charges and Taxes (Including Overhead Charges):** **Refer Annexure 'A'**

**CONFIGURATION 17: (Street Light Point on Existing Pole)**

**Cost Data**

**A) <sup>A</sup> Estimated Cost of Street Light Point on Existing Pole)**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

S. No.	Description	Rate	Unit	Qty	Cost (in Rs) / Km	CD Basis (PO/ Esc / Est/ MR)
1	<sup>1</sup> AAAC 30 mm <sup>2</sup>	24	m	60	1440	Esc
2	Pipe Bend, Clamps, nuts & Bolts, Shackle Insulator, D Clamp etc	913	LS	1	913	Esc
3	Twin Core PVC Cable 1.5 mm <sup>2</sup>	7	m	2	14	Esc
4	Photo Switches (Static Switch)	456	No	1	456	Esc
5	<sup>5</sup> LED Fitting Complete (18 W)	1428	Set	1	1428	Esc
	<b>Add: [Cost of Essential Optional Sub-Configurations Required as per requirement]</b>				<b>X</b>	
	<b>Estimated Cost of Material</b>		<b>X</b>	<b>+</b>	<b>4251</b>	
	<b>Add: [Cost of Optional Miscellaneous Items not included here] (After Justification and with Approval)</b>	<b>2.5%</b>	<b>0.025X</b>	<b>+</b>	<b>106</b>	
	<b>TOTAL ESTIMATED COST of MATERIAL **</b>		<b>1.025X</b>	<b>+</b>	<b>4357</b>	
	<b>Erection Charges</b>				<b>436</b>	
	<b>Transportation Charges</b>				<b>218</b>	
	<b>Contingency @3%</b>				<b>131</b>	
	<b>Labour Cess @1%</b>				<b>51</b>	
	<b>GST @ 18% on Trans+Erect.</b>				<b>118</b>	
	<b>Deptt Charges @ 11%</b>				<b>584</b>	
	<b>G.Total</b>				<b>5895</b>	

<sup>A</sup> The Cost shall be deposited by the Agency / Local Body

<sup>1</sup> Cost is based on Ruling Span

<sup>5</sup> LED fittings of higher ratings may be included in Estimates with justification (such as based on area to be illuminated) only under special circumstances and after prior approval of higher office

\* Based on availability

\*\* Cost are inclusive of GST

**B) Optional Scope of Items (if Included in Estimate): Refer Main Cost Database**

**C) \*\* ADD: Additional Charges and Taxes (Including Overhead Charges): Refer Annexure 'A'**

<b>D) NOTE:</b>
a) The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall confirm to relevant REC standards and regulations 90 to 111 under Chapter V (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.
b) This is broad based Cost Data for cost estimation only and is not intended as a Design substitute. The Design for the construction shall be based on construction standards which shall be prepared separately at the time of Framing Estimates. The drawings given in the cost data are indicative and field units may make upward modification / improvements so as to include for or improve stability and safety.
c) Estimate for GSC should be prepared as per site requirement as well as on need basis.
d) Earth leakage circle breaker is required to be checked by the JE Concerned as the same has been provided in the wiring by the consumer.
e) Earthing of wiring should be mandatory.

**Configuration 18 (33/ 11 kV, 3.15 MVA - Single)**

**A) Estimated Cost of 33/11 kV, 3.15 MVA Substation (with Single Power Transformer)**

(With Single 33 kV Incomer Bus / Bay, Single 11 kV Bus from Transformer, Single 11 kV Outgoing feeder)

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

S.N.	Description of item	Rate	Unit	Qty	Cost (Rs/ Km) (Man)	CD Basis (PO/ Esc / Est/
<b>1</b>	<b>Transformer(s)</b>					
a	<b>Power Transformer</b> (3.15 MVA, 33/11 kV, ONAN, OLTC, Outdoor)	2336400	No.	1	2336400	PO
b	<b>Sub Station Transformer</b> (100 kVA, 33/0.4 kV)	265500	No.	1	265500	PO
<b>2</b>	<b>33 kV Switchgear &amp; Allied Equipment: with 01 No., 33 kV Incomer</b>					
a	33 kV <b>Control and Relay (CR) Panel</b> (with Numeric Differential Relay, IEC 61850)	332940	Set	1	332940	PO
b	33 kV <b>Control and Relay (CR) Panel</b> (33 kV Incomer Bus) [Numeric Relay, IEC 61850]	371107	Set	1	371107	Esc
c	33 kV <b>VCB</b> (36 kV, 1250A, 26.2 kA, Outdoor Type)	239422	Set	2	478844	Esc
d	33 kV <b>Isolator</b> (1250 A, 25kA, with Earth Switch) with structure	117164	Set	1	117164	Esc
e	33 kV <b>Isolator</b> (1250 A, 25kA, without Earth Switch) with structure	86805	Set	2	173610	Esc
f	33 kV <b>LA /Surge Arrester</b> (30 kV, 10KA, Station class, ZnO, Porcelain)	16556	No.	6	99336	Esc
g	33 kV <b>Current Transformer</b> (33 kV, 1Φ, Multi Ratio Multi Core, Outdoor) (1 No. per Φ)	48010	No.	6	288060	PO
h	33 kV <b>Potential Transformer</b> (33 kV/110 V, 1Φ, Multi-Core, Outdoor), (1No. per Φ)	34320	No.	3	102960	PO
i	33 kV <b>Drop Out Fuse Unit</b> (33 kV, Expulsion)	12765	Set	1	12765	Esc
<b>3</b>	<b>11 kV Switchgear and Allied equipment: 01 No. incomer Bus</b>	FALSE				
a	11 kV incomer Bus: <b>Control and Relay (CR) Panel with VCB</b> (12 kV, 1250 A, 25KA) [Numeric Relay, IEC 61850]	631620	Set	1	631620	PO
b	11 kV Incomer Bus: <b>Potential Transformer</b> (11 kV/110V, 3Φ, Indoor)	17670	Set	1	17670	PO
c	11 kV <b>LA/ Surge Arrester</b> (9 kV, 10 kA ,Station Class, ZnO, Porcelain, Outdoor)	915	No.	3	2745	PO
d	11 kV <b>Cable</b> (11 kV, 400 mm <sup>2</sup> , XLPE, Three Core, Armoured) (Transformer to 11 kV Bus) {50m+ Spare-50m}	1541	m	100	154100	Esc
e	11 kV <b>Cable Termination Kit</b> (400 mm <sup>2</sup> , Outdoor)	23173	Set	1	23173	Est
f	11 kV <b>Cable Termination Kit</b> (400 mm <sup>2</sup> , Indoor)	6000	Set	1	6000	Est
<b>4</b>	<b>11 kV Switchgear and Allied equipment: Single (1 No.) Outgoing Feeder</b>					
a	11 kV Outgoing Feeder: <b>Control and Relay (CR) Panel with indoor VCB</b> (12 kV, 1250 A, 25KA) including CT	451001	Set	1	451001	Esc
b	11 kV <b>Isolator</b> (12 kV, 1250 A, 25 kA, with Earth Switch, Outdoor)	25678	Set	1	25678	Esc
c	11 kV <b>LA/ Surge Arrester</b> (9 kV, 10 kA Station Class, ZnO, Porcelain, Outdoor)	915	No.	3	2745	PO
d	11 kV <b>Cable</b> (11 kV, 185 mm <sup>2</sup> , XLPE, Three Core, Armoured) {Busbar VCB to Isolator} {50m+ Spare- 50m}	1335	mtr	100	133500	MR
e	11 kV <b>Cable Termination Kit</b> (185 mm <sup>2</sup> , Outdoor)	11300	Set	1	11300	Est
f	11 kV <b>Cable Termination Kit</b> (185 mm <sup>2</sup> , Indoor)	10200	Set	1	10200	Est
<b>5</b>	<b>LT Cable (1.1 kV, 3.5 Core, 70 mm2) {from Station Tfr}</b>	185	mtr	100	18500	Esc
<b>6</b>	<b>CAPACITOR BANK:- (REC Spec. 19/1981)</b>					
a	<b>Capacitor Bank</b> (3-Φ, 50 Hz, 1200 KVAR) [ IS:2834 ]	795351	No	1	795351	Esc
b	<b>Automatic Capacitor Switch</b> (12 kV, 1250 A, 25 kA) [REC Spec. 20/1981]	228354	No	1	228354	Esc

<b>7</b>	<b>GENERAL EQUIPMENT:-</b>					
a	<b>Battery Bank with Battery Charger</b> (15 No x 2V Cell, Lead Acid, 30 V, 100 AH)	68330	No.	1	68330	PO
b	<b>Distribution Panel</b> (30V, DC)	98442	No.	1	98442	Esc
c	<b>Distribution Panel</b> (415 V, AC)	1087240	No.	1	1087240	Esc
<b>8</b>	<b>TELECOMMUNICATION FACILITIES</b>					
a	SCADA	4042693	No.	1	4042693	Esc
b	ADSS OFC (6 Pair / 12 Core)					
c	Routers / Switches etc					
<b>9</b>	<b>SUPERSTRUCTURE &amp; BUSBAR</b>					
a	33 kV Super structure & busbar (as per page no. _____)	2915530	No.	1	2915530	Est
b	11 kV Outdoor Gantry for Outgoing Feeder (as per page no. __)	101658	No.	1	101658	Est
<b>10</b>	<b>EARTHING</b> (33 kV Sub-Station)	237696	job	1	237696	Est
<b>11</b>	<b>LIGHTING</b>					
a	<b>Yard Lighting</b>	102713	job	1	102713	Est
b	<b>Lighting</b> Emergency (3 No LED Bulbs with holders / wire)	1142	No	1	1142	Esc
<b>12</b>	Control and LT power cables	56664	job	1	56664	Esc
<b>13</b>	<b>Add:</b> [Cost of Essential Optional Sub-Configurations					Y
	<b>Estimated Cost of the material / Equipment</b>		Y	+	<b>15802730</b>	
<b>14</b>	<b>Add:</b> [Cost of Optional Miscellaneous Items (Protective Gear, T&P, Safety Provisions, Safety Equip etc) not included here] (After Justification and with Approval)	5%	0.05Y	+	<b>790137</b>	
	<b>TOTAL ESTIMATED COST of MATERIAL / EQUIPMENT **</b>		0.05Y	+	<b>16592867</b>	
<b>15</b>	<b>CIVIL WORKS</b>					
a	Transformers Foundation [Power X-former] at Pg. no. _____	230622	job	1	230622	Est
b	Station X-former Foundation	35459	job	1	35459	Est
d	Circuit Breaker Foundation (as per page no. _____)	32898	job	2	65795	Est
e	Trenches at Pg No. _____					
l)	Outdoor Trench	791839	job	1	791839	Est
ll)	Indoor Trench	372857	job	1	372857	Est
f	Baffle wall in case of 2 No. Transformer at Pg. No _____					Z
g	Control Room Building at Pg. No. _____	5667938	job	1	5667938	Est
	<b>TOTAL ESTIMATED COST of CIVIL WORKS **</b>		Z	+	<b>7164511</b>	
	<b>TOTAL ESTIMATED COST of SUB STATION **</b>		0.05Y + Z	+	<b>23757377</b>	
	<b>Erection Charges at Pg No. _____</b>					<b>1349500</b>
	<b>Transportation Charges at Pg. No. _____</b>					<b>427800</b>
	<b>Contingency @3%</b>					<b>712721</b>
	<b>Labour Cess @1%</b>					<b>262474</b>
	<b>GST @ 18% on Civil+Trans+Erect.</b>					<b>1609526</b>
	<b>Deptt Charges @ 11%</b>					<b>3093134</b>
	<b>G.Total</b>					<b>31212532</b>

\*Material Cost are inclusive of GST

For transformers of capacity more than 10 MVA, ONFA Trfs / Nitrogen Injection system to be considered.

Provision of oil pit should be kept under transformers to collect oil spills.

The number of outgoing feeders along with allied equipment shall be as per requirement and resultant cost shall be multiple of this number.

Refer REC Specifications 19/1981 (Capacitor Bank at 33/11 kV Sub-Station), 20/1981 (11 kV Circuit Breakers for Controlling Capacitors) & 35/1984 (Pole Mounted Switched Capacitors)

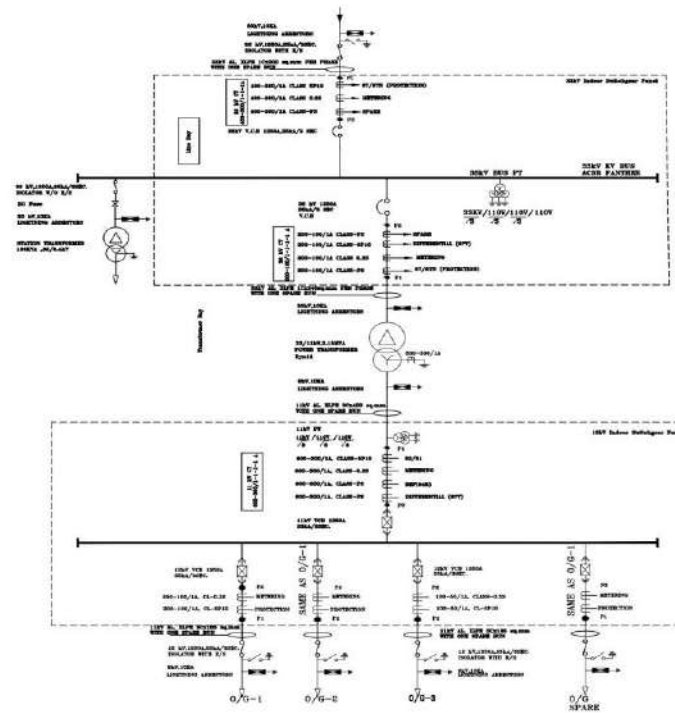
**B) Optional Scope of Items (if Included in Estimate):**

**Refer Main Cost Database**

**NOTE:**

- C1)** The Material / Equipment specifications shall conform to relevant IS / IEC Standards. The Construction / laying of 33KV line shall conform to relevant REC standards and regulations 47 to 73 under Chapter IV (Part-B) of CEA (Technical standard) Regulation 2010 and amendments there to.
- C2)** The cost of Additional 33 kV Bay and associated Terminal Equipment at EHV end should be taken from EHV Cost Data.

### SINGLE LINE DIAGRAM, 1 X 3.15 MVA, 33/11 kV SUB-STATION (INDOOR TYPE)



LEGEND:-			
S.No	SYMBOL	DESCRIPTION	QTY.
1		3.15 MVA TRANSFORMER 33/11KV	1 No.
2		11KV CT FOR DISC. PROTECT. CIRCUIT BREAKER	1 SET
3		POTENTIAL TRANSFORMER 33KV/11KV	3 No.
4		11KV CT FOR DISC. PROTECT. CIRCUIT BREAKER	3 No.
5		11KV SURGE ARRESTER POLYMERIC	1 SET
6		11KV CT FOR DISC. PROTECT. CIRCUIT BREAKER	3 No.
7		11KV SURGE ARRESTER POLYMERIC	3 No.
8		11KV CT FOR DISC. PROTECT. CIRCUIT BREAKER	3 No.
9		11KV BUSBAR	1 SET
10		33KV BUSBAR	1 SET
11		TRANSFORMER DIFFERENTIAL PROTECT.	1 SET
12		11KV CT FOR DISC. PROTECT. CIRCUIT BREAKER	3 No.
13		11KV CT FOR DISC. PROTECT. CIRCUIT BREAKER	3 No.
14		11KV CT FOR DISC. PROTECT. CIRCUIT BREAKER	3 No.
15		11KV CT FOR DISC. PROTECT. CIRCUIT BREAKER	3 No.

- NOTE:
1. ALL THE EQUIPMENTS ARE FOR SHORT C.T. RATING OF 25KA/3SEC. AND CREPAGE DISTANCE IS 81mm/kV.
  2. THE TVM SHALL BE OF 0.2% CLASS ACCURACY CLASS COMMENSURABLE WITH RATIO POINT.
  3. ALL THE PROTECTION RELAYS SHALL BE NUMERICAL WITH IEC61850 COMMUNICATION PROTOCOL.
  4. ALL THE 11KV ISOLATORS SHALL BE MOTORISED.
  5. REFERRING EQUIPMENT IS OF 0.5% ACCURACY CLASS.
  6. CIRCUIT BREAKER SHALL BE AUTO-RE-CLOSING DUTY TYPE AND RELAYS WITH AUTO-RE-CLOSING 3 SHOTS.

PROJECT	33/11 kV SUB-STATION		
CLIENT	H.P.S.E.B.LIMITED		
TITLE	SINGLE LINE DIAGRAM OF 1x3.15MVA,33/11kV SUB-STATION		
DRAWN	By K.R.SUNDESH SINGH (A.E)	SCALE	N.T.S
REVIEWED	By M.L.SHAHNA (A.S.E)		
APPROVED	By PRITAM CHAND (SR IN)		
DATE	1	DRAWING NO.	HPSEBL-SEDES-SLD--01
		REV	0

**33 KV Super Structure and Bus-bar for 33/11 kV**

[As per HPSEBL Drawing No. SE(D)-6502/2015-16/15]

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
<b>A. SUPER STRUCTURE</b>						
	(i) R.S. Joists, size 12800x250x125 mm 15 supports i.e. (15x12.8x37.3) i/c foundation of RS Joist.	44154	Nos	15.00	662314	MR
	(ii) R.S.Joists, size 4200x250x125 mm supports for Power Transformer's LA, Station Transformer LA, I/C, Power Transformer's CTs (10x4.2)m =42m	14488	Nos	10.00	144881	MR
	(iii) Foundation of R.S. Joist supports	72420	Nos	15.00	1086306	Est
	(iv) Foundation of CT, PT & LA	21309	Nos	10	213092	Est
	(v) M.S. channel iron 125x65 mm, X-arm @13.1 kg/m at 5% wastage for Bus-bar, Isolators, CT, LA's transformer etc. (a) 22.25 Mtr long =8 No. (b) 7.125 Mtr long =20 No. (c) 4.50 Mtr long= 8 No (d) 0.750 Mtr long =40 No.					
	<b>Total = 22.25x8+7.125x20+4.50x8+0.75x40= 386.50 m i.e. 387 Mtr</b>	1239	m	387	479590	MR
	(v) Add 5 % workshop charges on item A iv) above		%	5	23979	
	(vi) M.S. angle iron 65x65 X-arm @ 5.8 kg/m & 5% wastage for body supports belt of Station transformer	6437	m	12.00	77240	MR
	(vii) Add 5% w/shop charge on item A(vi) above		%	5	3862	
	(viii) Nuts & Bolts with Washers off sizes	97	Kg	60	5820	Esc
	<b>S/Total (A) :-</b>				<b>2697085</b>	
<b>B. BUS-BAR</b>						
	(i) 3 Disc insulators Tension String complete with fitting	2379	No.	51	121329	Esc
	(ii) ACSR conductor 200 mm <sup>2</sup> at 10 % wastage (8x4.5+1x3.5)x3x1.1=130.35 say 130 m	159	m	130	20670	Esc
	For jumpers at 2 m average 25 sets i.e. 2x3x25x1.1=165 m	159	m	165	26235	Esc
	(iii) Tee connections	263	No.	24	6312	Esc
	(iv) PG clamps	140	No.	48	6720	Esc
	<b>C. Shingles for S/Stn Yard</b>	2187	m <sup>3</sup>	17	37179	Esc
	<b>S/Total (B) :-</b>				<b>218445</b>	
	<b>Total (A+B) :-</b>				<b>2915530</b>	
	<b>Say Rs.</b>		Say Rs		<b>2915530</b>	

**11 kV/33kV Outdoor Gantry for Outgoing Feeder**

<b>S.N.</b>	<b>Description of item</b>	<b>Rate</b>	<b>Unit</b>	<b>Qty</b>	<b>Amount</b>	<b>CD Basis (PO/ Esc / Est/ MR)</b>
<b>A</b>	<b>SUPPORTS</b>					
	(a) Steel tubular pole 11 m long for 1 No. out going Feeder	18709	No.	2	37418	PO
	(b) RCC muffs & concreting thereof for 1 No. out going Feeder	1769	No.	2	3538	Esc
<b>B</b>	<b>CROSS ARMS</b>					
	(a) 4.2 m long M.S. channel iron 100X50X5 mm 9.56 kg/m Cross arms for Sub-Station With 1 No. out going Feeder (11kV)	884	M	17	15030	MR
	(a) 5.5 m long M.S. channel iron 100X50X5 mm 9.56 kg/m Cross arms for Sub-Station With 1 No. out going Feeder (33kV)	884	M	23	20335	MR
	(b) M.S. angle iron 50X50X6 mm 4.5 kg/m Cross arms for Sub-Station With 1 No. out going Feeder [ 4.2x3+5.33x2] (11kV)	416	M	23.26	9680	MR
	(c) M.S. angle iron 50X50X6 mm 4.5 kg/m Cross arms for Sub-Station With 1 No. out going Feeder [ 5.5x3+5.33x2] (33kV)	416	M	27.16	11303	MR
	(d) M.S. Half clamps	158	No.	2	316	Esc
	(e) Full Clamp	273	No.	8	2184	Esc
	(f) Nuts and Bolts of Various Sizes (Galvanised / Coated) [Preferably 16 mm $\Phi$ or more (with flat and spring washers)]	98	kg	10	980	Esc
<b>D</b>	ACSR 100 mm <sup>2</sup> conductor for Jumpers [approx. 4 mtr/ phase]	80	m	12	960	Esc
<b>E</b>	Discs insulator sets (comprising 1 No. Disc: $\wedge$ (Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.) x (3 No. conductors)	1464	No.	3	4392	Esc
<b>F</b>	Discs insulator sets (comprising 3 No. Disc: $\wedge$ (Porcelain, BS, 12 kV, 90 kN) including Dead End Clamps etc.) x (3 No. conductors)	2356	No.	9	21204	Esc
<b>G</b>	Clamps for 1 Nos. out going Feeder	247	No.	6	1482	Esc
<b>H</b>	11 kV Isolator	25678	No.	1	25678	PO
<b>I</b>	33 kV Isolator	53152	No.	1	53152	Esc
	<b>Cost of 11kV Gantry</b>				<b>101658</b>	
	<b>Cost of 33kV Gantry</b>				<b>152872</b>	

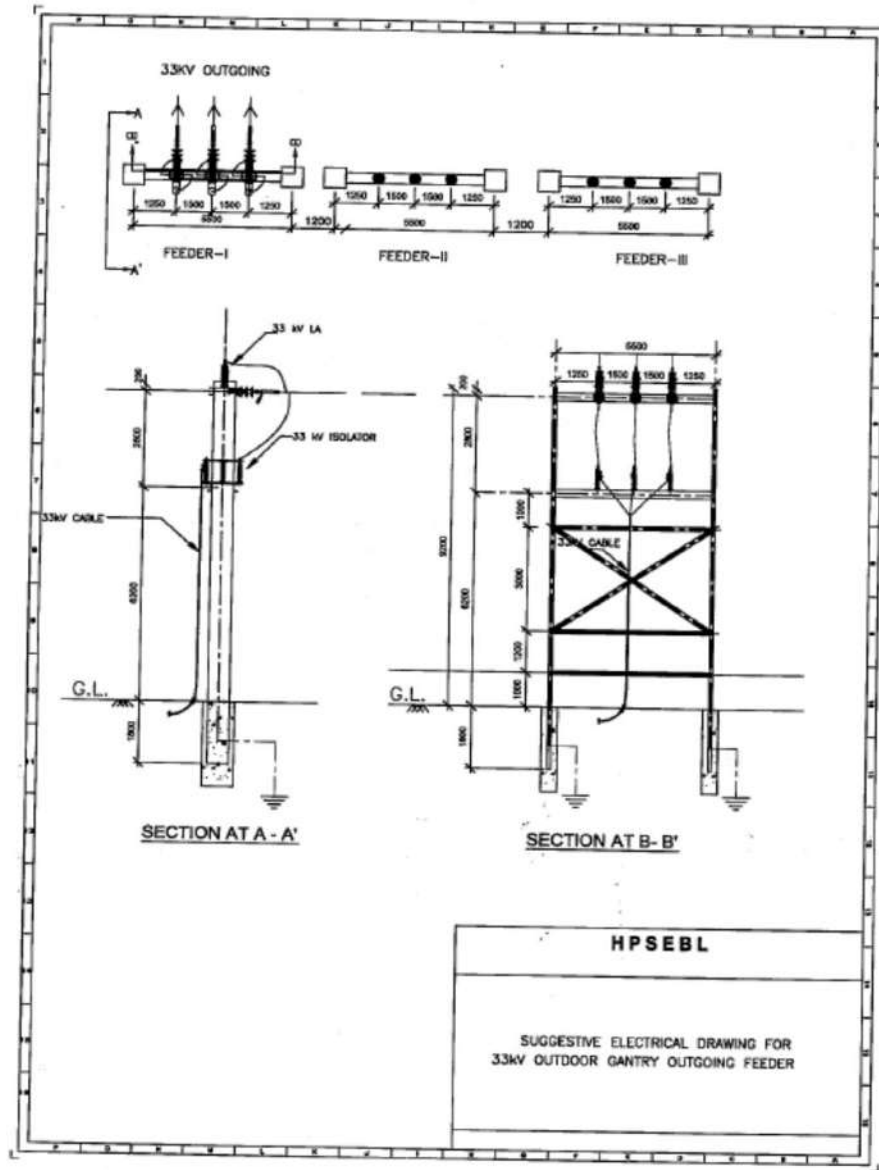


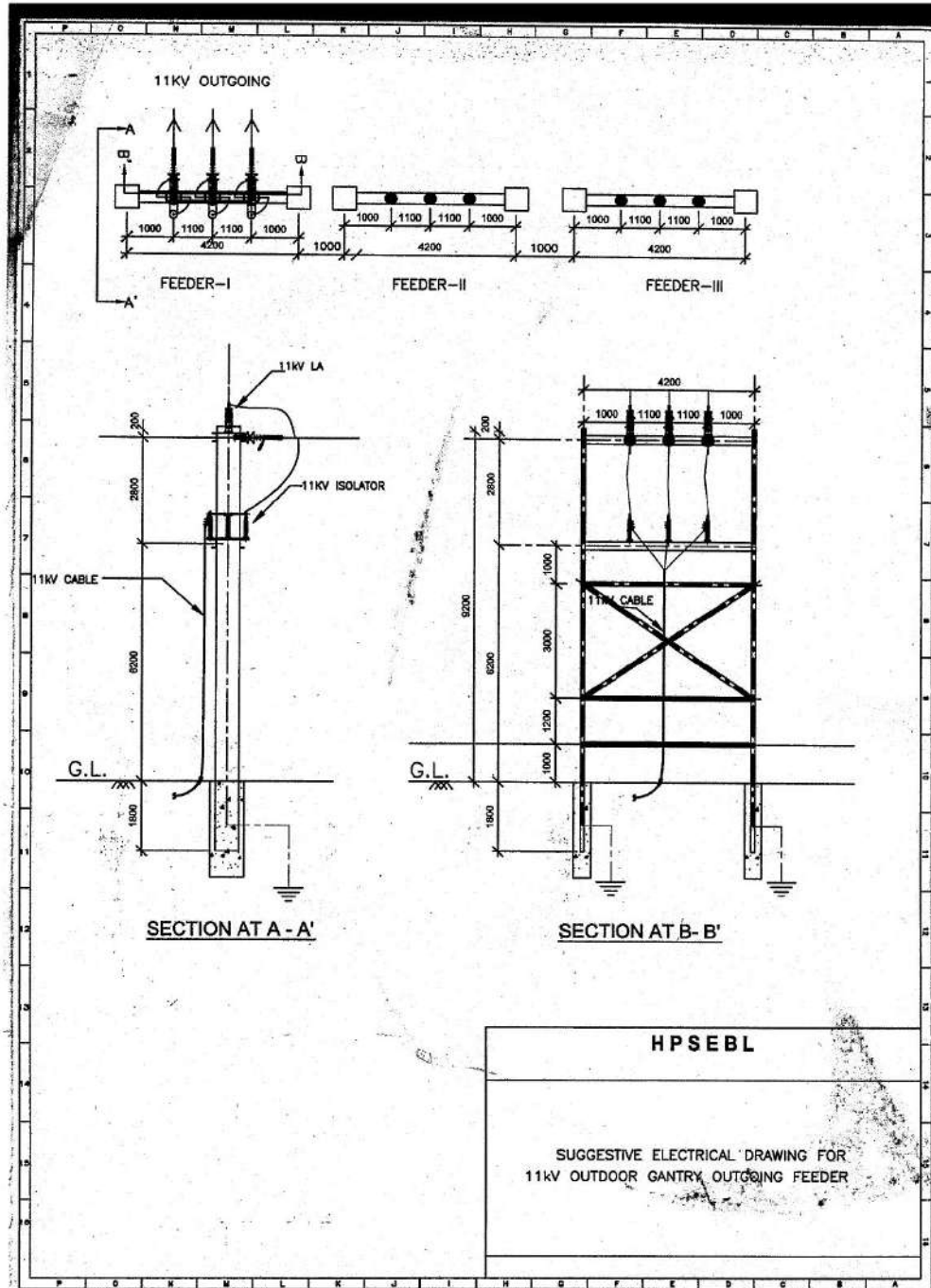
## Estimated Cost for Earthing of 33/11 kV or 33/22 kV Sub-Station with Indoor Panel

S.N	Description of item	Rate	Unit	Qty	Amount	CD Basis (PO/ Esc / Est/ MR)
1	Cost of Material for Earth Mat laying	157546	No	1	157546	Esc
2	Earthing of 33 kV yard & equipment & 22 kV or 11kV panels M.S. flat 50x6 mm,wt. 2.4 kg/m At 5% wastage:-					
	(a) Transformer Earthing at 3 points (body & neutral) at 10 Mtr each (3x10)x1.05=31.5 Mtr					
	(b) For 2 No. LA's at 4.2 Mtr each 4.2x2x1.05=8.82 Mtr					
	(c) For 15 nos. 33 kV super structure at 11.50 Mtr each 15x11.50x1.05 =173.25 Mtr i.e. 173 Mtr					
	(d) For 12 Nos. VCB & CT body earthing at 10 m Each (12x10)x1.05 = 126 Mtr					
	Total (a+b+c+d) =339.57 m i.e. 340 Mtr	222.0	Mtr	340	75465	MR
3	Welding of risers and corrosion protection @ 5% of Sr. No.2		%	5		
4	GI wire no. 6 SWG for screening etc.	65	kg	32	2080	PO
5	Eye block for screening	83	No	15	1245	Esc
6	Turnbuckle for Screening	170	No.	8	1360	Esc
	<b>Total :-</b>				<b>237696</b>	

## Schedule of Cost and Material Earthing Electrode (Pipe type) [refer REC Construction Std. J-2 ]

S.N	Description of item	Rate	Unit	Qty	Amount	CD Basis (PO/ Esc / Est/ MR)
1	G.I. Pipe 50 mm dia with holes of 16 mm dia at 150 mm from centre to centre for 2 m Distance from bottom.	1106	No	3	3318	Esc
2	Workshop charges 5 % on item no. 1		%	5	166	
3	M.S. plates 150x150x6 mm for two connection	92	Kg	1.13	105	MR
4	50x6 mm M.S. flat connection with the mat to mat	92.48	Kg	4.8	444	MR
5	Nuts & bolts galvanized 16 mm dia, 50 mm long	93	Kg	0.5	47	Esc
6	Chequered plate cover 500x500x6mm i.e. 11.8 kg	97	Kg	11.8	1145	Esc
	<b>Total :-</b>				<b>5223</b>	





**Schedule of Cost & Material for Layout of Earthmat at 33/11 kV or 33/22 kV Sub-Station with 1 No. Power Transformer**

Cost Escalation in FY23 over Cost Data for FY2021-22 (%) = 4.6

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
1	M.S. flat 50x6 mm for ground mat including 5% wastage & weighing 2.4 kg/m (31x15+9x5)x1.05=535.5 m or 1285.2 kg say 1.285 MT	92481	MT	1.285	118838	MR
2	Earthing pipe electrode	5188	No.	16	83008	Esc
3	20 mm round, 3 Mtr Long & weighing 2.47 kg/m 10 No. Electrode 10x3x2.47 =74.1 kg, say 74 kg	54	Kg	74	3996	Esc
4	Welding etc. of points @ 5% on above items		%	5	7172	
<b>Total :-</b>					<b>213015</b>	

**Schedule of Cost of Yard lighting for 33/11 kV or 33/22 kV Sub-Station or 22 kV control point**

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
1	9 m, Steel Tubular poles for yard lighting	12600	No.	5	63000	PO
2	18 W LED Lamp complete with fittings	1412	No.	10	14120	Esc
3	Post Erection for gate	1236	No.	4	4944	Esc
4	Clamps for GI pipe bracket	152	No.	20	3040	Esc
5	Underground cable 16 mm <sup>2</sup> for yard lighting	85	m	220	18700	Esc
6	PVC cable size 6 mm <sup>2</sup> for connecting LED lamp supply	11	m	75	825	PO
7	Junction box i/c MCCB and other allied	523	No.	10	5230	Esc
<b>Total :-</b>					<b>102713</b>	

**Super Structure for 33 kV bay for 1 no. Out going feeder for each 33 kV VCB, 33 kV super structure and busbar controlled tapping for each outgoing 33kV feeder from existing 33 kV line**

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
<b>A. SUPER STRUCTURE</b>						
1	R.S. Joists, size -12800x250x125, 2 No. supports	44154	Nos	2	88309	MR
2	Foundation of R.S. Joists supports	72420	Job	2	144841	Est
3	(a) M.S. Channel Iron 125x65x6mm, X-arm @ 12.1 kg/m at 5% wastage for bus-bar,isolators,LA's etc.					
	(i) 7 Mtr long = 8 No.					
	(ii) 5.5 Mtr long = 4 No					
	Total =12 No. [(7x8+5.5*4)*1.05 = 81.9	1239	Mtr	82	101618	MR
	(b) Add 5 % workshop charges on item 3 (a) above		%	5	5081	
4	Nuts and Bolts of Various Sizes (Galvanised / Coated) (with flat and spring washers)	95	Kg	25	2375	Esc
	<b>S/Total (Y) :-</b>				<b>342224</b>	
<b>B. BUS-BAR</b>						
	(i) 3 Disc Insulators Tension String Complete	2356	No.	6	14136	Esc
	(ii) 3 Disc Suspension Tension String complete	2254	No.	3	6762	Esc
	(iii) ACSR conductor 200 mm <sup>2</sup> at 10 % wastage:-					
	(a) for busbar					
	7x3x1.05 =22.05 Mtr					
	(b) For jumpers at 2 m average					
	4 sets i.e. 3x4x1.1=13.2 Mtr					
	Total (a+b) =35.30 Mtr Say 35 Mtr	157	m	35	5495	Esc
<b>C.</b>	PG clamps	137	No.	12	1644	Esc
	<b>S/Total (Z) :-</b>				<b>28037</b>	
	<b>Total (Y+Z) :-</b>				<b>370261</b>	

**Extension Earthing of Equipments for 33 kV Out-going Feeder**

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
1	M.S. flat 50x6 mm weighting 2.4 kg/ m at 10% wastage for:-					
	(a) For 2 nos. 33 kV super structure at 11.50 Mtr each 2x11.50x1.05 =24.15 Mtr i.e. 24 Mtr					
	(c) For 6 Nos. VCB & CT body earthing at 10 m Each (6x10)x1.05 = 63 Mtr					
	Total a+b =87 Mtr or 208.8 kg say 0.209 MT	92481	MT	0.209	19329	MR
	(d) Welding of riser and corrosion protection @ 5% of above		%	5	966	
	Earthing pipe electrode	4960	No.	1	4960	Est
	20 mm round, 3 Mtr Long & weighing 2.47 kg/m 2 No. Electrode 2x3x2.47 =14.82 kg, say 15 kg	52	kg	15	780	Est
	<b>Total :-</b>				<b>26035</b>	

## Estimated Cost of Control cable for 33/11 kV or 33/22 kV Sub-Station Indoor type switchgear.

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
1	2x2.5 mm <sup>2</sup> control cable	51	m	303	15428	Esc
2	4x2.5 mm <sup>2</sup> control cable	90	m	150	13500	Esc
3	12x2.5 mm <sup>2</sup> control cable	233	m	63	14563	Esc
4	3.5 core 95 mm <sup>2</sup> aluminium cable suitable for 415 V, AC	238	m	55	13090	Esc
<b>Total :-</b>					<b>56580</b>	

## Foundation of Station Transformer

S.N.	Description of item	Rate	Unit	Qty	Cost (in Rs)	CD Basis (PO/ Esc / Est/ MR)
1	PCC 1:3:6 [ L-1.65 x B-1.65 x H-0.075= 0.20 m <sup>3</sup> ]	5237	m <sup>3</sup>	0.20	1047	Esc
2	RCC 1:1.5:3 [Raft: L- 1.5 x B- 1.5 x H- 0.25= 0.56 m <sup>3</sup> , Columns: L- 1 x B- 1x H- 2.25 = 2.25 m <sup>3</sup> ]	7237	m <sup>3</sup>	2.81	20336	Esc
3	TOR Steel/ Mild Steel	68	kg	180	12240	Est
4	Structural Steel	68	kg	27	1836	Est
<b>Total :-</b>					<b>35459</b>	

## Fire Fighting System

1	ABC Type (portable, Dry Chemical, 9kg)	2710	No	6	16260	Esc
2	ABC Type (portable, Dry Chemical, 25kg)	12424	No	1	12424	Esc
3	Mechanical Foam Type with trolley (50 ltr)	29550	No	1	29550	Esc
4	Fire Buckets with Stand (4 No.)	3823	set	1	3823	Esc
<b>Total (1 to 4) :-</b>					<b>62057</b>	

### Estimated Cost of Various Control Room Buildings

Sr. No.	Sub Head / Item of work	Qty	Unit	Rate	Amount	Remark
1	Control Room Building for outdoor type S/Stn [ Size: 14.850X14.710 sq m ] excluding Sub-division building <b>(For Outdoor Substation [As per SE (Design) Drawing No:- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33202/2018]</b>	218.295	sq. m	25965	5667938	<b>Ann-CRB-1</b>
2	Control Room Building for outdoor type S/Stn [18.3X14.85 ] including Sub-division building <b>(For Outdoor Substation [As per SE (Design) Drawing No:- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33200/2018]</b>	271.755	sq. m	39638	10771891	<b>Ann-CRB-2</b>

Ann-CRB-1

**Cost Estimate of Control Room Building excluding Sub-Division Building**  
**[As per SE (Design) Drawing No:- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33200-33217/2018]**

Sr. No.	Sub Head / Item of work	Quantity	Unit
1	2	3	4
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	190.75	Cum
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	13.12	Cum
3	Centering and shuttering including strutting, propping etc. and removal of form for :		
(i)	Foundations, footings, bases of columns, etc. for mass concrete	143.46	Sqm
(ii)	Suspended floors, roofs, landings, balconies and access platform	279.74	Sqm
(iii)	Lintels, beams, plinth beams, girders, bressumers and cantilevers	319.77	Sqm
(iv)	Columns, Pillars, Piers, Abutments, Posts and Struts	138.17	Sqm
(v)	Stairs, (excluding landings) except spiralstaircases	11.39	Sqm
(vi)	Edges of slabs and breaks in floors and walls Under 20 cm wide	74.33	Rmt
4	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level : 1:1.5:3 (1 cement : 1.5 coarse sand): 3 graded stone aggregate 20 mm nominal size)	27.58	Cum
5	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement : 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size)	17.52	Cum
6	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size).	81.40	Cum
7	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level. Thermo-Mechanically Treated bars of grade Fe-500D or more.	15180.00	Kg
8	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	40.36	Cum
9	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:4:8 (1 Cement : 4 coarse sand) : 8 graded stone aggregate 40 mm nominal size)	45.05	Cum
10	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in: Cement mortar 1:6 (1 cement : 6 coarse sand)	30.85	Cum
11	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	45.51	Cum
12	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand)	140.34	Sqm



13	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) : For fixed portion Powder coated aluminium (minimum thickness of powder coating 50 micron)	802.41	Kg
14	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately) Powder coated aluminium (minimum thickness of powder coating 50 micron)	1089.51	Kg
15	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item): With float glass panes of 5 mm thickness (weight not less than 12.50 kg/ sqm)	37.41	Sqm
16	Providing and fixing aluminium work for doors, windows, board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of engineer- in-charge. Pre-laminated particle board with decorative lamination on both sides	8.81	Sqm
17	Providing and fixing fly proof galvanized M.S. wire gauge to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia 0.63 mm all complete. With 12 mm mild steel U beading	27.97	Sqm
18	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineerin- charge. (Only weight of grill to be measured for payment).	99.80	Kg
19	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge. With stainless steel cover plate minimum 1.25 mm thickness	2.00	Each
20	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete : 300x16 mm	6	Each
21	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868 ) transparent or dyed to required colour or shade, with necessary screws etc. complete :		
(i)	200x10 mm	16	Each
(ii)	100x10 mm	172	Each
22	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :		
(i)	125 mm	88	Each
(ii)	100 mm	12	Each

23	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete. Twin rubber stopper	8	Each
24	Providing and fixing bright finished brass hard drawn hooks and eyes : 150 mm	37	Each
25	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	6	Each
26	Providing and fixing nickel plated M.S. pipe curtain rods with nickel plated brackets : 25 mm dia (heavy type)	29.15	Rmt
27	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) : 25 mm thick	174.45	Sqm
28	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	24.36	Sqm
29	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/sqm including grouting the joints with white cement and matching pigments etc., complete.	18.05	Sqm
30	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	1302.38	Kg
31	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer. M.S. tube	407.18	Kg
32	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer.	5.20	Sqm
33	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters. 80x1.20 mm M.S. laths with 1.20 mm thick top cover	10.50	Sqm
34	Providing and fixing ball bearing for rolling shutters.	2.00	Each
35	Extra for providing mechanical device chain and crank operation for operating rolling shutters. Exceeding 10.00 sqm and upto 16.80 sqm in the area	10.50	Sqm
36	6 mm cement plaster of mix : 1:3 (1 cement : 3 fine sand)	521.79	Sqm
37	15 mm cement plaster on the rough side of single or half brick wall of mix : 1:6 (1 cement: 6 fine sand)	724.33	Sqm
38	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	1246.12	Sqm
39	Distemping with oil bound washable distemper of approved brand and manufacture to give an even shade New work (two or more coats) over and including water thinnable priming coat with cement primer.	1047.62	Sqm

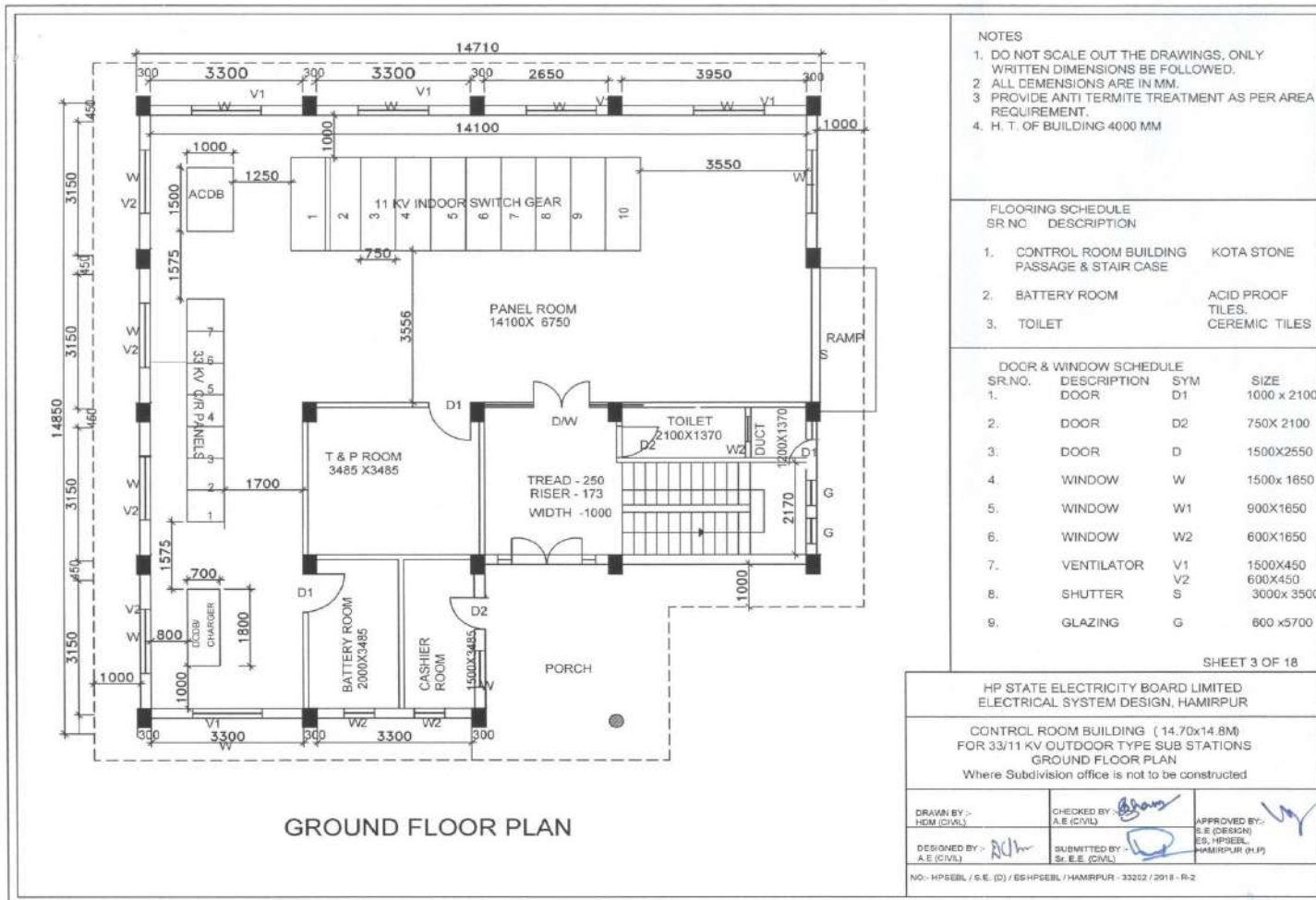
40	Finishing walls with 100% Premium acrylic emulsion paint having VOC less than 50 gm/litre and UV resistance as per IS 15489:2004, Alkali & fungal resistance, dirt resistance exterior paint of required shade (Company Depot Tinted) with silicon additives. New work (Two or more coats applied @ 1.43 litre/ 10 sqm. Over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm.	198.50	Sqm
41	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work	69.67	Sqm
42	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand (zone - III) : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.	73.50	Sqm
43	Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors hereever required : W.C. pan with ISI marked white solid plastic seat and lid	1.00	Each
44	Providing and fixing 8 mm dia C.P. / S.S. Jet with flexible tube upto 1 metre long with S.S. triangular plate to European type W.C. of quality and make as approved by Engineer - in - charge.	1.00	Each
45	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require: White Vitreous China Wash basin size 630x450 mm with a single 15 mm C.P. brass pillar tap	1.00	Each
46	Providing and fixing white vitreous china pedestal for wash basin completely recessed at the back for the reception of pipes and fittings.	1.00	Each
47	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required : One urinal basin with 5 litre white P.V.C. automatic flushing cistern	1.00	Each
48	Providing and fixing PTMT Waste Coupling for wash basin and sink, of approved quality and colour. Waste coupling 31 mm dia of 79 mm length and 62mm breadth weighing not less than 45 gms	2.00	Each
49	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete. Flexible pipe 32 mm dia	2.00	Each
50	Providing and fixing uplasticised PVC connection pipe with brass unions : 45 cm length 15 mm nominal bore	3.00	Each
51	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing : Rectangular shape 453x357 mm	1.00	Each
52	Providing and fixing PTMT towel ring trapezoidal shape 215 mm long, 200 mm wide with minimum distances of 37 mm from wall face with concealed fittings arrangement of approved quality and colour, weighing not less than 88 gms.	1.00	Each
53	Providing and fixing PTMT soap Dish Holder having length of 138mm, breadth 102mm, height of 75mm with concealed fitting arrangements, weighing not less than 106 gms.	1.00	Each
54	Providing and fixing toilet paper holder : C.P. brass	1.00	Each

55	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	2.00	Each
56	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931. 15 mm nominal bore	1.00	Each
57	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931 15mm nominal bore	3.00	Each
58	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete		
(i)	(a) 15 mm nominal bore	2.00	Each
(ii)	(b) 25 mm nominal bore	1.00	Each
59	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors : 100 mm inlet and 100 mm outlet Sand Cast Iron S&S as per IS: 1729	4.00	Each
60	Providing and fixing PTMT grating of approved quality and colour. Circular type 100 mm nominal dia	4.00	Each
61	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc. Internal work - Exposed on wall		
(i)	(i) 15 mm nominal bore	90.00	Mtr
(ii)	(ii) 25 mm nominal bore	30.00	Mtr
62	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.		
(i)	110 mm diameter	85.80	Rmt
(ii)	75 mm diameter	60.00	Rmt
63	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion. Bend 87.5° 110 mm bend		
(i)	110 mm diameter	16.00	Each
(ii)	75 mm diameter	8.00	Each
64	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main : 15 mm nominal bore	1.00	Each
65	Supplying and fixing C.I. cover without frame for manholes : 455x610 mm rectangular C.I. cover (light duty) the weight of the cover to be not less than 23 kg	3.00	Each
66	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone- III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (zone- III) : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design : Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) : With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	2.00	Each
67	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete 15 mm nominal bore	1.00	Each
68	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, IS : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.		
(i)	1000 liters net capacity tank	1000.00	Per litre

Note : Exclusive of GST, DC, Contingency & Labour Cess etc.

<b>Cost Estimate of Septic Tank for 5 No. Users</b> <b>[As per SE (Design) Drawing No:- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33254]</b>			
Sr. No.	Description of items	Qty	Units
1	2	3	4
1	Earth work in surface excavation not exceeding 30 cm in (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge.	27.38	cum
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	1.79	cum
3	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:Cement mortar 1:6 (1 cement : 6 coarse sand)	9.40	cum
4	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	0.94	cum
5	Providing form work with steel plates 3.15mm thick welded with angle iron in frame 30*30*5mm so as to give a fair finish including centering, shuttering, strutting and propping etc. with wooden battens and ballies, height of propping and centering below supporting floor to ceiling not exceeding 4mtrs and removal of the same for insitu-reinforced concrete &		
(i)	Suspended floors, roofs, landings, balconies and access platform	0.11	sqmt
(ii)	Lintels, beams, plinth beams, girders, bressumers and cantilevers	11.72	sqmt
6	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size).	1.17	cum
7	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level..Thermo-Mechanically Treated bars of grade Fe-500D or more.	128.70	kg
8	15 mm cement plaster on the rough side of single or half brick wall of mix : 1:4 (1 cement: 4 fine sand)	16.22	sqmt
9	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge	6.91	cum
10	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.		
i	75 mm diameter	8.00	Rmt
11	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion		
i	PVC Plain bend 75mm dia	4	Each
12	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality Rectangular shape 600x450 mm internal dimensions	3	Nos.

Note : Exclusive of GST, DC, Contingency & Labour Cess etc.



- NOTES**
1. DO NOT SCALE OUT THE DRAWINGS. ONLY WRITTEN DIMENSIONS BE FOLLOWED.
  2. ALL DEMENSIONS ARE IN MM.
  3. PROVIDE ANTI TERMITE TREATMENT AS PER AREA REQUIREMENT.
  4. H. T. OF BUILDING 4000 MM

**FLOORING SCHEDULE**

SR NO	DESCRIPTION	
1.	CONTROL ROOM BUILDING PASSAGE & STAIR CASE	KOTA STONE
2.	BATTERY ROOM	ACID PROOF TILES.
3.	TOILET	CEREMIC TILES

**DOOR & WINDOW SCHEDULE**

SR.NO.	DESCRIPTION	SYM	SIZE
1.	DOOR	D1	1000 x 2100
2.	DOOR	D2	750X 2100
3.	DOOR	D	1500X2550
4.	WINDOW	W	1500x 1850
5.	WINDOW	W1	900X1650
6.	WINDOW	W2	600X1650
7.	VENTILATOR	V1	1500X450
8.	SHUTTER	V2	600X450
9.	GLAZING	S	3000x 3500

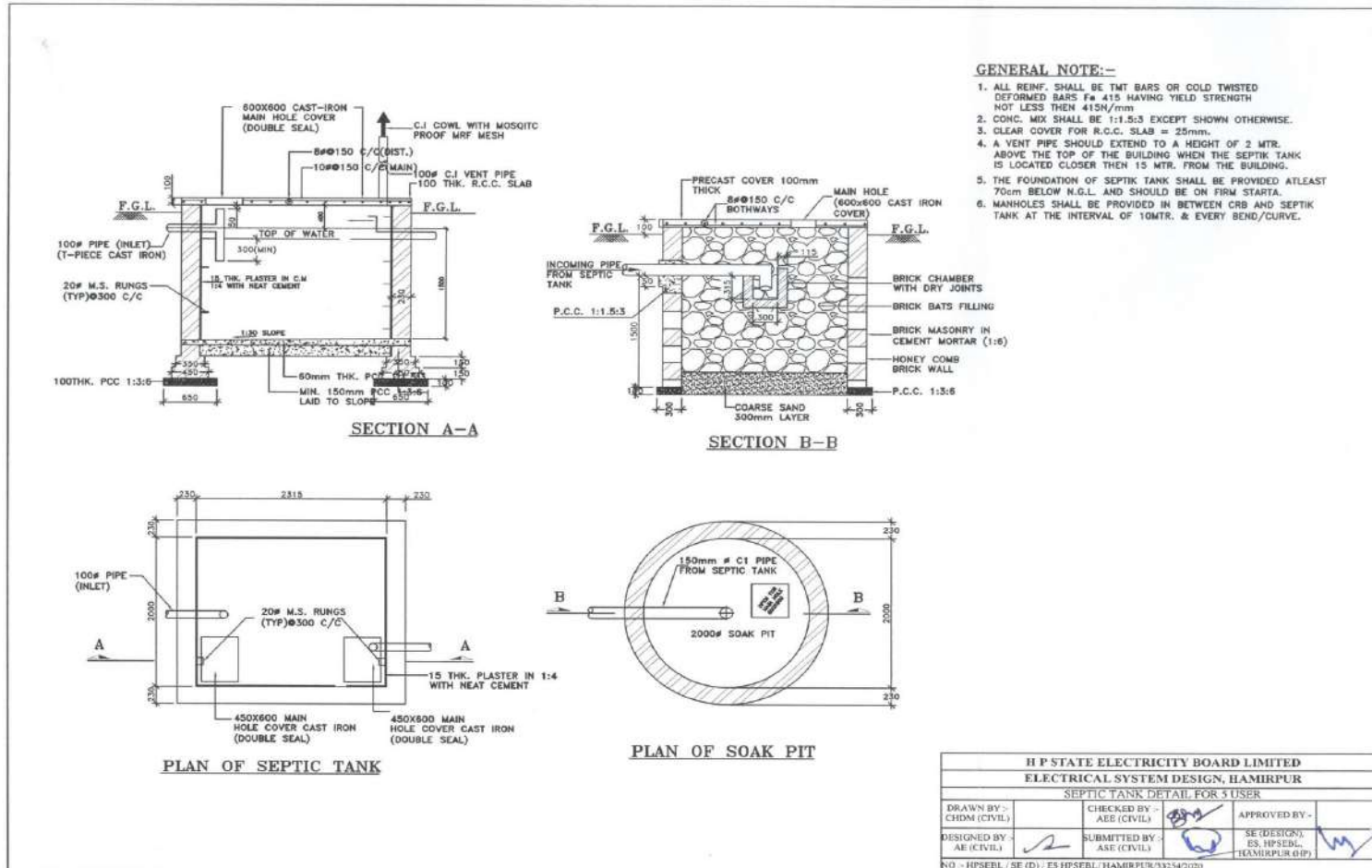
SHEET 3 OF 18

HP STATE ELECTRICITY BOARD LIMITED  
ELECTRICAL SYSTEM DESIGN, HAMIRPUR

CONTRCL ROOM BUILDING ( 14.70x14.8M)  
FOR 33/11 KV OUTDOOR TYPE SUB STATIONS  
GROUND FLOOR PLAN  
Where Subdivision office is not to be constructed

DRAWN BY:- HDM (CIVL)	CHECKED BY:- A.E (CIVL)	APPROVED BY:- S.E (DESIGN)
DESIGNED BY:- A.E (CIVL)	SUBMITTED BY:- Sr.E.E (CIVL)	ES, HPSEBL HAMIRPUR (H.P)

NO:- HPSEBL / S.E. (D) / ESHPSBL / HAMIRPUR - 3202 / 2018 - R-2



## Ann-CRB-2

**Cost Estimate of Control Room Building i/c Sub-Division Office**  
**[As per SE (Design) Drawing No :- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33200-**  
**33217/2018]**

Sr. No.	Sub Head / Item of work	Qty	Unit
1	2	3	4
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	205.30	Cum
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	8.68	Cum
3	Centering and shuttering including strutting, propping etc. and removal of form for :		
(i)	Foundations, footings, bases of columns, etc. for mass concrete	150.38	Sqm
(ii)	Suspended floors, roofs, landings, balconies and access platform	614.68	Sqm
(iii)	Lintels, beams, plinth beams, girders, bressumers and cantilevers	711.38	Sqm
(iv)	Columns, Pillars, Piers, Abutments, Posts and Struts	300.34	Sqm
(v)	Stairs, (excluding landings) except spiralstaircases	22.78	Sqm
(vi)	Edges of slabs and breaks in floors and walls Under 20 cm wide	148.66	Rmt
4	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level : 1:1.5:3 (1 cement : 1.5 coarse sand): 3 graded stone aggregate 20 mm nominal size)	30.16	Cum
5	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement : 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size)	37.98	Cum
6	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size).	174.30	Cum
7	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.Thermo-Mechanically Treated bars of grade Fe-500D or more.	29093.00	Kg
8	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	35.31	Cum
9	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:4:8 (1 Cement : 4 coarse sand) : 8 graded stone aggregate 40 mm nominal size)	44.40	Cum
10	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in: Cement mortar 1:6 (1 cement : 6 coarse sand)	61.70	Cum
11	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	91.02	Cum
12	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand)	304.27	Sqm



Sr. No.	Sub Head / Item of work	Qty	Unit
1	2	3	4
13	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) : For fixed portion Powder coated aluminium (minimum thickness of powder coating 50 micron)	1562.22	Kg
14	For shutters of doors, windows & ventilators including providing and fixing hinges/pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately) Powder coated aluminium (minimum thickness of powder coating 50 micron)	2398.96	Kg
15	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item): With float glass panes of 5 mm thickness (weight not less than 12.50 kg/ sqm)	74.68	Sqm
16	Providing and fixing aluminium work for doors, windows, board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of engineer- in-charge. Pre-laminated particle board with decorative lamination on both sides	29.11	Sqm
17	Providing and fixing fly proof galvanized M.S. wire gauge to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia 0.63 mm all complete. With 12 mm mild steel U beading	59.65	Sqm
18	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineerin- charge. (Only weight of grill to be measured for payment).	243.88	Kg
19	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge. With stainless steel cover plate minimum 1.25 mm thickness	2.00	Each
20	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete : 300x16 mm	6	Each
21	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868 ) transparent or dyed to required colour or shade, with necessary screws etc. complete :		
(i)	200x10 mm	40	Each
(ii)	100x10 mm	400	Each
22	Providing and fixing aluminium handles, ISI marked,anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :		
(i)	125 mm	200	Each

Sr. No.	Sub Head / Item of work	Qty	Unit
1	2	3	4
(ii)	100 mm	36	Each
23	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete. Twin rubber stopper	20	Each
24	Providing and fixing bright finished brass hard drawn hooks and eyes : 150 mm	93	Each
25	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	13	Each
26	Providing and fixing nickel plated M.S. pipe curtain rods with nickel plated brackets : 25 mm dia (heavy type)	75.00	Rmt
27	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) : 25 mm thick	225.47	Sqm
28	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	34.06	Sqm
29	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	93.21	Sqm
30	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	1553.83	Kg
31	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer. M.S. tube	478.60	Kg
32	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer.	5.20	Sqm
33	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 part 1 and M.S. top cover of required thickness for rolling shutters. 80x1.20 mm M.S. laths with 1.20 mm thick top cover	10.50	Sqm
34	Providing and fixing ball bearing for rolling shutters.	2.00	Each
35	Extra for providing mechanical device chain and crank operation for operating rolling shutters. Exceeding 10.00 sqm and upto 16.80 sqm in the area	10.50	Sqm

Sr. No.	Sub Head / Item of work	Qty	Unit
1	2	3	4
36	6 mm cement plaster of mix : 1:3 (1 cement : 3 fine sand)	1098.78	Sqm
37	15 mm cement plaster on the rough side of single or half brick wall of mix : 1:6 (1 cement: 6 fine sand)	2163.87	Sqm
38	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	1431.88	Sqm
39	Distemping with oil bound washable distemper of approved brand and manufacture to give an even shade New work (two or more coats) over and including water thinnable priming coat with cement primer.	1431.88	Sqm
40	Finishing walls with 100% Premium acrylic emulsion paint having VOC less than 50 gm/litre and UV resistance as per IS 15489:2004, Alkali & fungal resistance, dirt resistance exterior paint of required shade (Company Depot Tinted) with silicon additives. New work (Two or more coats applied @ 1.43 litre/ 10 sqm. Over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm.	1431.88	Sqm
41	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work	69.67	Sqm
42	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand (zone - III) : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.	73.50	Sqm
43	Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors hereever required : W.C. pan with ISI marked white solid plastic seat and lid	4.00	Each
44	Providing and fixing 8 mm dia C.P. / S.S. Jet with flexible tube upto 1 metre long with S.S. triangular plate to European type W.C. of quality and make as approved by Engineer - in - charge.	4.00	Each
45	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require: White Vitreous China Wash basin size 630x450 mm with a single 15 mm C.P. brass pillar tap	4.00	Each
46	Providing and fixing white vitreous china pedestal for wash basin completely recessed at the back for the reception of pipes and fittings.	4.00	Each
47	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required : One urinal basin with 5 litre white P.V.C. automatic flushing cistern	2.00	Each
48	Providing and fixing PTMT Waste Coupling for wash basin and sink, of approved quality and colour. Waste coupling 31 mm dia of 79 mm length and 62mm breadth weighing not less than 45 gms	6.00	Each
49	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete. Flexible pipe 32 mm dia	6.00	Each
50	Providing and fixing uplasticised PVC connection pipe with brass unions : 45 cm length 15 mm nominal bore	10.00	Each
51	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing : Rectangular shape 453x357 mm	4.00	Each
52	Providing and fixing PTMT towel ring trapezoidal shape 215 mm long, 200 mm wide with minimum distances of 37 mm from wall face with concealed fittings arrangement of approved quality and colour, weighing not less than 88 gms.	4.00	Each
53	Providing and fixing PTMT soap Dish Holder having length of 138mm, breadth 102mm, height of 75mm with concealed fitting arrangements, weighing not less than 106 gms.	4.00	Each

Sr. No.	Sub Head / Item of work	Qty	Unit
1	2	3	4
54	Providing and fixing toilet paper holder : C.P. brass	4.00	Each
55	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	5.00	Each
56	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931. 15 mm nominal bore	4.00	Each
57	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931 15mm nominal bore	10.00	Each
58	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete		
(i)	(a) 15 mm nominal bore	2.00	Each
(ii)	(b) 25 mm nominal bore	1.00	Each
59	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors : 100 mm inlet and 100 mm outlet Sand Cast Iron S&S as per IS: 1729	11.00	Each
60	Providing and fixing PTMT grating of approved quality and colour. Circular type 100 mm nominal dia	11.00	Each
61	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc. Internal work - Exposed on wall		
(i)	(i) 15 mm nominal bore	180.00	Mtr
(ii)	(ii) 25 mm nominal bore	60.00	Mtr
62	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.		
(i)	110 mm diameter	171.60	Rmt
(ii)	75 mm diameter	120.00	Rmt
63	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion. Bend 87.5° 110 mm bend		
(i)	110 mm diameter	32.00	Each
(ii)	75 mm diameter	16.00	Each
64	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main : 15 mm nominal bore	1.00	Each
65	Supplying and fixing C.I. cover without frame for manholes : 455x610 mm rectangular C.I. cover (light duty) the weight of the cover to be not less than 23 kg	3.00	Each

Sr. No.	Sub Head / Item of work	Qty	Unit
1	2	3	4
66	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone- III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (zone- III) : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design : Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) : With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	2.00	Each
67	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete 15 mm nominal bore	2.00	Each
68	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, IS : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.		
(i)	1000 liters net capacity tank	2000.00	L

Note : Exclusive of GST, DC, Contingency & Labour Cess etc.

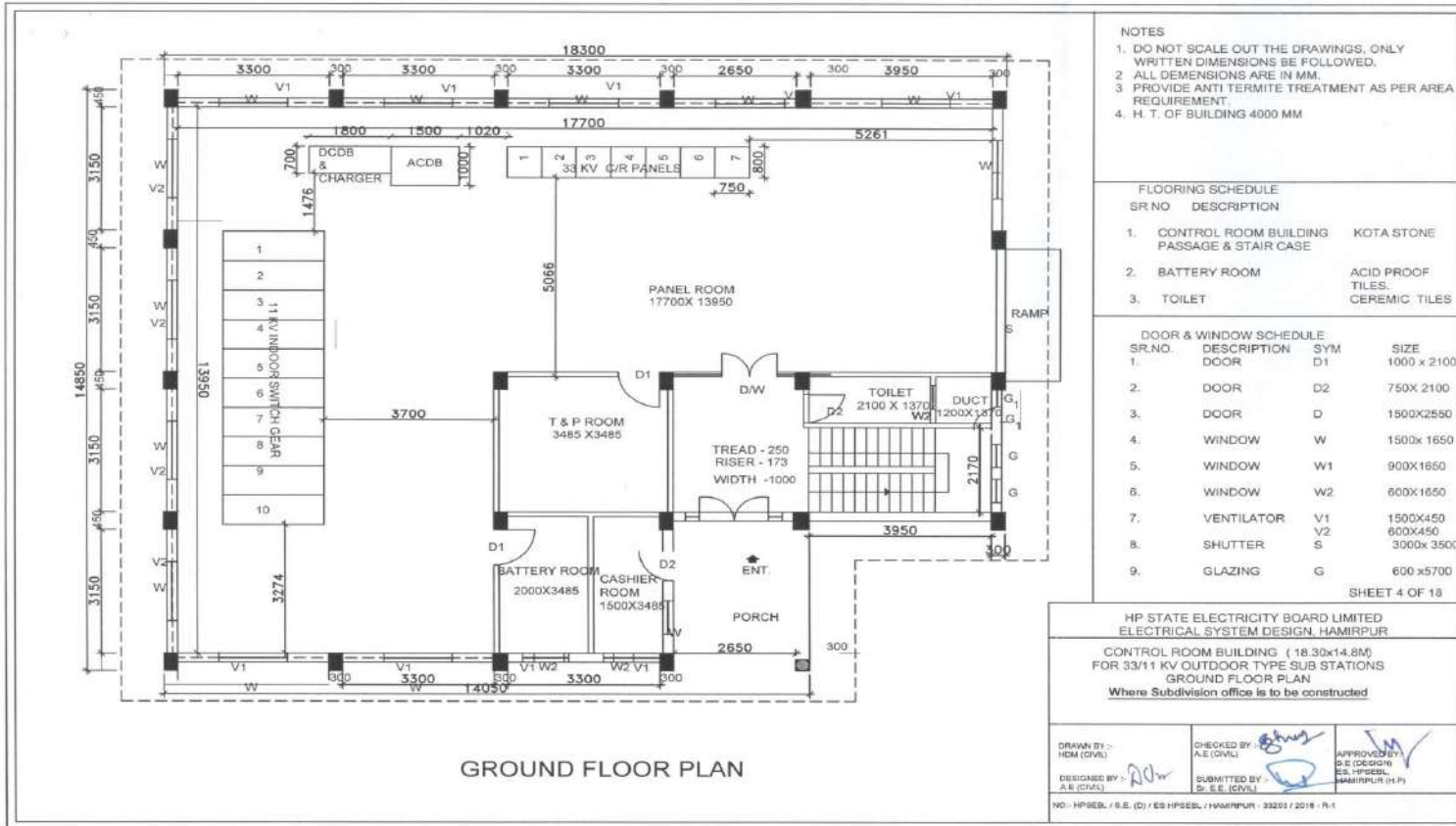
### Cost Estimate of Septic Tank for 20 Users

[As per SE (Design) Drawing no :- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33255]

Sr. No.	Description of items	Qty	Unit
1	2	3	4
1	Earth work in surface excavation not exceeding 30 cm in (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge.	43.28	cum
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	2.96	cum
3	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:Cement mortar 1:6 (1 cement : 6 coarse sand)	12.52	cum
4	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	0.94	cum
5	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundations and plinth in cement mortar 1:4 (1 cement : 4 coarse sand)	7.79	sqmt
6	Providing form work with steel plates 3.15mm thick welded with angle iron in frame 30*30*5mm so as to give a fair finish including centering, shuttering, strutting and propping etc. with wooden battens and ballies, height of propping and centering below supporting floor to ceiling not exceeding 4mtrs and removal of the same for insitu-reinforced concrete &		
(i)	Suspended floors, roofs, landings, balconies and access platform	0.11	sqmt
(ii)	Lintels, beams, plinth beams, girders, bressumers and cantilevers	19.47	sqmt
7	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level..Thermo-Mechanically Treated bars of grade Fe-500D or more.	171.51	kg
8	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size).	1.95	cum

<b>Sr. No.</b>	<b>Sub Head / Item of work</b>	<b>Qty</b>	<b>Unit</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
9	15 mm cement plaster on the rough side of single or half brick wall of mix : 1:4 (1 cement: 4 fine sand)	35.80	sqmt
10	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge	6.91	cum
11	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.		
i	75 mm diameter	8.00	Rmt
12	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion		
i	PVC Plain bend 75mm dia	4	Each
13	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality Rectangular shape 600x450 mm internal dimensions	3	Nos.

*Note : Exclusive of GST, DC, Contingency & Labour Cess etc.*



- NOTES**
1. DO NOT SCALE OUT THE DRAWINGS, ONLY WRITTEN DIMENSIONS BE FOLLOWED.
  2. ALL DEMENSIONS ARE IN MM.
  3. PROVIDE ANTI TERMITE TREATMENT AS PER AREA REQUIREMENT.
  4. H. T. OF BUILDING 4000 MM

**FLOORING SCHEDULE**

SR. NO	DESCRIPTION	
1.	CONTROL ROOM BUILDING PASSAGE & STAIR CASE	KOTA STONE
2.	BATTERY ROOM	ACID PROOF TILES. CEREMIC TILES
3.	TOILET	

**DOOR & WINDOW SCHEDULE**

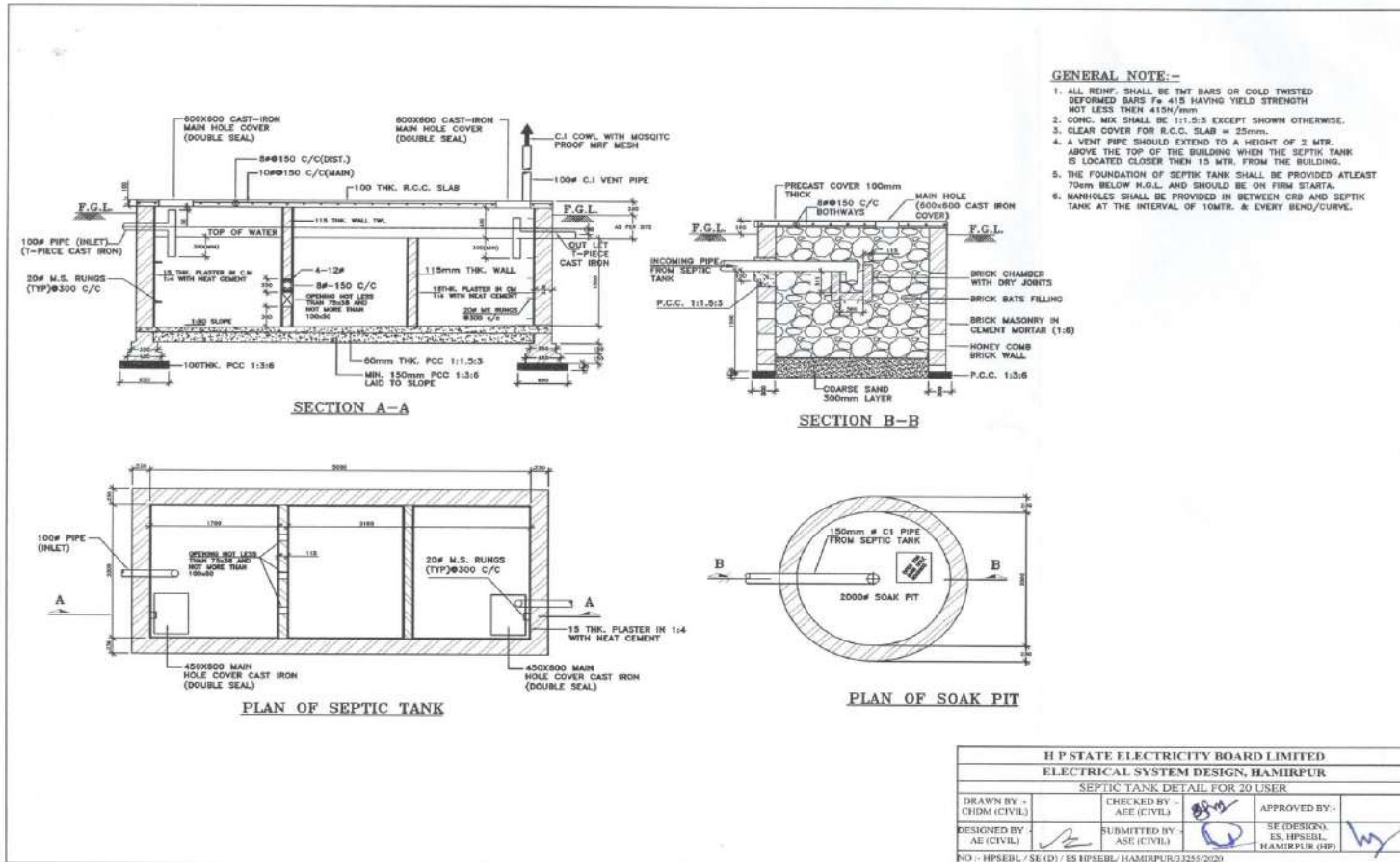
SR.NO.	DESCRIPTION	SYM	SIZE
1.	DOOR	D1	1000 x 2100
2.	DOOR	D2	750X 2100
3.	DOOR	D	1500X2550
4.	WINDOW	W	1500x 1650
5.	WINDOW	W1	900X1650
6.	WINDOW	W2	600X1650
7.	VENTILATOR	V1	1500X450
8.	SHUTTER	S	3000x 3500
9.	GLAZING	G	600 x5700

SHEET 4 OF 18

**HP STATE ELECTRICITY BOARD LIMITED**  
**ELECTRICAL SYSTEM DESIGN, HAMIRPUR**  
**CONTROL ROOM BUILDING ( 18.30x14.8M)**  
**FOR 33/11 KV OUTDOOR TYPE SUB STATIONS**  
**GROUND FLOOR PLAN**  
**Where Subdivision office is to be constructed**

DRAWN BY HEM (CIVIL)	CHECKED BY A.E (CIVIL)	APPROVED BY S.E (DESIGN)
DESIGNED BY A.E (CIVIL)	SUBMITTED BY S.E (CIVIL)	S.E (DESIGN) HAMIRPUR (H.P)

NO - HP/EBL / S.E. (D) / ED HP/EBL / HAMIRPUR - 33203 / 2019 - B-1

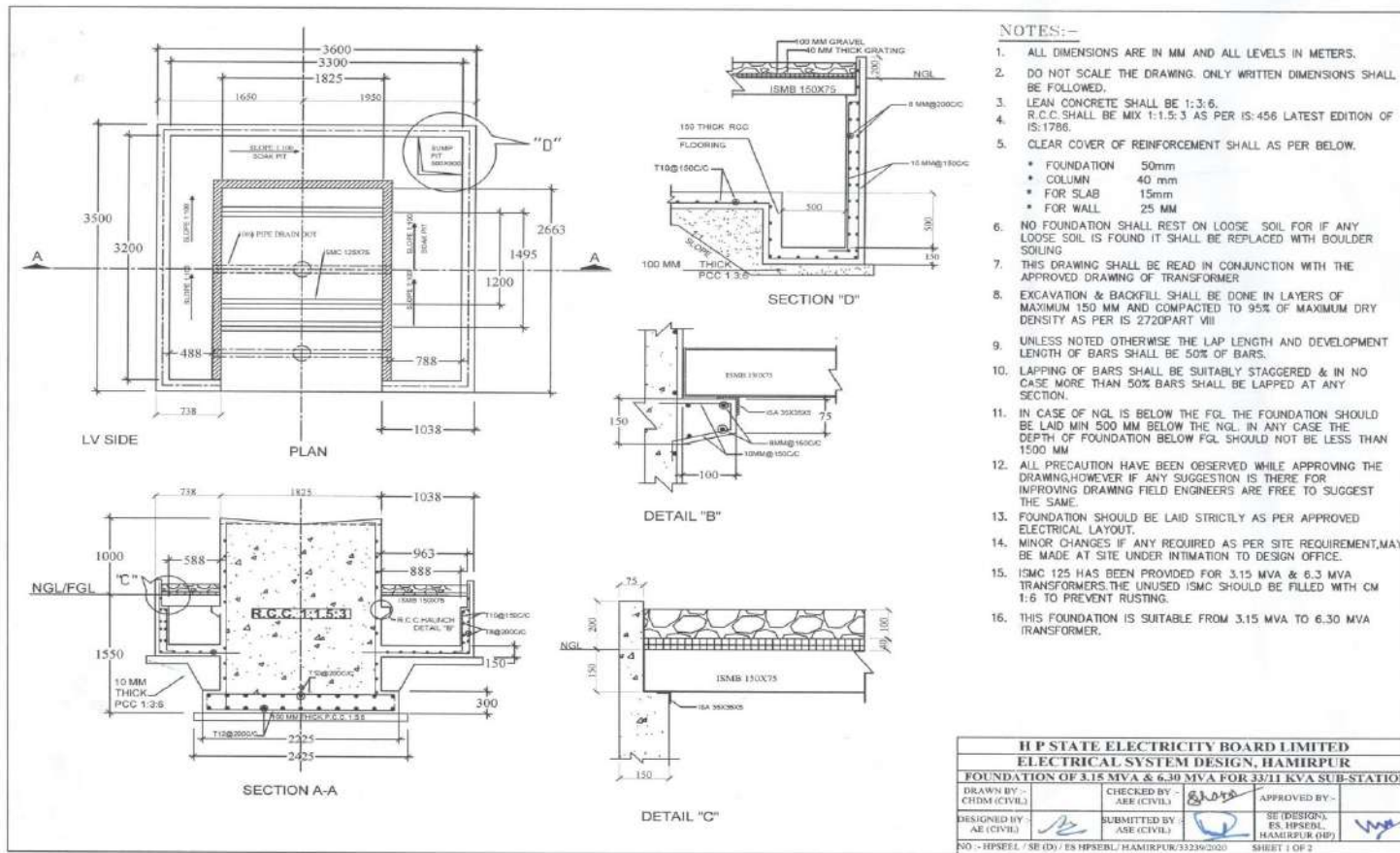




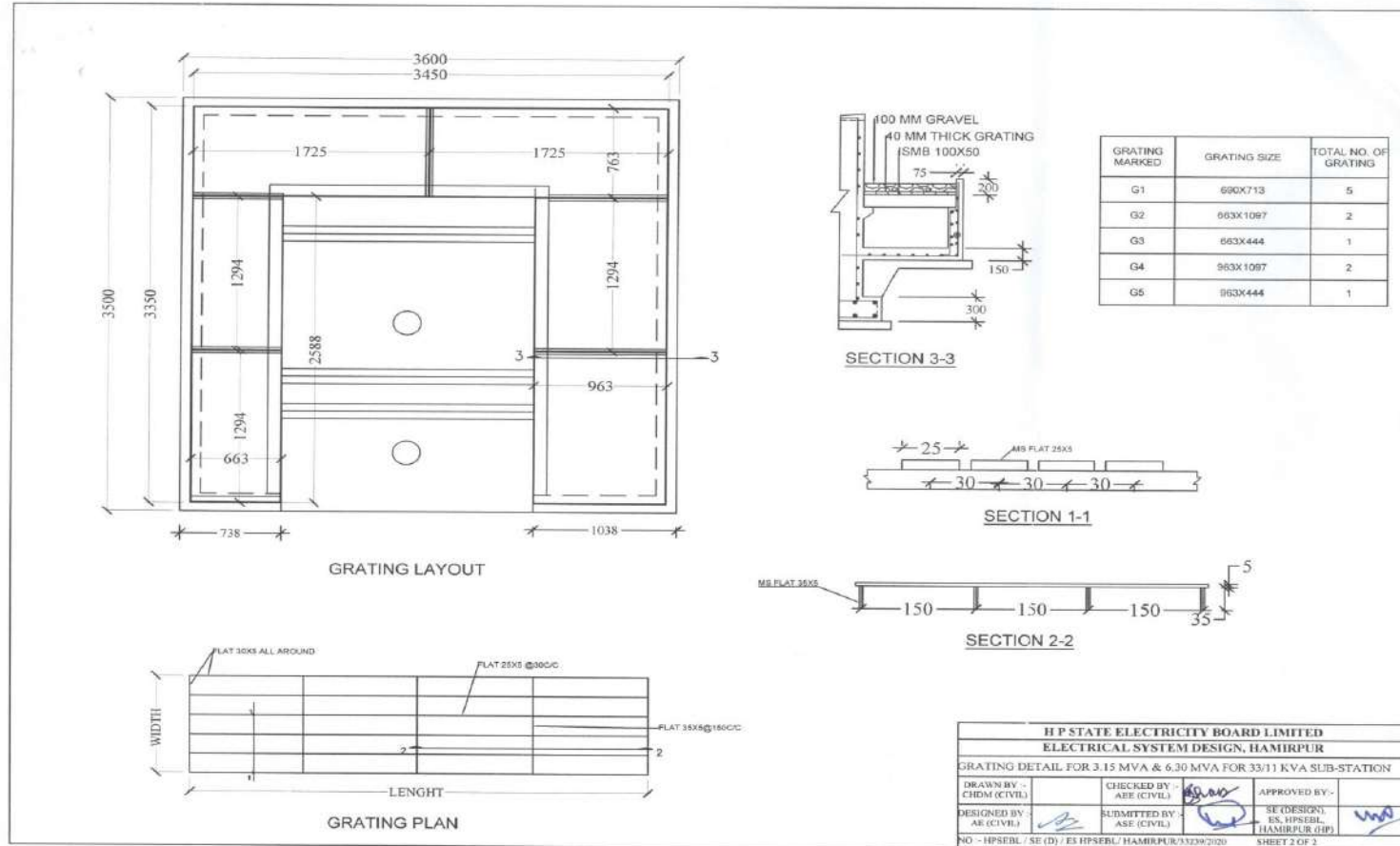
**Cost Estimate of RCC Foundation for 3.15 MVA to 6.30 MVA Power Transformer**  
**[As per SE (Design) Drawing No :- HPSEBL/SE(D)/ES HPSEBL/HMIRPUR /33239/2020]**

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	20.14	cum	171	3452	2.8.1
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	2.01	cum	5292	10637	4.1.6
3	Centering and shuttering including strutting, propping etc. and removal of form for:					
(a)	Foundations, footings, bases of columns, etc. for mass concrete.	21.57	sqm	216	4669	5.9.1
(b)	Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.	41.36	sqm	411	17005	5.9.2
4	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level 1:1.5:3 (1 cement : 1.5 coarse sand): 3 graded stone aggregate 20 mm nominal size)	13.29	cum	6656	88459	5.1.2
5	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size)	2.42	cum	7633	18472	5.2.2
6	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo-Mechanically Treated bars of grade Fe-500D or more.	429.79	sqm	77	33029	5.22.6
7	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	492.92	kg	107	52964	10.25.2
8	Providing and fixing unplasticised -PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete. 110 mm.	5.80	m	187	1086	12.43.2
9	Supplying, filling, spreading & leveling gravels of approved size in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	0.68	cum	1247	848	23.6
	<b>G.Total</b>				<b>230622</b>	

Note : Exclusive of GST, DC, Contingency & Labour Cess etc.



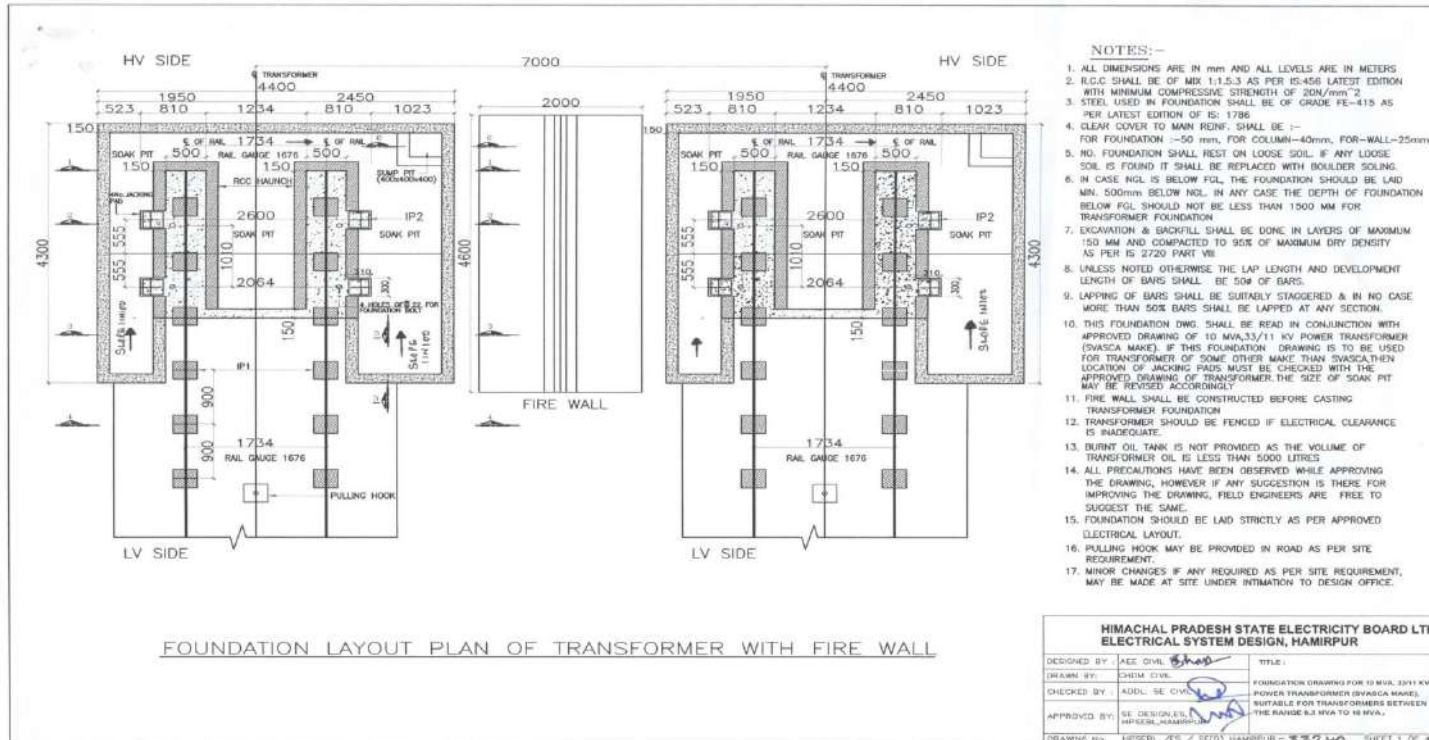
<b>H P STATE ELECTRICITY BOARD LIMITED</b>			
<b>ELECTRICAL SYSTEM DESIGN, HAMIRPUR</b>			
<b>FOUNDATION OF 3.15 MVA &amp; 6.30 MVA FOR 33/11 KV A SUB-STATION</b>			
DRAWN BY - CHDM (CIVIL)	CHECKED BY - AEE (CIVIL)	APPROVED BY -	
DESIGNED BY - AE (CIVIL)	SUBMITTED BY - ASE (CIVIL)	SE (DESIGN) - ES, HPSEEL, HAMIRPUR (HP)	
NO. - HPSEEL / SE (D) / ES HPSEEL/HAMIRPUR/33239/2020		SHEET 1 OF 2	

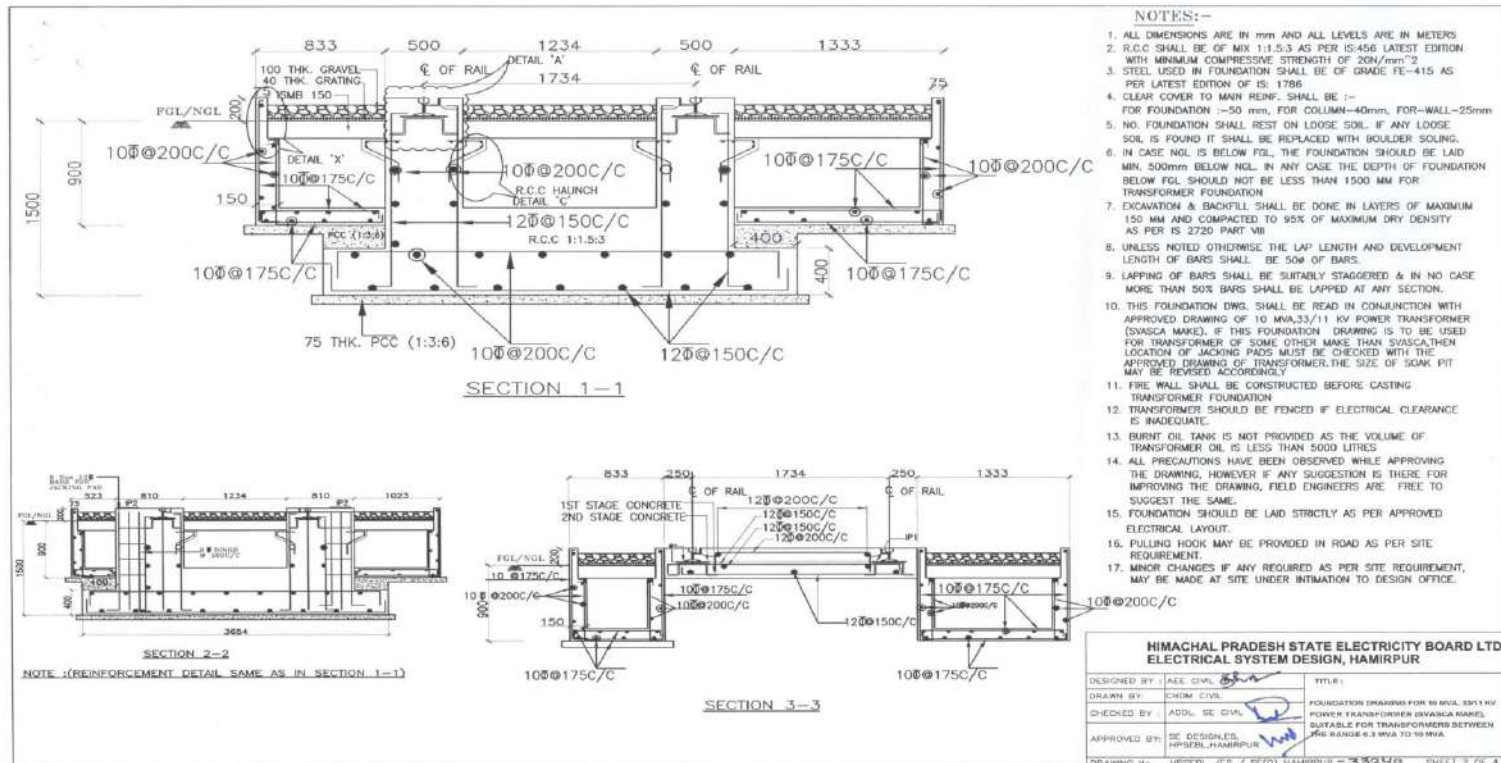


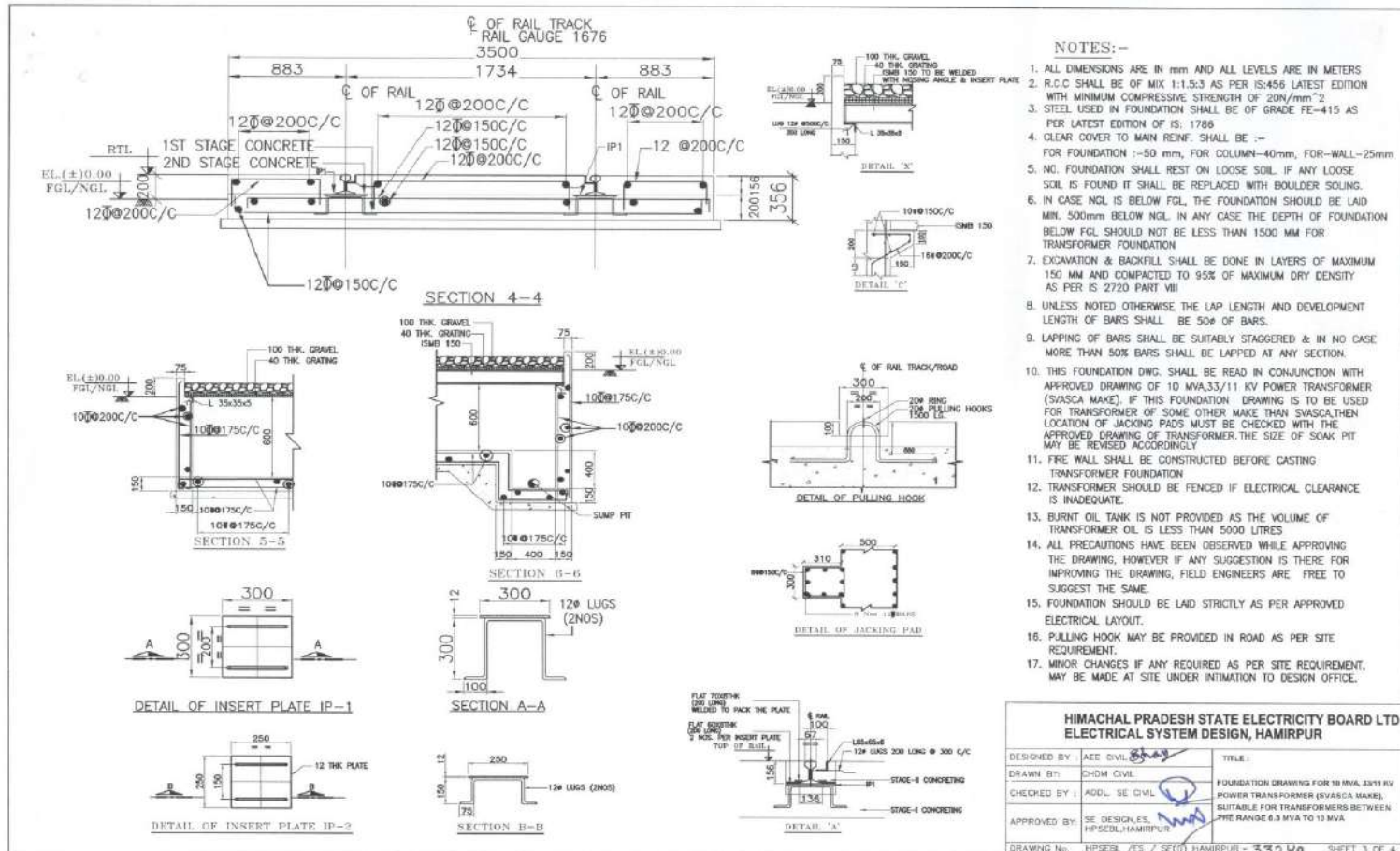
**Cost Estimate of Power Transformer Foundation 6.3 MVA to 10 MVA  
[As per SE (Design) Drawing No:- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33240]**

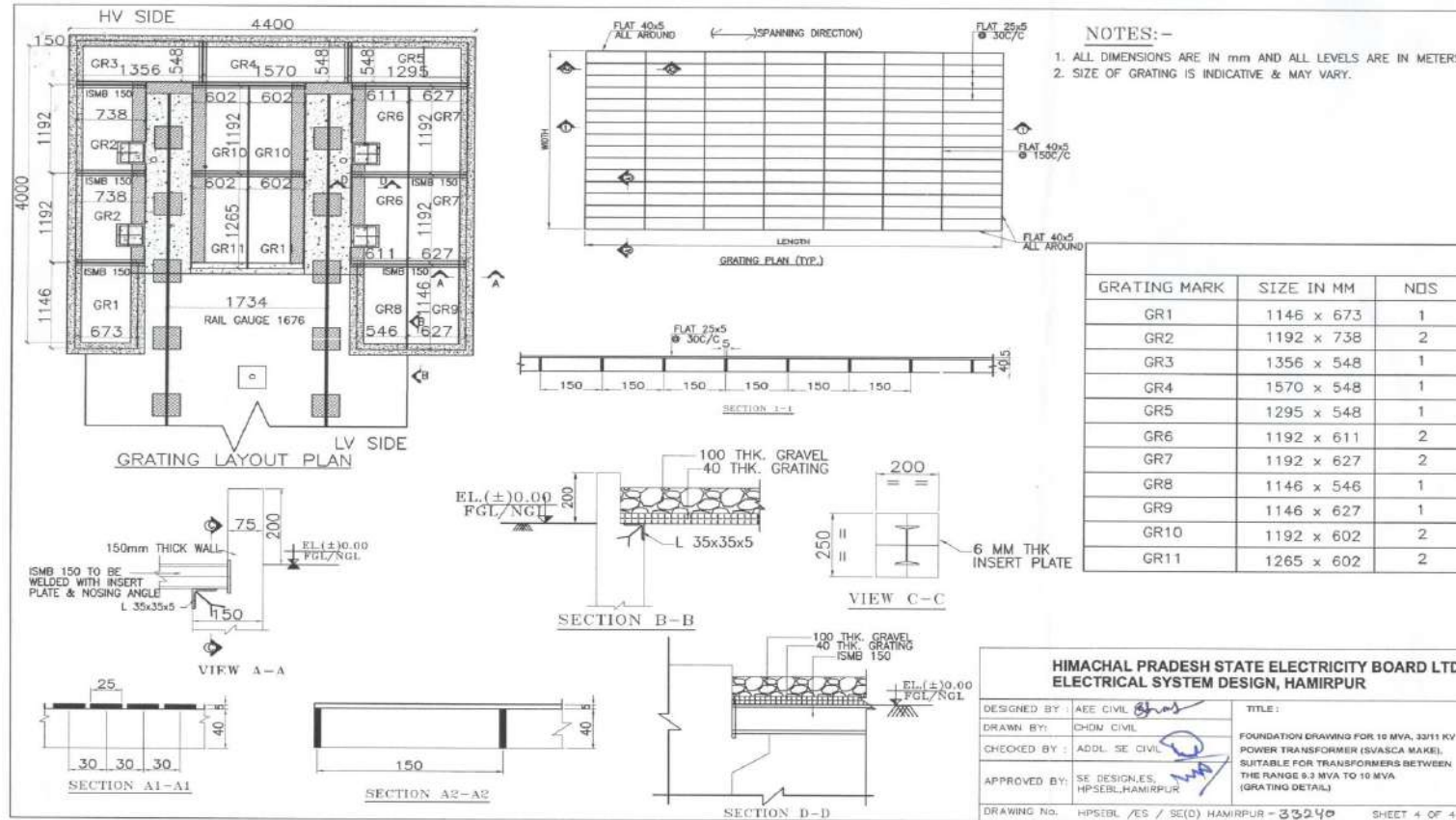
S. No.	Description of Work	Qty	Unit	Unit Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	43.95	Cum	171	7533	2.8.1
2	Stone soling Below Rail track	6.79	Cum	484	3288	Est.
3	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering-All work upto plinth level. 1:3:6(1cement ,3sand, 6graded stone agg.40mm nominal size)	6.19	Cum	5292	32757	4.1.6
4	Centering , shuttering i/c struting propping etc. and removal of form for: Foundation, footing bases of columns etc. and mass concrete.	62.59	Sqm.	216	13548	5.9.1
5	Providing and laying reinforced cement concrete 1:1.5:3(1 cement,:1.5 Sand :3 graded stone agg. 20 mm nominal size	39.60	kg	6656	263580	5.1.2
6	Providing stell reinforcement for RCC work i/c bending , Winding and placing in position complete, Tor Steel	3219.58	Cum	77	247264	5.22.6
7	Steel work welded in builtup section/framed work including cutting, hoisting, fixing in position and applying a priming coat of Approved Primer using structural steel etc. as required. In grating, frames guard Bar ladder , railings ,brackets , Gates and similar works.	1571.00	Qtl	107	168804	Est.
8	G.I. Pipe 100mm Dia for drain pipe	22.80	Mtrs.	4200	95760	Est.
9	R.C.C. Hume pipe 225mm Dia.	15.00	Mtrs.	521	7812	Est.
10	Prov. & fixing B.G. Rail	26.00	Mtrs.	6750	175500	Est.
	<b>Total</b>				<b>1015844</b>	

Note : Exclusive of GST, DC, Contingency & Labour Cess etc.









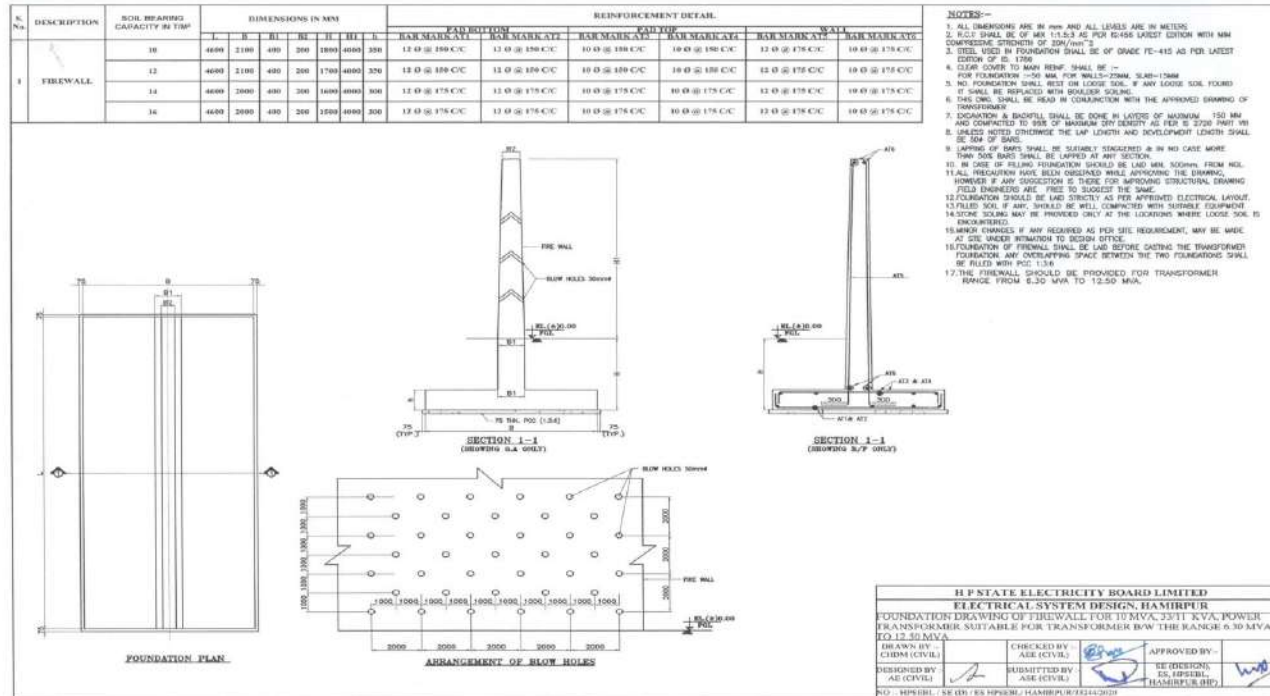


**Estimated Cost of Fire Wall/ Baffle Wall for 10 MVA, 33/11kV Power Transformer**

(Suitable for transformer b/w range 6.3 MVA to 12.5 MVA)

[As per SE (Design) Drawing No :- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33244]

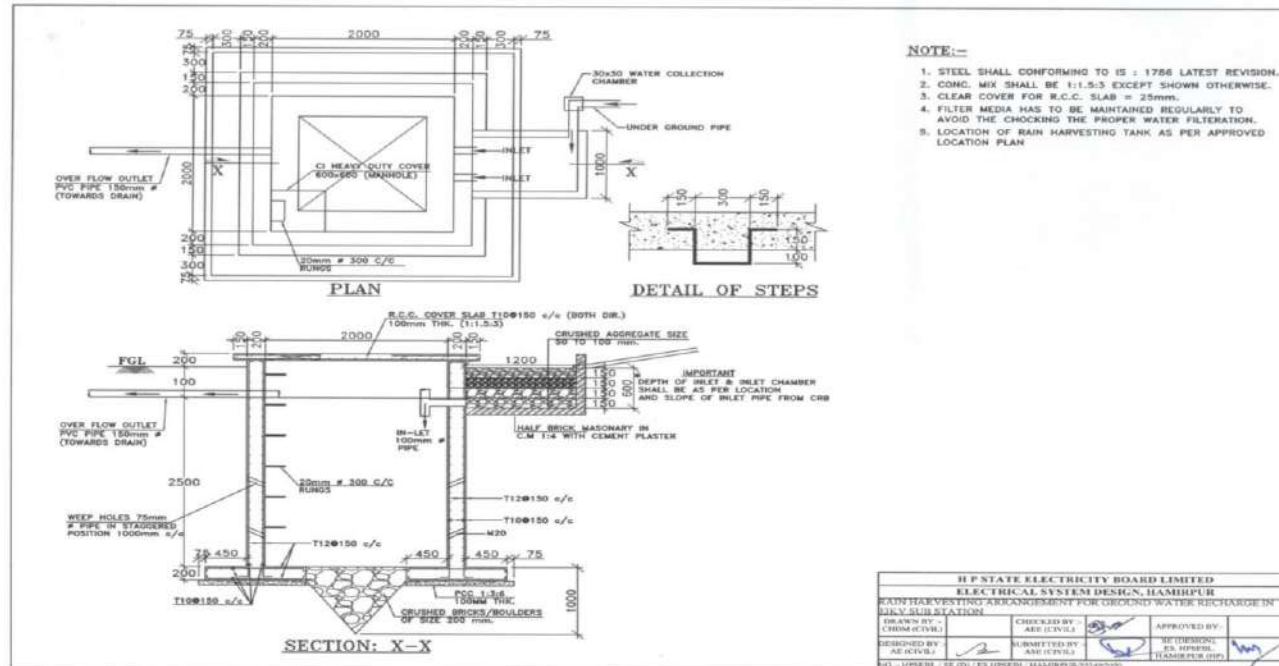
Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Evcavation in foundation trenches etc in earth work pick work. Pick / Jumper work 50%.	18.97	cum	171	3251	2.8.1
2	P/L C.C.1:3:6 (1 cement:3 sand : 6 agraded stone agg. 40mm nominal size) in foundation and plinth.	0.80	cum	5292	4244	4.1.6
3	Centring and shuttering including strutting, propping etc. and removal of form for:					
(a)	Foundation, footings, bases of columns, etc for mass concrete.	47.89	aqm	216	10366	5.9.1
4	Providing and laying reinforced cement concrete 1:1.5:3 (1 cement:1.5 sand and 3: graded stone agg. 20mm nominal size	9.64	cum	7633	73584	5.2.2
5	P/L Tor steel / mild steel reinforcement for RCC work the cutting bending and placing complete. Qty same as in item No. 3	1205.00	kg	77	92604	5.22.6
	<b>G.Total</b>				<b>184050</b>	



**Cost Estimate of Rain Water Harvesting Tank**  
[As per SE (Design) Drawing No:- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33249]

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	37.01	cum	171	6344	2.8.1
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size).	1.31	cum	5292	6932	4.1.6
3	Centering and shuttering including strutting, propping etc. and removal of form for:					
(a)	Foundations, footings, bases of columns, etc. for mass concrete	3.96	sqm	216	857	5.9.1
(b)	Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.	47.52	sqm	411	19538	5.9.2
(c)	Suspended floors, roofs, landings, balconies and access platform.	5.08	sqm	468	2379	5.9.3
4	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level 1:1.5:3 (1 cement : 1.5 coarse sand): 3 graded stone aggregate 20 mm nominal size).	2.99	cum	6656	19902	5.1.2
5	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size).	3.24	cum	7633	24732	5.2.2
6	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo-Mechanically Treated bars of grade Fe-500D or more.	472.02	kg	77	36275	5.22.6
7	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand).	3.09	sqm	656	2027	6.12.2
8	15 mm cement plaster on the rough side of single or half brick wall of mix 1:6 (1 cement: 6 fine sand).	8.36	sqm	185	1550	13.2.2
9	Providing M.S. foot rests including fixing in manholes with 20x20x10 cm cement concrete blocks 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) as per standard design with 20 mm diameter round bar	8.00	each	274	2195	19.15.2
10	Supplying and fixing C.I. cover without frame for manholes 455x610 mm rectangular C.I. cover (light duty) the weight of the cover to be not less than 23 kg	1.00	each	1288	1288	19.18.1
11	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	37.01	cum	1247	46161	23.5
12	Providing and fixing unplasticised Rigid PVC pipes 150 mm diameter.	1.80	m	250	450	NS
	<b>G.Total</b>				<b>170629</b>	

Note : Exclusive of GST, DC, Contingency & Labour Cess etc.



**Cost Estimate of Main Gate & Sub-Station Yard Gate**  
**[Refer SE (Design) Drawing No :- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33253]**

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	5.18	cum	171	888	2.8.1
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	0.32	cum	5292	1693	4.1.6
3	Centering and shuttering including strutting, propping etc. and removal of form for:					5.9
(a)	Foundations, footings, bases of columns, etc. for mass concrete.	2.52	sqm	216	545	5.9.1
(b)	Columns, Pillars, Piers, Abutments, Posts and Struts	12.51	sqm	515	6440	5.9.6
4	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level 1:1.5:3 (1 cement : 1.5 coarse sand): 3 graded stone aggregate 20 mm nominal size)	0.66	cum	6656	4393	5.1.2
5	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size)	0.77	cum	7633	5878	5.2.2
6	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo-Mechanically Treated bars of grade Fe-500D or more.	204.80	kg	77	15739	5.22.6
7	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	322.42	kg	107	34644	10.25.2
8	15 mm cement plaster on the rough side of single or half brick wall of mix 1:6 (1 cement: 6 fine sand).	8.91	sqm	185	1652	13.2.2
9	Finishing walls with water proofing cement paint of required shade. New work (Two or more coats applied @ 3.84 kg/10 sqm)	8.91	sqm	61	545	13.44.1
10	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade. Two or more coats on new work.	10.40	sqm	82	857	13.61.1
	<b>G.Total</b>				<b>73274</b>	

*Note : Exclusive of GST, DC, Contingency & Labour Cess etc.*

**Cost Estimate of Boundary wall on Retaining wall**  
**[As per SE (Design) Drawing No:- HPSEBL/SE(D)/ES HPSEBL/HAMIRPUR /33251]**

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	1.93	cum	171	331	2.8.1
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	0.57	cum	5292	3016	4.1.6
3	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in cement mortar 1:6 (1 cement : 6 coarse sand)	0.88	cum	5309	4672	6.1.2
4	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in cement mortar 1:6 (1 cement : 6 coarse sand)	0.43	cum	6164	2651	6.4.2
5	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand)	7.76	sqm	748	5802	6.13.2
6	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor etc., up to floor five level, excluding the cost of centering, shuttering and finishing 1:1½:3 (1 cement : 1½ coarse sand : 3 graded stone aggregate 20 mm nominal size).	0.06	cum	7529	452	4.2.2
7	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	9.90	kg	107	1064	10.25.2
8	15 mm cement plaster on the rough side of single or half brick wall of mix 1:6 (1 cement: 6 fine sand).	12.83	sqm	185	2379	13.2.2
9	Finishing walls with water proofing cement paint of required shade. New work (Two or more coats applied @ 3.84 kg/10 sqm)	12.83	sqm	61	785	13.44.1
10	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade. Two or more coats on new work.	0.30	sqm	82	25	13.61.1
11	Fencing with angle iron post placed at required distance embedded in cement concrete blocks, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with horizontal lines and two diagonals interwoven with horizontal wires, of barbed wire weighing 9.38 kg per 100 m (minimum), between the two posts fitted and fixed with G.I. staples, turn buckles etc. complete. (Cost of posts, struts, earth work and concrete work to be paid for separately). Payment to be made per metre cost of total length of barbed wire used. With G.I. barbed wire.	11.00	m	16	175	16.18.1
<b>G.Total</b>					<b>21351</b>	

Cost for 2.5mtr. = Rs. 21351/-

Cost of 1 mtr. Boundary Wall = Rs. 8540/-

Cost for retaining wall as per standard	
Excavation 5x8.12@171.40 = Rs. 1389/-	1389
PCC 1:5:10= 5x0.81= 4.05 Cum @ Rs. 4685.75 = Rs. 18977/-	18977
R.R masonry in C:M 1:6 = 5x8.42= 42.10 @ 5002.35 = Rs. 210598/-	210598
	<b>230964</b>
Add 10% for cutting work	2309
	<b>233273</b>

Cost for 5 mtr. =Rs. 233273/-

Cost for 1 mtr. = Rs. 59063/-

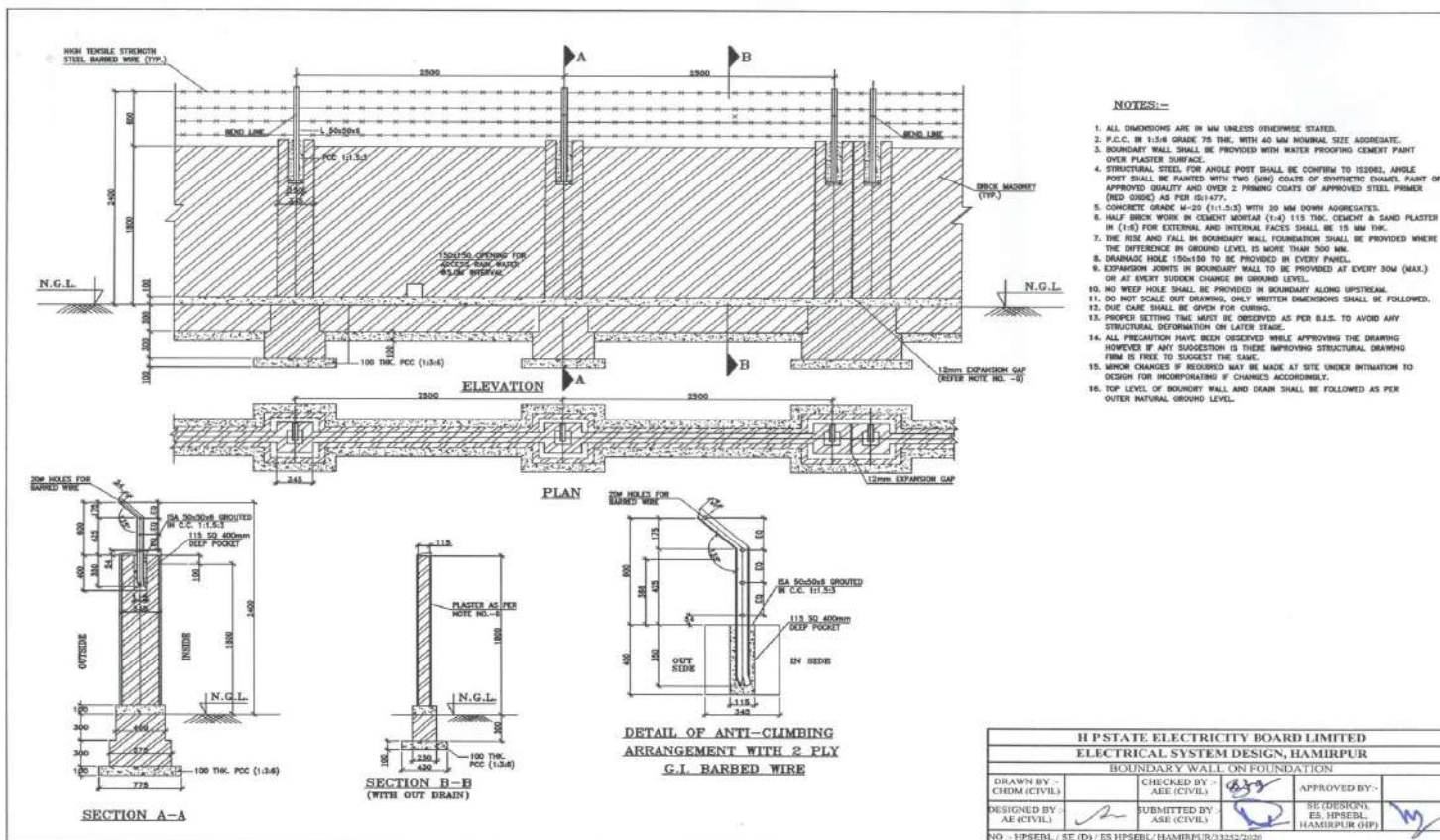
**Per meter cost for Construction of Boundry wall on Retaining wall = Rs.**

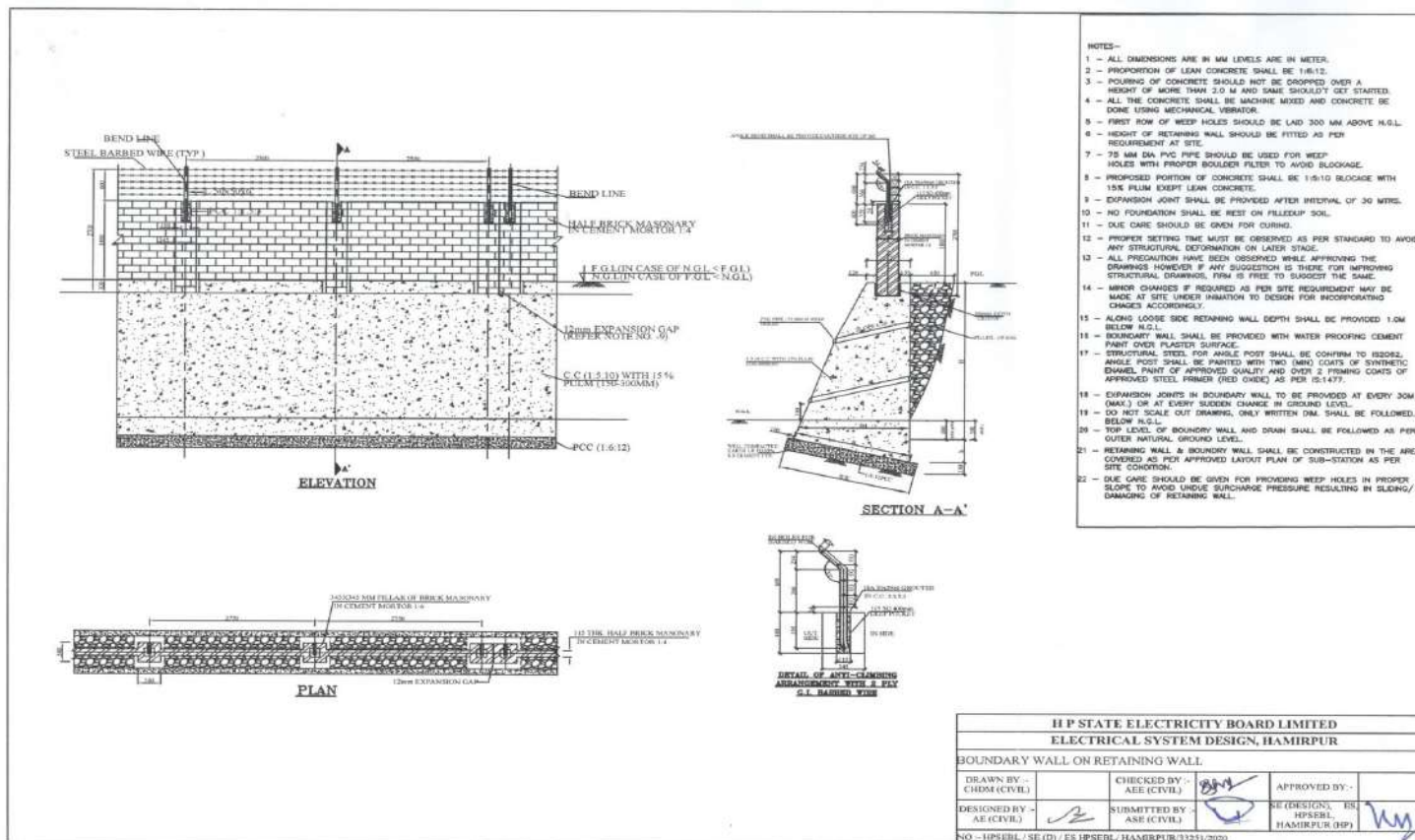
**8540+59063 =**

**67603**

**Say Rs. 67600 per mtr.**

*Note : Exclusive of GST, DC, Contingency & Labour Cess etc.*



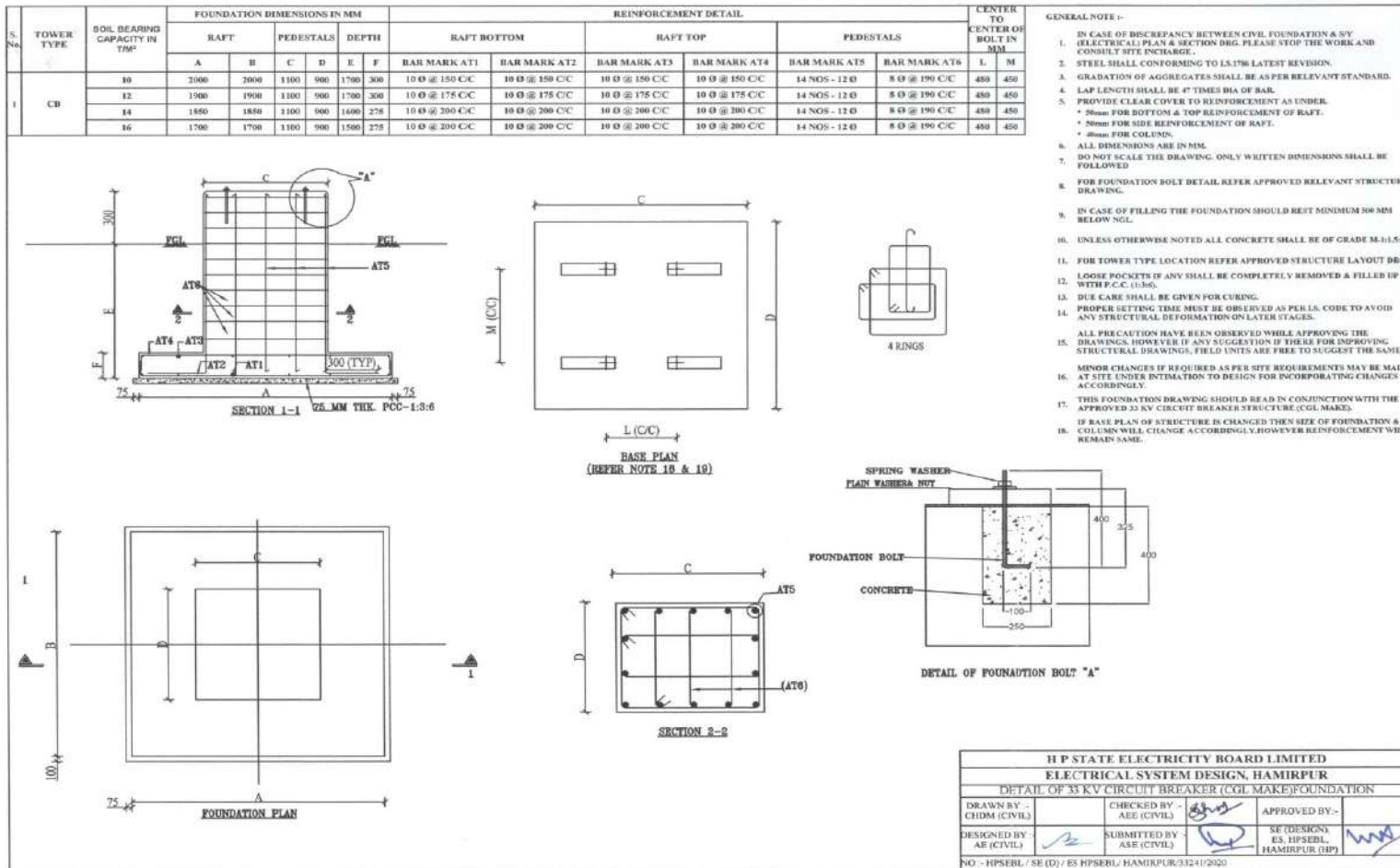




**Cost Estimate of Vacuum Circuit Breaker Foundation****[As per SE (Design) Drawing No:- HPSEBL/SE(D)/ES HPSEBL/HMIRPUR /33241]**

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	7.46	cum	171	1279	2.8.1
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	0.32	cum	5292	1693	4.1.6
3	Centering and shuttering including strutting, propping etc. and removal of form					
(a)	Foundations, footings, bases of columns, etc. for mass concrete.	9.08	sqm	216	1965	5.9.1
4	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size)	2.76	cum	7633	21068	5.2.2
5	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo-Mechanically Treated bars of grade Fe-500D or more.	89.69	sqm	77	6893	5.22.6
<b>G.Total</b>					<b>32898</b>	

Note : Exclusive of GST, DC, Contingency & Labour Cess etc.



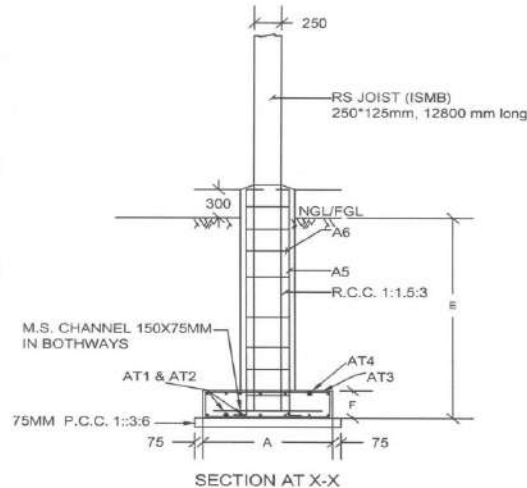
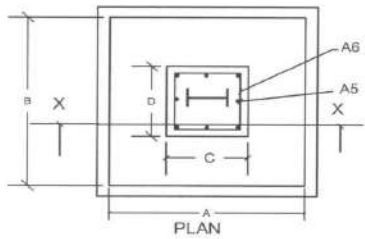
H P STATE ELECTRICITY BOARD LIMITED			
ELECTRICAL SYSTEM DESIGN, HAMIRPUR			
DETAIL OF 33 KV CIRCUIT BREAKER (COL MAKE) FOUNDATION			
DRAWN BY: CHDM (CIVIL)	CHECKED BY: AEE (CIVIL)	APPROVED BY:-	
DESIGNED BY: AE (CIVIL)	SUBMITTED BY: ASE (CIVIL)	SE (DESIGN): ES, HPSEBL, HAMIRPUR (HP)	
NO - HPSEBL/SE (D) / ES HPSEBL/ HAMIRPUR/33241/2020			

**Cost Estimate of RS Joist Foundation**  
**[As per SE (Design) Drawing No :- HPSEBL/SE(D)/ES HPSEBL/HMIRPUR /33243]**

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Excavation in Foundation trenches etc in earth work Pick work. Pick/Jumper work 50%	5.65	cum	171	968	2.8.1
2	P/L C.C 1:3:6 (1 cement : 3 sand :6 agraded stone agg. 40mm nominal size) in foundation and plinth.	0.20	cum	5292	1080	4.1.6
3	Centering and shuttering including strutting, propping etc. and removal of form for:					
(a)	Foundations, footings, bases of columns, etc. for mass concrete.	5.61	sqm	216	1214	5.9.1
4	Providing and laying reinforced cement concrete 1:1.5:3 (1 cement : 1.5 sand :3 graded stone agg. 20mm nominal size.	1.18	cum	7633	9007	5.2.2
5	P/L Tor Steel/Mild steel reinforcement for RCC work the cutting bending, binding and placing complete. Qty same as Item no.3	147.50	kg	77	11335	5.22.6
6	Steel work welded in built up section /framed work, including cutting, hosting, fixing in position and applying a priming coat of approved steel primer using structural steel etc.as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works. Rs joist (250x125)+12.18mtr@37.3kg/mtr.	454.31	kg	107	48816	10.25.2
<b>G.Total</b>					<b>72420</b>	

*Note : Exclusive of GST, DC, Contingency & Labour Cess etc.*

S. No.	EQUIPMENT	SOIL BEARING CAPACITY IN T/M <sup>2</sup>	FOUNDATION DIMENSIONS IN MM						REINFORCEMENT DETAIL					
			RAFT		PEDESTALS		DEPTH		PAD BOTTOM		PAD TOP		PEDESTALS	
			A	B	C	D	E	F	BAR MARK AT1	BAR MARK AT2	BAR MARK AT3	BAR MARK AT4	BAR MARK AT5	BAR MARK AT6
1	JOIST	10	1500	1600	450	450	2000	350	10 Ø @ 150 C/C	10 Ø @ 150 C/C	10 Ø @ 200 C/C	10 Ø @ 200 C/C	8 NOS - 12 Ø	8 Ø @ 150 C/C
		12	1550	1600	450	450	2000	350	10 Ø @ 150 C/C	10 Ø @ 150 C/C	10 Ø @ 200 C/C	10 Ø @ 200 C/C	8 NOS - 12 Ø	8 Ø @ 150 C/C
		14	1200	1100	450	450	2000	300	10 Ø @ 175 C/C	10 Ø @ 175 C/C	10 Ø @ 200 C/C	10 Ø @ 200 C/C	8 NOS - 12 Ø	8 Ø @ 150 C/C
		16	1400	1400	450	450	2000	300	10 Ø @ 200 C/C	10 Ø @ 200 C/C	10 Ø @ 200 C/C	10 Ø @ 200 C/C	8 NOS - 12 Ø	8 Ø @ 150 C/C



GENERAL NOTE ->

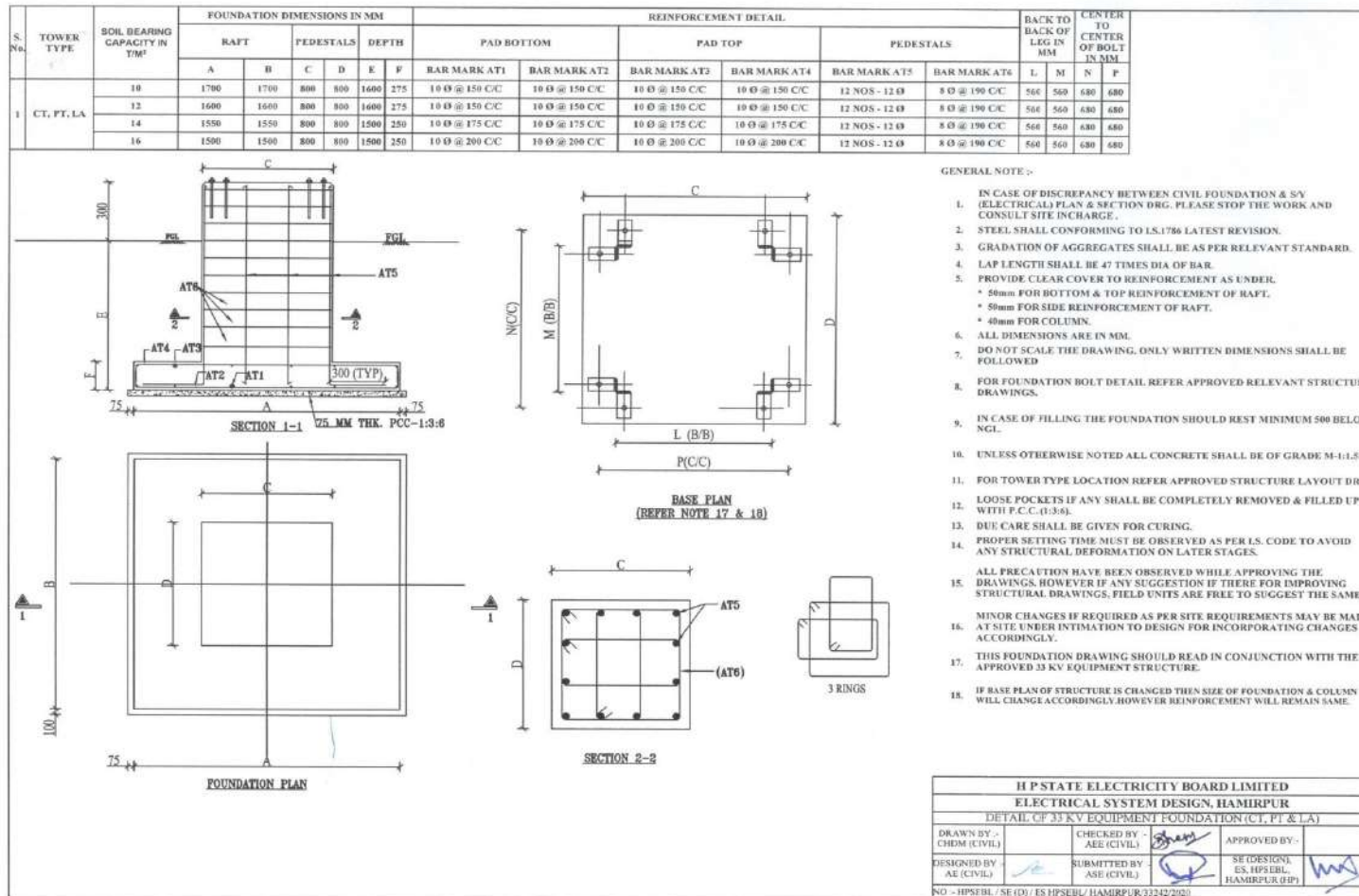
- IN CASE OF DISCREPANCY BETWEEN CIVIL FOUNDATION & S/Y (ELECTRICAL) PLAN & SECTION DRG. PLEASE STOP THE WORK AND CONSULT SITE INCHARGE.
- STEEL SHALL CONFORMING TO IS:1786 LATEST REVISION.
- GRADATION OF AGGREGATES SHALL BE AS PER RELEVANT STANDARDS.
- LAP LENGTH SHALL BE 47 TIMES DIA OF BAR.
- PROVIDE CLEAR COVER TO REINFORCEMENT AS UNDER.
  - \* 50mm FOR BOTTOM & TOP REINFORCEMENT OF RAFT.
  - \* 50mm FOR SIDE REINFORCEMENT OF RAFT.
  - \* 50mm FOR COLUMN.
  - \* 40mm FOR COLUMN.
- ALL DIMENSIONS ARE IN MM.
- DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- UNLESS OTHERWISE NOTED ALL CONCRETE SHALL BE OF GRADE M:1:1.5:3.
- LOOSE SOCKETS IF ANY SHALL BE COMPLETELY REMOVED & FILLED UP WITH P.C.C. (1:3:6).
- DUE CARE SHALL BE GIVEN FOR CURING.
- PROPER SETTING TIME MUST BE OBSERVED AS PER I.S. CODE TO AVOID ANY STRUCTURAL DEFORMATION ON LATER STAGES.
- ALL PRECAUTION HAVE BEEN OBSERVED WHILE APPROVING THE DRAWINGS. HOWEVER IF ANY SUGGESTION IF THERE FOR IMPROVING STRUCTURAL DRAWINGS, FIELD UNITS ARE FREE TO SUGGEST THE SAME.
- MINOR CHANGES IF REQUIRED AS PER SITE REQUIREMENTS MAY BE MADE AT SITE UNDER INTIMATION TO DESIGN FOR INCORPORATING CHANGES ACCORDINGLY.
- THIS FOUNDATION DRAWING SHOULD READ IN CONJUNCTION WITH THE APPROVED 33 KV EQUIPMENT STRUCTURE.
- IN CASE OF FILLING THE FOUNDATION SHOULD REST MINIMUM 500 MM BELOW NGL.

H P STATE ELECTRICITY BOARD LIMITED			
ELECTRICAL SYSTEM DESIGN, HAMIRPUR			
FOUNDATION DRAWING FOR R. S. JOIST (250X125X12800)			
DRAWN BY:- CHDM (CIVIL)	CHECKED BY:- AEE (CIVIL)	APPROVED BY:-	
DESIGNED BY:- AEE (CIVIL)	SUBMITTED BY:- ASE (CIVIL)	SE DESIGN, ES, HPSERL, HAMIRPUR (HP)	
NO - HPSERL / SE (D) / ES (SERL), HAMIRPUR, 22/4/2020			

**Cost Estimate of CT, PT and LA Foundation (33 kV)**  
**[As per SE (Design) Drawing No :- HPSEBL/SE(D)/ES HPSEBL/HMIRPUR /33242]**

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	4.10	cum	171.40	703	2.8.1
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	0.19	cum	5291.95	984	4.1.6
3	Centering and shuttering including strutting, propping etc. and removal of form					
(a)	Foundations, footings, bases of columns, etc. for mass concrete.	6.46	sqm	216.45	1398	5.9.1
4	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement 1:1.5:3 (1 cement : 1.5 coarse sand) : 3 graded stone aggregate 20 mm nominal size)	1.55	cum	7633.20	11831	5.2.2
5	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo-Mechanically Treated bars of grade Fe-500D or more.	83.18	sqm	76.85	6392	5.22.6
<b>G.Total</b>					<b>21309</b>	

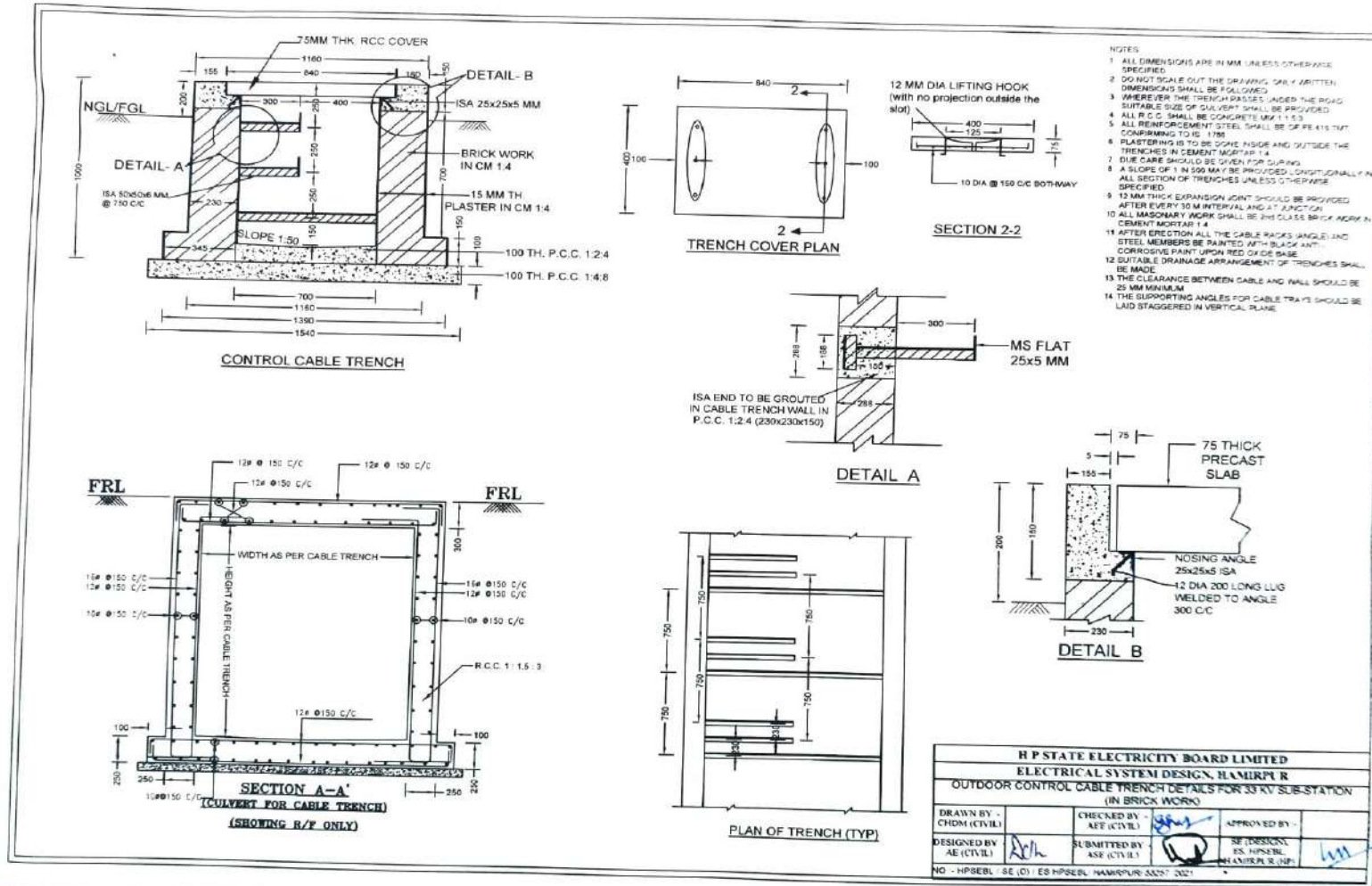
*Note : Exclusive of GST, DC, Contingency & Labour Cess etc.*



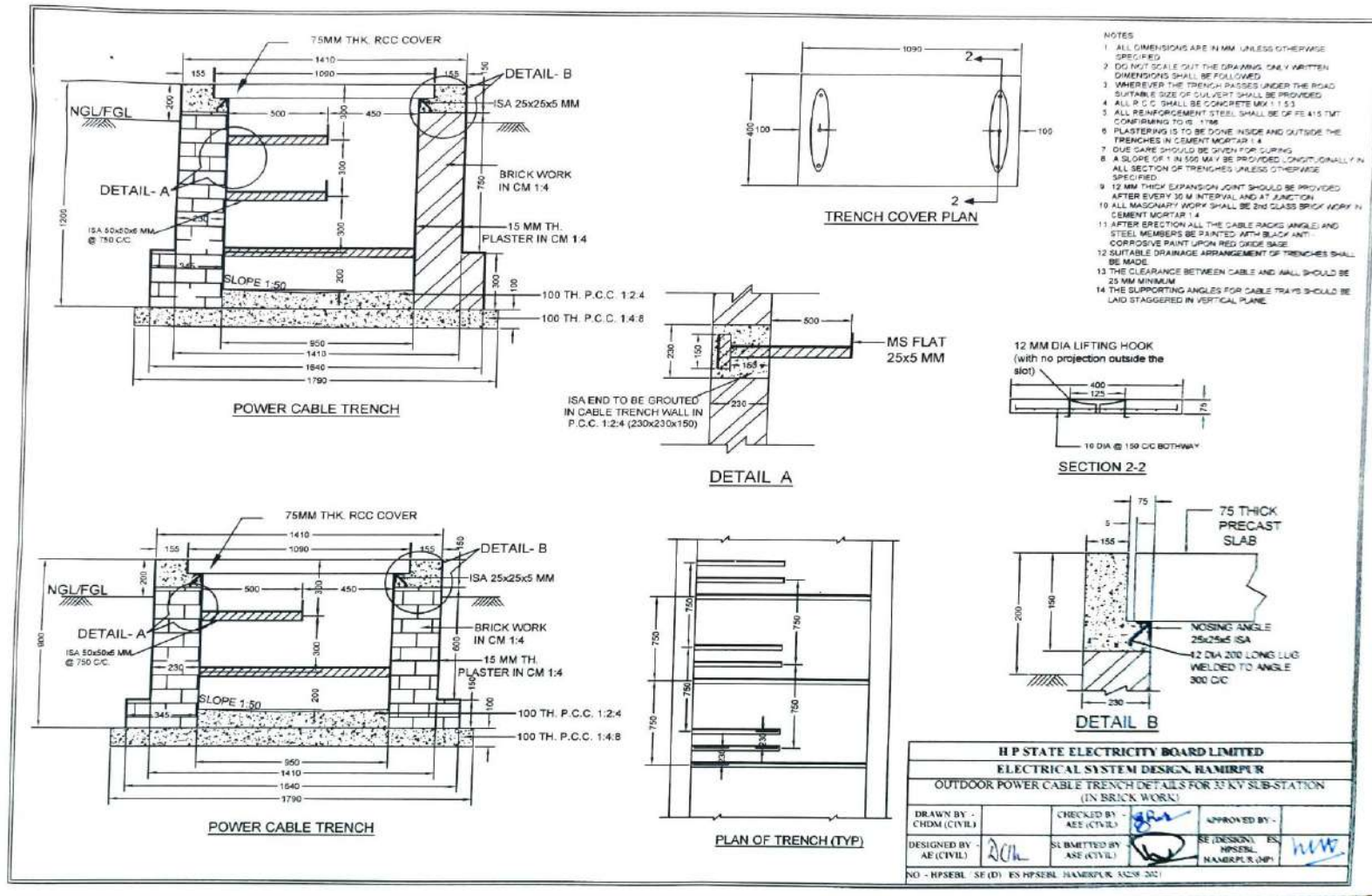
**Cost Estimate of Outdoor Cable Trench**  
**[As per SE (Design) Drawing No :- HPSEBL/SE(D)/ES HPSEBL/HMIRPUR /33245]**

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	175.12	cum	171	30016	2.8.1
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:3:6 (1 Cement : 3 coarse sand): 6 graded stone aggregate 40 mm nominal size)	14.32	cum	4955	70958	4.1.6
3	Centering and shuttering including strutting, propping etc. and removal of form for:					5.9
(a)	Foundations, footings, bases of columns, etc. for mass concrete.	87.20	sqm	216	18874	5.9.1
4	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering,- All work upto plinth level : 1:2:4 (1 cement : 2 2 course sand ) 3 graded stone aggregate 40 mm nominal size					
(a)	Foundation and Plinth	12.56	cum	5846	73426	4.1.4
5	Brick Masonary in cm 1:4 in foundation wall of cable outdoor Trench	44.16	cum	5528	244132	6.1.1
6	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level 1:1.5:3 (1 cement : 1.5 coarse sand): 3 graded stone aggregate 20 mm nom	6.54	cum	6656	43531	5.2.2
7	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo-Mechanically Treated bars of grade Fe-500D or more.	719.40	kg	77	55286	5.22.6
8	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	1946.14	kg	107	209113	10.25.2
9	15 mm cement Plaster on rough side of Brick masonry in cn 1:4	192.80	sqm	241	46503	13.8
<b>G.Total (For 80 M)</b>					<b>791839</b>	

Note : Exclusive of GST, DC, Contingency & Labour Cess etc.



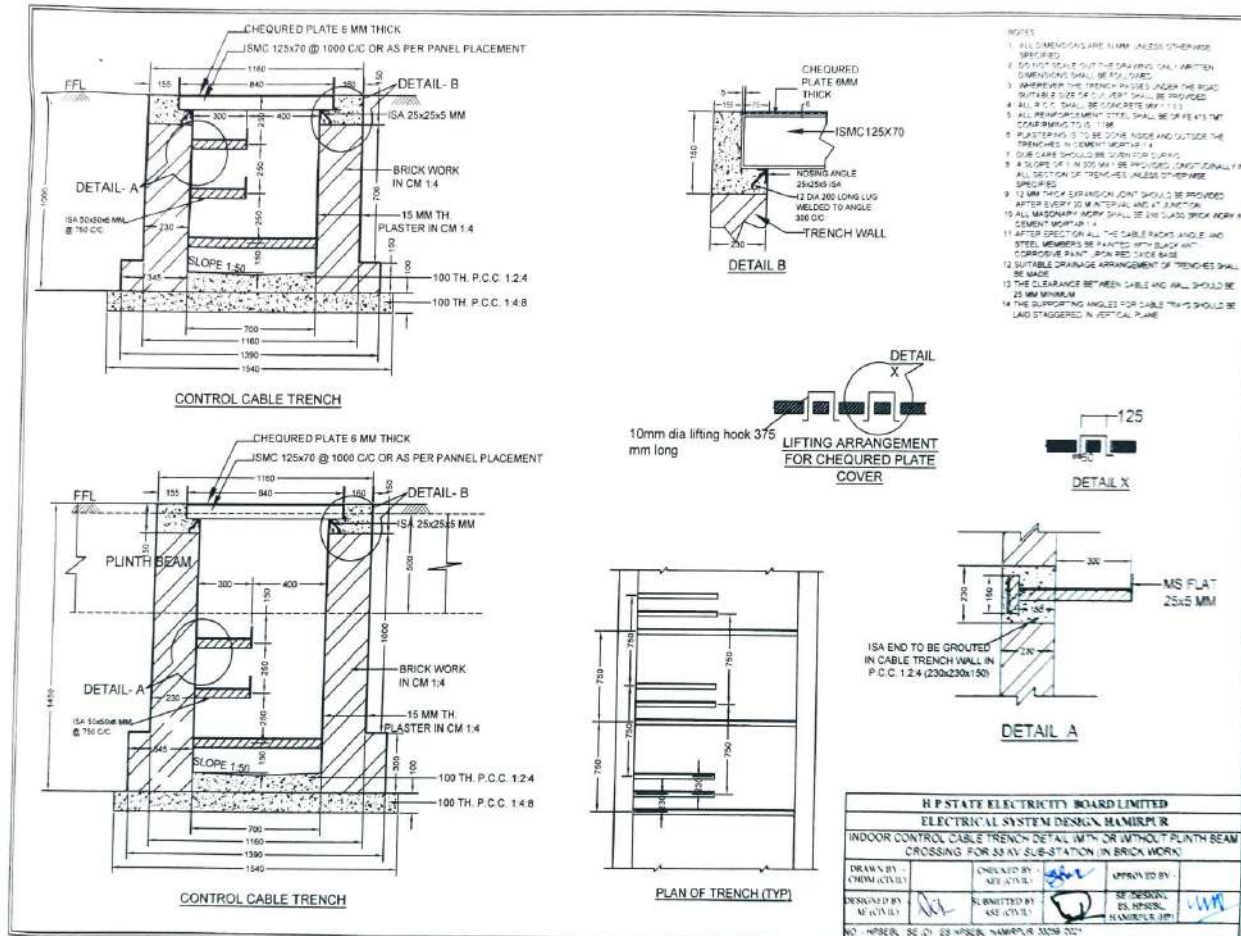




<b>H P STATE ELECTRICITY BOARD LIMITED</b>			
<b>ELECTRICAL SYSTEM DESIGN, RAMRUPUR</b>			
<b>OUTDOOR POWER CABLE TRENCH DETAILS FOR 33 KV SUB-STATION</b>			
<b>(IN BRICK WORK)</b>			
DRAWN BY - (CIVIL)	CHECKED BY - ASE (CIVIL)	APPROVED BY -	
DESIGNED BY - AE (CIVIL)	SUBMITTED BY - ASE (CIVIL)	SE (DESIGN) - HPSEBL	ES - RAMRUPUR (DP)
NO - HPSEBL SE (D) ES HPSEBL RAMRUPUR 32/28 2021			

**Cost Estimate of Indoor Cable Trench**  
**[As per SE (Design) Drawing No :- HPSEBL/SE(D)/ES HPSEBL/HMIRPUR /33247]**

Sr. No.	Particulars	Qty	Unit	Rate	Amount	HPSR 2020 Item No.
1	2	3	4	5	6	7
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	65.67	cum	171	11256	2.8.1
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:4:8 (1 Cement : 4 coarse sand): 8 graded stone aggregate 40 mm nominal size)	5.37	cum	4955	26609	4.1.6
3	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level. 1:2:4 (1 Cement : 2 coarse sand): 4 graded stone aggregate 40 mm nominal size)					4
a)	Foundation and plinth	4.92	cum	5846	28762	5.9.1
4	Brick masonry in cm 1:4 in foundation wall of cable o/d trench	12.77	cum	5528	70597	6.11
5	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	2023.92	kg	107	217470	10.25.2
6	15 mm cement plaster on rough side of brick masonry in cm 1:4	75.30	Sqm	241	18162	13.80
	<b>G.Total (For 30 M)</b>				<b>372857</b>	
<p align="center"><i>Note : Exclusive of GST, DC, Contingency &amp; Labour Cess etc.</i></p>						





**LABOUR COST PER DAY**

S.No.	DESCRIPTION	No. of Days
1	Total No. of Days in a Year	365
2	Sunday Holidays	52
3	Earned Leave	30
4	Casual Leave	12
5	Gazzeted Holidays (Religious, National, Local)	23
6	Working Days lost due to unforeseen circumstances i.e. Heavy Rains, Road Blockade, Snowfall and Non Availability of Material Etc.	10
1	Total Working Days in a Year	238
2	Total Working Days in a Month (238/12=19.833)	20

<b>A</b>					
<b>Details of Labour Cost Per Day of Regular Employee</b>					
S.No	Description	Pay per day	Pay per day	Pay per day	Pay per day
		Foreman	Line man	AL/man	T/mate
1	Pay Band	PB-3	PB-2	PB-1	PB-1
2	Scale of Pay	10900-34800	6400-20200	5100-10680	5100-10680
<b>Say Rs.</b>		<b>3980</b>	<b>2450</b>	<b>1650</b>	<b>1450</b>

<b>B</b>					
<b>Per Day Working Wages for Beldar</b>					
1	Daily wages (Rs.)	=	350		
2	No. of Sundays in a year	=	52 days		
3	No. of festival Holidays	=	12 days		
4	No. of paid holidays in a year i.e. 15th Aug, 2nd Oct & 26th Jan	=	3 days		
5	No. of Casual Leave in a Year	=	12 days		
6	No. of Earned Leave in a Year	=	20 days		
7	Deduction of working hours lost due to unforeseen circumstances i.e. heavy rains, snow falls, road blockages & non availability of material.	=	10 days		
2	Total working day in a year	=	256		
<b>Actual wages of Beldar per day</b>		=	<b>499</b>		
<b>Say Rs.</b>		=	<b>499</b>		

Erection/ Labour Charges for 33 kV Line

S.No.	Description	Ref: Sub Head	Rate per Unit/Structure			Qty.	Unit	Cost per km		
			S/C-SP (Δ-Type)	S/C -DP (H-Type)	D/C- DP (V-Type)			S/C-SP (Δ-Type)	S/C -DP (H-Type)	D/C- DP (V-Type)
1	Surveying & stacking of line- 1km	1A	50940	50940	50940	1	Km	50940	50940	50940
2	Erection of PCC Pole structure(susp)	1B	7600	14260	16590	10	No.	76000	142600	165900
3	Erection of S/T Pole structure( susp)	1C	7420	13890	16230	10	No.	74200	138900	162300
4	Erection of 60% PCC & 40% S/T Pole structure( susp)	--	7528	14112	16446	10	No.	75280	141120	164460
5	Erection of PCC Pole structure( Dead end)	1D	16700	16700	16700	3	No.	50100	50100	50100
6	Erection of S/T Pole structure( dead end)	1E	16340	16340	16340	3	No.	49020	49020	49020
7	Erection of 60% PCC & 40% S/T Pole structure(dead end)	--	16556	16556	16556	3	No.	49668	49668	49668
8	STAY SET COMPLETE:- Per structure for Run thru' (Formation Δ=1 No / H = 2 Nos / V =4 Nos); Per structure for Dead End (4 Nos)	1G	2080	2080	2080	Δ- 22; H- 32; V- 52	Nos.	45760	66560	108160
9	Earthing of Line at every structure	1F	4180	4180	4180	13	No.	54340	54340	54340
10	Stringing of Earth wire (GI No. 6 SWG)	1I)1	6860	6860	6860	2	No.	13720	13720	13720
11	Stringing of ACSR Conductor (6/1/4.72 mm or 6/1/4.09 mm)	1I)2	17830	17830	17830	3	No.	53490	53490	53490
12	Stringing of AAAC Conductor (7/4.26 mm)	1I)2	15650	15650	15650	3	No.	46950	46950	46950
13	Stringing of ACSR Conductor (30/7/2.59 mm)	1I)3	28860	28860	28860	3	No.	86580	86580	86580
14	Erection of Jumpers	1H	1650	1650	3300	3	Set	4950	4950	9900
	Total Erection/Labour Charges for construction of 1 km 33 kV Line on PCC Pole with ACSR 6/1/4.72 mm Conductor.							349300	436700	506550
	Total Erection/Labour Charges for construction of 1 km 33 kV Line on STP Pole with ACSR 6/1/4.72 mm Conductor.							346420	431920	501870
	Total Erection/Labour Charges for construction of 1 km 33 kV Line on 40% STP+ 60 % PCC Poles with ACSR 6/1/4.72 mm Conductor.							348148	434788	504678

\*Note: Total erection/labour charges for ACSR 30/7/2.59 mm & AAAC 7/4.26 mm conductor may be calculated as per above configurations.

\*Note: i) S/C-SP Δ-Type is Single Ckt on Single Pole Δ formation;

ii) S/C-DP H-Type is Single Ckt on Double Pole Horizontal formation;

iii) D/C-DP V-Type is Double Ckt on Double Pole Vertical formation.

**Erection charges for New 33/11 kV Sub-Station with 1 No. Power Transformer and 1 No. 11 kV Outgoing Feeder**

S. No.	Description	Ref: Sub Head	Unit	Rate (Rs)	Qty	Amount (Rs)
1	Laying of earth mat, earthing rod & pipes	2A	No.	204770	1	204770
2	<b>Erection of super structure &amp; busbar</b>					
a	Erection of R.S. joists			Already included in civil estimate		
b	Erection of cross arms	2C	No.	2220	25	55500
c	Erection of T-set	2P	No.	2380	27	64260
d	Erection of Jumper sets	2O	No.	2380	12	28560
e	Erection of one set of bus bar	2G	No.	5690	6	34140
3	<b>Erection of foundations</b>					
a	Power Transformer					Including in Config. 18
b	Station Transformer					
c	Circuit breaker (VCB)					
d	Laying of trenches					
4	<b>Installation of equipment</b>					
a	Isolators	2H	Set	23060	3	69180
b	Lightening Arresters	2I	Set	2960	3	8880
c	PT's	2J	Set	4790	3	14370
d	D.O. fuse unit	2K	No.	6320	1	6320
e	Circuit Breaker ( VCB) with CT's	2N	No.	63170	1	63170
f	Station Transformer	2M	No.	63520	1	63520
g	Power Transformer	2L	No.	151930	1	151930
h	11 kV incoming panel with CT, PT's and breaker	2Q	No.	35310	1	35310
j	11 kV Outgoing panel	2S	No.	31270	1	31270
5	<b>Laying of control cables set (for 50 M)</b>	2R	Set	33310	6	199860
6	<b>Laying of power cables set (for 50 M)</b>	2T	Set	10810	3	32430
7	<b>Connecting the power cable to Heat Shirinkable Terminal Kit</b>	2U	No.	7000	6	42000
8	<b>Installation of Sub-Station auxiliaries</b>	2V	No.	91260	1	91260
9	<b>Erection fencing</b>	2X	No.	7946	132	104887
10	<b>Erection of yard lighting</b>	2W	No.	27260	1	27260
<b>Total Erection charges for New 33/11 kV Sub-Station (with indoor 11 kV System)</b>						<b>1328877</b>

**Erection 11 kV or 33kV Outdoor Gantry for 1 No. Outgoing Feeder**

S. No.	Description	Ref: Sub Head	Unit	Rate (Rs)	Qty	Amount (Rs)
1	Erection of 11 Mtr S/T Pole Double Structure	3A-4	No	11449	1	11449
2	Erection of Earthing Set	1F	No	4180	1	4180
3	Fixing of Jumpers, Isolator, Disc. Insulator and LA etc		job	5000	1	5000
<b>Total</b>						<b>20629</b>

Therefore, Total Erection Charges for 33/11 kV Sub-Station = 1245730+19203 =1245730+19203  
**Say Rs= 1349500**

## Erection Charges for Terminal Equipment &amp; Allied Material for each of 33 kV out going Feeder

S. No.	Description	Reference Sub Head	Unit	Qty	Rate (Rs)	Amount for 33/11 kV S/Stn	
						PT's already installed	PT's not installed
1	Earthing	2A	Job	1	34527	34527	34527
2	Foundation of VCB	2D	Job	1	already included in 33 kV bay		
3	Laying of trenches O.B. type	2F	M	9	7598	68382	68382
4	Laying of control cables (set of 50 M)	2R	50 M	76	33310	50631	50631
5	Erection of super structures:-						
a	Erection of R.S. joists	2B	Job	2	already included in 33 kV bay		
b	Erection of cross arms	2C	Job	9	2220	19980	19980
c	Erection of Jumper sets	2O	Job	9	2380	21420	21420
d	Erection of a set of bus bar	2G	Job	1	5690	5690	5690
6	Erection of equipment:-						
a	Isolator	2H	Nos	3	23060	69180	69180
b	LA's	2I	Nos	3	2960	8880	8880
c	PT's	2J	Nos	3			0
d	Circuit breaker with CT's & CR panels	2N	Job	1	63170	63170	63170
<b>Total Erection Charges for Terminal Equipment &amp; Allied Material for each of 33 kV out going Feeder</b>						<b>341860</b>	<b>341860</b>
<b>Say Rs.</b>						<b>341860</b>	<b>341860</b>

## Erection Charges for 11 kV Auto voltage Booster/Sectionalizer/ Auto recloser

S. No.	Description	Ref:	Unit	Qty	Rate Rs.	Amount	
						11 kV auto Voltage booster	11 kV line Sectionalizer/ Auto recloser
1	Erection of Double PCC Poles Structures (9 M)	3A	No.	1	11717	11717	
2	Erection of Single Pole (9 M) including fixing of X-arms insulator of cross bracing set etc.	3A	No.	1	5379	5379	5379
3	Preparation of Platform Structure	3C3	No.	1	4491	4491	4491
4	Erection of Platform	3C6	No.	1	3274	3274	3274
5	Erection of GO switch	2H	No.	1	23060	23060	
6	Erection of LA's	2I	No.	3	2960	8880	8880
7	Erection of Jumpers (set)	2O	No.	2	2380	4760	4760
8	Erection of D.O. fuse unit	2K	No.	1	6320	6320	6320
9	Installation of 11 kV voltage booster/ line sectionalizer/	2N	No.	1	63170	63170	63170
6	Total Erection Charges for 11 kV Auto voltage Booster/Sectionalizer/ Auto recloser					<b>131051</b>	<b>96274</b>
<b>Say Rs.</b>						<b>131050</b>	<b>96270</b>



**ERECTION CHARGES PER KM FOR 11 kV Or 22 kV HT LINE**

S. NO	DESCRIPTION	Unit	Ref:Sub-Head	Rate		S/C- SP Δ-Formation			D/C- DP Vertical (V)-Formation		
				On PCC	On STP	Qty	PCC Pole	Steel Pole	Qty	PCC Pole	Steel Pole
1	Survey Of 1 Km Line	km	3F	7546	7546	1	7546	7546	1	7546	7546
2	Erection Of Single Pole	No	3A	5379	5144	8	43032	41152			
3	Erection Of Double Pole	Set	3A	11717	11449	3	35151	34347	13	152321	148837
4	Erection Of Stay Set	No	3A-6	2073	2073	20	41460	41460	52	107796	107796
5	Erection Earthing	No	3A-5	1074	1074	11	11814	11814	13	13962	13962
6	Erection GI Earth Wire	No	3B	6391	6391	1	6391	6391	1	6391	6391
7	Fixing Of Jumper	No	3A-7	479	479	9	4311	4311	9	4311	4311
	<b>SUB -TOTAL</b>						<b>149705</b>	<b>147021</b>		<b>292327</b>	<b>288843</b>
8	Erection Of ACSR/AAAC 30 mm <sup>2</sup>	No	3B	10058	10058	3	30174	30174	3	30174	30174
9	Erection Of ACSR/AAAC 50 mm <sup>2</sup>	No	3B	16198	16198	3	48594	48594	3	48594	48594
10	Erection Of ACSR/AAAC 80/100 mm <sup>2</sup>	No	3B	26359	26359	3	79077	79077	3	79077	79077
	<b>Total Erection Charges/km for 11 kV or 22 kV HT Line with:</b>										
	(i) ACSR/AAAC 30 mm <sup>2</sup>						<b>179879</b>	<b>177195</b>		<b>322501</b>	<b>319017</b>
	(ii) ACSR/AAAC 50 mm <sup>2</sup>						<b>198299</b>	<b>195615</b>		<b>340921</b>	<b>337437</b>
	(iii) ACSR/AAAC 80/100 mm <sup>2</sup>						<b>228782</b>	<b>226098</b>		<b>371404</b>	<b>367920</b>

**ERECTION CHARGES PER KM FOR 11 kV AB Cable [(3C+1 Messenger)x 2 Ckt]**

S.No	DESCRIPTION	Unit	QTY	RATE	AMOUNT	Ref:Sub-Head
1	Survey Of 1 Km Line	km	1	7546	7546	3F
2	Erection of Steel Tubular Pole (9 Mtr)	No	33	3004	99132	3D-1
3	Erection Of AB Cable	km	2	81435	162870	3B-5
4	Erection Of Stay Set	km	33	2073	68409	3A-6
	<b>Total Erection of 1 km AB Cable (2 Nos)</b>		<b>X</b>	<b>+</b>	<b>337957</b>	

**ERECTION CHARGES PER KM FOR 11 kV Underground XLPE Cable (3 Core)**

S.No	DESCRIPTION	Unit	QTY	RATE	AMOUNT	Ref:Sub-Head
1	Survey Of 1 Km Line	km	1	7546	7546	3F
2	Erection Of Underground XLPE Cable	km	1	131354	131354	3K
3	Excavation and refilling of Trench:					
	i) Excavation of Trench [ L-1000 x B- 0.400 x H- 1.055 = 422 CUM]	CUM	422	131	55282	Est HPSR 2020
	ii) Filling with earth and sand	CUM	422	125	52539	Est HPSR 2020
	<b>Total Erection of 1 km Underground XLPE Cable</b>		X	+	<b>246721</b>	

**ERECTION CHARGES PER KM FOR 3-Ø LT LINE**

S.No.	DESCRIPTION	Unit	PCC POLES			STEEL POLES			Ref:Sub-Head
			QTY	RATE	AMOUNT	QTY	RATE	AMOUNT	
1	Survey Of 1 km Line	km	1	7546	7546	1	7546	7546	3F
2	Erection Of Single Pole	No.	17	3318	56406	15	3004	45060	3D
3	Erection Of Stay Set	No.	12	1427	17124	12	1427	17124	3D-4
4	Erection Of Jumper	No.	12	479	5748	12	479	5748	3D-3
5	Erection Of Earthing	No.	3	1136	3408	3	1136	3408	3D-5
6	Erection Of GI Wire	No.	1	6391	6391	1	6391	6391	3B-1
	<b>Sub Total</b>				<b>96623</b>			<b>85277</b>	
7	Erection Of ACSR/AAAC/AAC, 30 mm <sup>2</sup>	No.	4	10058	40232	4	10058	40232	3B-2
8	Erection Of ACSR/AAAC/AAC,50 mm <sup>2</sup>	No.	4	16198	64792	4	16198	64792	3B-3
9	Erection Of ACSR/AAAC/AAC,80/100 mm <sup>2</sup>	No.	4	26359	105436	4	26359	105436	3B-4
	<b>Total Erection Charges/ km for 3 phase LT Line with :-</b>								
	<b>(i) ACSR/AAAC 30 mm<sup>2</sup></b>				<b>136855</b>			<b>125509</b>	
	<b>(ii) ACSR/AAAC 50 mm<sup>2</sup></b>				<b>161415</b>			<b>150069</b>	
	<b>(iii) ACSR/AAAC 80/100 mm<sup>2</sup></b>				<b>202059</b>			<b>190713</b>	

## ERECTION CHARGES PER KM FOR 1-Ø LT LINE

S.No.	DESCRIPTION	Unit	PCC POLES			STEEL POLES			Ref:Sub-Head
			QTY	RATE	AMOUNT	QTY	RATE	AMOUNT	
1	Survey Of 1 km Line	km	1	7546	7546	1	7546	7546	3F
2	Erection Of Single Pole	No	17	3318	56406	15	3004	45060	3D
3	Erection Of Stay Set	No	10	1427	14270	10	1427	14270	3D-4
4	Erection Of Jumper	No	6	479	2874	6	479	2874	3D-3
5	Erection Of Earthing	No	4	1136	4544	4	1136	4544	3D-5
6	Erection Of GI Wire	No	1	6391	6391	1	6391	6391	3B-1
	<b>Sub Total</b>				<b>84485</b>			<b>73139</b>	
7	Erection Of ACSR/AAAC/AAC, 30 mm <sup>2</sup>	No	2	10058	20116	2	10058	20116	3B-2
8	Erection Of ACSR/AAAC/AAC,50 mm <sup>2</sup>	No	2	16198	32396	2	16198	32396	3B-3
9	Erection Of ACSR/AAAC/AAC,80/100 mm <sup>2</sup>	No	2	26359	52718	2	26359	52718	3B-4
4	<b>Total Erection Charges per km for Single phase LT Line with :-</b>								
	(i) ACSR/AAAC 30 mm <sup>2</sup>				<b>104601</b>			<b>93255</b>	
	(ii) ACSR/AAAC 50 mm <sup>2</sup>				<b>116881</b>			<b>105535</b>	
	(iii) ACSR/AAAC 80/100 mm <sup>2</sup>							<b>125857</b>	

Manual Carriage for 33 kV HT Line

Sr. No.	Description	TOTAL		
		S/C-SP Δ-Type	S/C-DP H-Type	D/C-DP V-Type
<b>Manual Carriage of Material for 1 km of 33 kV Line assuming Avg Lead Distance of 1 km from Road Head</b>				
1	Steel Poles 11/ 13 Mtr Long	29705	59410	59410
2	PCC Poles	75924	151848	151848
3	M.S.Cross Arms, Bracing sets, Insulators Nuts & Bolts etc.	6939	10408.5	13878
4	Stay set complete with stay wire	1223	2495	2302
5	(i) ACSR 6/1/ 4.72 mm conductor	5941	5941	11882
	(ii) AAAC 7/4.26 mm conductor	4943	4943	9886
	(iii) ACSR 30/7/2.59 mm conductor	9387	9387	18774
6	GI wire 6 SWG	1497	1497	1497
	<b>Total Manual Carriage of 1 km Line with S/T Pole :</b>			
	i) ACSR 6/1/4.72 mm	45305	79752	88969
	ii) AAAC 7/4.26 mm	44307	78754	86973
	iii) ACSR 30/7/2.59 mm	48751	83198	95861
	<b>Or PCC poles</b>			
	i) ACSR 6/1/4.72 mm	91524	172190	181407
	ii) AAAC 7/4.26 mm	90526	171192	179411
	iii) ACSR 30/7/2.59 mm	94970	175636	188299

Sr. No.	Description	TOTAL		
		S/C-SP Δ-Type	S/C-DP H-Type	D/C-DP V-Type
<b>Analysis of Labour Rates for 33 kV HT Line</b>				
	<b>SUB HEAD-'A'</b>			
<b>1A)</b>	<b>Surveying &amp; Stacking (33 kV line per km)</b>			
a	Preliminary, actual surveying profiling & final survey of 1 km of line	29712	29712	29712
b	Stacking of 1 km of line work	15788	15788	15788
c	Camp shifting	5438	5438	5438
	<b>Total :-</b>	<b>50938</b>	<b>50938</b>	<b>50938</b>
	<b>Say Rs</b>	<b>50940</b>	<b>50940</b>	<b>50940</b>
	<b>SUB HEAD-'B'</b>			
<b>1B)</b>	<b>Erection of PCC pole 1 No. Structure (11 to 13 Mtr) (Run Through)</b>			
a	Digging of pits	1723	3446	3446
b	Erection of Pole	1815	3630	3630
c	Filling of pits & ramming	431	862	862
d	Cutting, fabrication and Drilling of holes in X-arms cross bracing	228	569	796
e	Fixing of X-arm, String/ Pin insulator & Cross bracing etc.	2859	4765	6671
f	Fixing of barbed wire danger plate etc.	244	487	487
g	Painting of steel cross arms etc.	299	499	699
	<b>Total :-</b>	<b>7598</b>	<b>14257</b>	<b>16590</b>
	<b>Say Rs</b>	<b>7600</b>	<b>14260</b>	<b>16590</b>

Sr. No.	Description	TOTAL		
		S/C-SP Δ-Type	S/C-DP H-Type	D/C-DP V-Type
	<b>SUB HEAD-'C'</b>			
<b>1C)</b>	<b>Erection of S/T pole 1 No. structure (11 to 13 Mtr) (Run Through)</b>			
a	Erection as per <b>Sub-head (1B)- (1B-b)</b>	5783	10628	12961
b	Erection of ST Pole with muffing	1384	2768	2768
c	Painting of poles	250	499	499
	<b>Total :-</b>	<b>7417</b>	<b>13895</b>	<b>16228</b>
	<b>Say Rs</b>	<b>7420</b>	<b>13890</b>	<b>16230</b>
	<b>SUB HEAD-'D'</b>			
<b>1D)</b>	<b>Erection of PCC pole 1 No. structure (11 to 13 Mtr) (Dead End)</b>			
a	Erection of Double PCC pole as per <b>Sub-head (1B)</b>	14257	14257	14257
b	Fixing of additional cross-arms for dead end, 3 no. addl. String insulator, dead end clamp only	2383	2383	4765
c	Painting of cross arm	62	62	62
	<b>Total :-</b>	<b>16702</b>	<b>16702</b>	<b>16702</b>
	<b>Say Rs</b>	<b>16700</b>	<b>16700</b>	<b>16700</b>
	<b>SUB HEAD-'E'</b>			
<b>1E)</b>	<b>Erection of ST Pole 1 No. structure (11 to 13 Mtr) (Dead End)</b>			
a	As per <b>Sub head (C)</b>	13895	13895	13895
b	As per item b+c of S/head (D)	2445	2445	2445
	<b>Total :-</b>	<b>16339</b>	<b>16339</b>	<b>16339</b>
	<b>Say Rs</b>	<b>16340</b>	<b>16340</b>	<b>16340</b>
	<b>SUB HEAD-'F'</b>			
<b>1F)</b>	<b>Earthing of 1 No. structure of 33 kV line</b>			
a	Digging of pit	1996	1996	1996
b	Fixing of earth rod, clamp, earth wire and connecting to the structure	1574	1574	1574
c	Filling of the pit with material & earth	612	612	612
	<b>Total :-</b>	<b>4182</b>	<b>4182</b>	<b>4182</b>
	<b>Say Rs</b>	<b>4180</b>	<b>4180</b>	<b>4180</b>

Sr. No.	Description	TOTAL		
		S/C-SP Δ-Type	S/C-DP H-Type	D/C-DP V-Type
	<b>SUB HEAD-'G'</b>			
<b>1G)</b>	<b>Erection of 1 No. stay set of 33 kV Line</b>			
a)	Digging of pit	862	862	862
b)	Fixing of Stay rod with plate etc.	369	369	369
c)	Filling of the pit	499	499	499
d)	Nuzzling of stay rod, and its tightening	352	352	352
	<b>Total :-</b>	<b>2081</b>	<b>2081</b>	<b>2081</b>
	<b>Say Rs</b>	<b>2080</b>	<b>2080</b>	<b>2080</b>
	<b>SUB HEAD-'H'</b>			
<b>1H)</b>	<b>Fixing of Jumpers (Set) for 33 kV line</b>	<b>1647</b>	<b>1647</b>	<b>3295</b>
	<b>Say Rs</b>	<b>1650</b>	<b>1650</b>	<b>3300</b>
	<b>SUB HEAD-'I'</b>			
<b>1I)</b>	<b>Stringing of 33 kV Line 1 km (1 No. Conductor)</b>			
<b>1</b>	<b>GI wire</b>			
a)	Laying of GI wire	1187	1187	1187
b)	Stringing, Sagging and Jumpering etc.	5672	5672	5672
	<b>Total :-</b>	<b>6859</b>	<b>6859</b>	<b>6859</b>
	<b>Say Rs</b>	<b>6860</b>	<b>6860</b>	<b>6860</b>
<b>2</b>	<b>100 mm<sup>2</sup> Conductor</b>			
a)	Laying of conductor ACSR	5964	5964	5964
	Laying of conductor AAAC	5058	5058	5058
b)	Stringing and sagging ACSR	9812	9812	9812
	Stringing and sagging AAAC	8543	8543	8543
c)	Binding with insul. fixing of bird guards	2050	2050	2050
	Total ACSR 6/1/4.72 mm	<b>17826</b>	<b>17826</b>	<b>17826</b>
	<b>Say Rs</b>	<b>17830</b>	<b>17830</b>	<b>17830</b>
	Total AAAC7/4.26 mm	<b>15651</b>	<b>15651</b>	<b>15651</b>
	<b>Say Rs</b>	<b>15650</b>	<b>15650</b>	<b>15650</b>

Sr. No.	Description	TOTAL		
		S/C-SP Δ-Type	S/C-DP H-Type	D/C-DP V-Type
<b>3</b>	<b>150 mm<sup>2</sup> Conductor</b>			
a	Laying of conductor ACSR	7211	7211	7211
b	Stringing and sagging ACSR	12827	12827	12827
c	Binding with insul. fixing of bird guards	4100	4100	4100
	Total ACSR 30/7/2.59 mm (150 mm <sup>2</sup> )	<b>24138</b>	<b>24138</b>	<b>24138</b>
	<b>Say Rs</b>	<b>24140</b>	<b>24140</b>	<b>24140</b>
	<b>SUB HEAD-'J'</b>			
<b>1J)</b>	<b>Road, Path, Stream etc.</b>			
1	Erection of 2 no. ST poles (13 M)			
a	Digging of pits	3446	3446	3446
b	Erection of poles with muffing	2768	2768	2768
a	Filling of pits & ramming	862	862	862
2	Erection of 2 No. Stay sets (HT) as per <b>Sub head-1G</b>	4163	4163	4163
3	Earthing (s) of 2 No. structure	8363	8363	8363
4	Stringing of catenary wire & fitting with poles & earth connections	762	762	762
	<b>Total :-</b>	<b>20363</b>	<b>20363</b>	<b>20363</b>
	<b>Say Rs</b>	<b>20360</b>	<b>20360</b>	<b>20360</b>



## Analysis of Labour Charges for 33/11 kV Sub-Station

Sr. No.	Description of Work	Cost (In Rs)
<b>2A)</b>	<b>Laying of earth material rods &amp; pipe</b>	
a	Excavation for laying earth metal at 0.75M depth (37xM)= 22nos. & (25x1)	73020
b	Laying fault welding Erection earth riser & painting other treatment after welding.	37572
c	Digging of 3 M deep pits for solid earth rods of Mat ( 4 no.)	14688
d	Fixing of solid earth rods with earth mat	5098
e	Digging of 3.15 M deep earth pit for 11 no. pipe type electrodes for earthing	23952
f	Fixing of pipe type electrodes with earth mat	10575
g	Filling of earth excavated item a,b & d filling of item c, e, to be done with charcoal & salt preparation of demanded pits for later treatment for pipe	39867
	<b>Total :-</b>	<b>204772</b>
	<b>Say Rs</b>	<b>204770</b>
<b>2B)</b>	<b>Erection of R.S. joists 12800x250x125 mm</b>	
a	Digging of Pit	
b	Erection of R.S. 12800x250x125 mm with muff complete etc.	
c	Filling of Pit	
	<b>Total :-</b>	
	<b>Say Rs</b>	
<b>2C)</b>	<b>Erection and fixing of each cross arms of various sizes with poles etc.</b>	<b>2220</b>
	<b>Say Rs</b>	<b>2220</b>
<b>2D)</b>	<b>Foundation of VCB</b>	
a	Digging of pit	
b	PCC masonry foundation	
c	Erection of steel structure	
	<b>Total :-</b>	
	<b>Say Rs</b>	
<b>2E)</b>	<b>1) Foundation of Power transformer</b>	
a	Digging of pit	
b	PRCC masonry foundation including filling of pit & laying of rail etc.	
	<b>Total :-</b>	
	<b>Say Rs</b>	
	<b>2) Foundation of Station Transformer</b>	
a	Digging of pit	
b	PRCC masonry foundation including filling of pit & laying of rail etc.	
	<b>Total :-</b>	
	<b>Say Rs</b>	
<b>2F)</b>	<b>Laying of trenches (per Mtrs.)</b>	
a	Earth excavation	
b	Trench lining etc.	
	<b>Total :-</b>	
	<b>Say Rs</b>	
<b>2G)</b>	<b>Erection of 1 set of Bus bar</b>	5687
	<b>Say Rs</b>	<b>5690</b>
<b>2H)</b>	<b>Installation of 1 set of Isolators</b>	23062
	<b>Say Rs</b>	<b>23060</b>
<b>2I)</b>	<b>Installation of 1 set Lightning Arrestor</b>	2955
	<b>Say Rs</b>	<b>2960</b>
<b>2J)</b>	<b>Installation of 1 set of PT</b>	4792
	<b>Say Rs</b>	<b>4790</b>
<b>2K)</b>	<b>Installation of D.O. fuse unit</b>	6315
	<b>Say Rs</b>	<b>6320</b>
<b>2L)</b>	<b>Installation &amp; commissioning of power transformer (1 no. including dehydration)</b>	151932
	<b>Say Rs</b>	<b>151930</b>

## Analysis of Labour Charges for 33/11 kV Sub-Station

Sr. No.	Description of Work	Cost (In Rs)
2M)	Installation of S/Stn transformer	63522
	<b>Say Rs</b>	<b>63520</b>
2N)	Installation of VCB with CT 11 kV, voltage booster, 11 kV line sectionalizer	63168
	<b>Say Rs</b>	<b>63170</b>
2O)	Erection of 1 set of jumper inclu. PG clamps	2383
	<b>Say Rs</b>	<b>2380</b>
2P)	Connection set	2383
	<b>Say Rs</b>	<b>2380</b>
2Q)	Installation of 11 kV incoming Panel i/c PT, Breaker and CT	35314
	<b>Say Rs</b>	<b>35310</b>
2R)	Laying of Control cable	33310
	<b>Say Rs</b>	<b>33310</b>
2S)	Installation of 11 kV out going feeder panel or bus coupler with breaker	31274
	<b>Say Rs</b>	<b>31270</b>
2T)	Laying of power cable (per no. of 50 m)	
a)	Digging of earth	1996
b)	Laying of cable in bricks & sand	7817
c)	Filling of earth	998
	<b>Total :-</b>	<b>10811</b>
	<b>Say Rs</b>	<b>10810</b>
2U)	Connecting the cable ends to Heat Shrinkable Terminal Kit	6998
	<b>Say Rs</b>	<b>7000</b>
2V)	Installation of Substation Auxiliaries	
a)	Battery set with trickle charger & rectifier.	54468
b)	A.C. Control board	35314
c)	Fire fighting equipment	1474
	<b>Total :-</b>	<b>91256</b>
	<b>Say Rs</b>	<b>91260</b>
2W)	Yard lighting	27262
	<b>Say Rs</b>	<b>27260</b>
2X)	Erection of yard fencing (10 m)	
a)	Digging of pit	499
b)	Erection of angle iron supports	3824
c)	Filling the pit & muffing of angle iron support	2549
d)	Fixing of barbed wire	1075
	<b>Total :-</b>	<b>7946</b>
	<b>Say Rs</b>	<b>7950</b>

## Labour Rates for 11 kV &amp; below lines

S. NO	DESCRIPTION	TOTAL
		WAGES
	<b>SUB HEAD-'A'</b>	
<b>3A)</b>	<b>ERECTION OF 11 kV LINE</b>	
<b>1)</b>	<b>ERECTION OF 1 No. PCC POLE (11 Mtr)</b>	
a	Digging Of Pit	1723
b	Erection Of Pole	1815
c	Filling Of Pit+ Ramming	431
d	Cutting, Drilling Of Holes In X-Arms, Knee Bracings etc.	369
e	Fixing Of Insulater, X-Arm, Knee Bracing Set, Top Clamp	655
f	Fixing Of Barbed Wire, Danger Plate	388
	<b>TOTAL</b>	<b>5379</b>
	<b>Say Rs</b>	<b>5379</b>
<b>2)</b>	<b>ERECTION OF 1 No. STEEL TUBLAR POLE (11 Mtr)</b>	
a	Digging Of Pit	1723
b	Erection Of Pole	1384
c	Filling Of Pit+Ramming	431
d	Drilling Of Holes X-Arm	369
e	Fixing Of Insulator, X-Arm, Knee Bracing Set, Top Clamp	655
f	Fixing Of Barbed Wire,Danger Plate	388
g	Painting Of Pole	195
	<b>TOTAL</b>	<b>5144</b>
	<b>Say Rs</b>	<b>5144</b>
<b>3)</b>	<b>Erection of PCC POLE DOUBLE STRUCTRE</b>	
a	Digging Of Pit	3446
b	Drilling Of Holes In X-Bracing Set, X-Arm	1206
c	Erection Of Poles	3630
d	Fixing Of Insulater X-Arm, X- Bracing Set	1799
e	Fixing Of Barbed Wire, Danger Plate	775
f	Filling Of Pit+Ramming	862
	<b>TOTAL</b>	<b>11717</b>
	<b>Say Rs</b>	<b>11717</b>
<b>4)</b>	<b>S/T POLE DOUBLE STRUCTURE</b>	
a	Digging Of Pit	3446
b	Drilling Of Holes In X-Bracing Set, X-Arm	1000
c	Erection Of Pole	2768
d	Fixing Of Insulater X-Arm, X- Bracing Set.	1799
e	Fixing Of Barbed Wire Danger Plate	900
f	Filling Of Pit+ Ramming	749
g	Paniting Of Pole	787
	<b>TOTAL</b>	<b>11449</b>
	<b>Say Rs</b>	<b>11449</b>
<b>5)</b>	<b>EARTHING</b>	
a	Digging Of Pit	374
b	Fixing Of GI Wire To The Earth System	513
c	Filling Of Pit	187
	<b>TOTAL</b>	<b>1074</b>
	<b>Say Rs</b>	<b>1074</b>
<b>6)</b>	<b>STAY SET (HT)</b>	
a	Digging Of Pit	798
b	Fixing Of Stay Rod	513
c	Filling Of Pit	250
d	Nozzeling & Tighting	513
	<b>TOTAL</b>	<b>2073</b>
	<b>Say Rs</b>	<b>2073</b>

## Labour Rates for 11 kV &amp; below lines

S. NO	DESCRIPTION	TOTAL
		WAGES
7)	FIXING OF JUMPER (1 No)	479
	Say Rs	479
	<b>SUB HEAD - 'B'</b>	
3B)	SAGGING OF CONDUCTOR/ Cable	
1)	1KM, SINGLE GI WIRE ACSR/AAAC 20 MM <sup>2</sup>	
	AAAC 20 MM <sup>2</sup> / AAC 25 MM <sup>2</sup>	
a	Laying Of Conductor	1187
b	Stringing & Sagging	4179
c	Binding With Insulator	1025
	TOTAL	6391
	Say Rs	6391
2)	1KM SINGLE ACSR/AAAC 30MM <sup>2</sup> .	
a	Laying Of Conductor.	2786
b	Stringing & Sagging	5834
c	Binding With Insulator	1438
	TOTAL	10058
	Say Rs	10058
3)	1KM SINGLE ACSR/ AAAC 50MM <sup>2</sup>	
a	Laying Of Conductor	4263
b	Stringing & Sagging	10498
c	Binding With Insulator	1438
	TOTAL	16198
	Say Rs	16198
4)	1KM SINGLE ACSR/ AAAC 80/100MM <sup>2</sup>	
a	Laying Of Conductor	7306
b	Stringing & Sagging	14953
c	Binding With Insulator	4100
	TOTAL	26359
5)	AB Cable (3C+ Messenger)	
a	Laying Of AB Cable	14139
b	Installation of Suspension and Tension assembly etc.	4100
c	Sagging of AB Cable	41138
d	Heat Shrinkable Cable Jointing/Termination/T-joint (1 No. Straight Through+2 No. Cable termination & 1 No T- Jointing)	22058
	TOTAL	81435
	<b>SUB HEAD - 'C'</b>	
3C)	ERECTION OF SUB STATION (DTR)	
1	Digging Of Pit For Pole & Earthing ( 2 Nos For Poles & 3 Nos. For Earth)	3992
2	Drilling Of Holes In X Arms	3500
3	Preparation Of Platform Structure Members Ci, Ai I.E. X-Arm & Knee Bracing Set	4491
4	Erection Of D Pole	6072
5	Concreting Of Rcc Muff	1225
6	Erection Of Platform	3274
7	Erection Of X-Arms, Drop-Out, Lightning Arrestor, Mccb, Switch Lt Box, Energy Meter	19644
8	Erection Of Transformer	5247
9	Providing Earthing Conn. To G.O Switch, Transformer Lightning Arrestor Etc.	6049
10	Erection Of 2 Nos Stay Set	3846
11	Erection Of Jumper	5750
12	Pipe Earthing 3 Nos Set	1538

## Labour Rates for 11 kV &amp; below lines

S. NO	DESCRIPTION	TOTAL
		WAGES
13	Erection Of Lt Cable.	12098
14	Barbed Wire & Painting	7198
	<b>TOTAL</b>	<b>83922</b>
	<b>Say Rs</b>	<b>83922</b>
	<b>SUB HEAD - 'D'</b>	
<b>3D)</b>	<b>ERECTION OF LT LINE</b>	
<b>1)</b>	<b>Erection Of Steel Pole</b>	
a	Digging Of Pit	665
b	Drilling Of Holes In Pole X-Arm	244
c	Erection Of Pole	1341
d	Erec. Of X-Arm ,Shackle Insulator	504
e	Filling Of Pit And Ramming	250
	<b>TOTAL</b>	<b>3004</b>
	<b>Say Rs</b>	<b>3004</b>
<b>2)</b>	<b>ERECTION OF PCC POLE</b>	
a	Digging Of Pit	665
b	Erection Of Pole	1899
c	Erection Of X-Arm Shackle Insulators	504
d	Filling Of Pit & Ramming	250
	<b>TOTAL</b>	<b>3318</b>
	<b>Say Rs</b>	<b>3318</b>
<b>3)</b>	<b>FIXING OF JUMPER</b>	<b>479</b>
	<b>Say Rs</b>	<b>479</b>
<b>4)</b>	<b>ERECTION OF LT STAY SET</b>	
a	Digging Of Pit	665
b	Fixing Of Stay Rod Nozzeling & Tightening	762
	<b>TOTAL</b>	<b>1427</b>
	<b>Say Rs</b>	<b>1427</b>
<b>5)</b>	<b>EARTHING</b>	
a	Digging Of Pit	374
b	Fixing Of GI Wire To The Earthing System	513
c	Filling Of Pit	250
	<b>TOTAL</b>	<b>1136</b>
	<b>Say Rs</b>	<b>1136</b>
	<b>SUB HEAD - 'E'</b>	
<b>3E)</b>	<b>SERVICE CONNECTIONS</b>	
1)	1-Ø, 0.230 kV Domestic Service (DS) Connection upto 8 kW	1023
2)	1-Ø, 0.230 kV DS/NDNC/CS/ SIP/IDWPS Connection ≤ 20 kW	1287
3)	3-Ø, 0.415 kV DS/ NDNC/ CS/ SIP Connection ≤ 20 kW	2300
4)	3-Ø, 0.415 kV DS/ NDNC/ CS/ SIP/IDWPS Connection ≤ 50KW	2300
5)	Erection of 3-Ø, 11 kV DS/ CS/ MIP/ IDWPS Connection above 50 kW to upto 100 kW (As per Sub head 3C) i/c erection 2 pole Structure, CT-PT Unit, Trivector Meter, XLPE Cable etc.	83922
	<b>SUB HEAD- 'F'</b>	
<b>3F)</b>	<b>SURVEY OF 1 KM LINE</b>	<b>7546</b>
	<b>Say Rs</b>	<b>7546</b>

## Labour Rates for 11 kV &amp; below lines

S. NO	DESCRIPTION	TOTAL
		WAGES
	<b>SUB HEAD - 'G'</b>	
<b>3G)</b>	<b>Manual Carriage Of Material For 1 km HT Line Considering Average Distance From Road To Site Of Work 1 km:-</b>	
1	HT Steel Poles	29705
2	HT PCC Poles	75924
3	Cross Arms, Bracing Sets, Insulators Etc.	6939
4	Stay Sets, Stay Wire	1248
5	ACSR/AAAC Conductor	5442
6	AB Cable	
7	GI Wire	998
	<b>TOTAL</b>	
	<b>(i) WITH STEEL POLES</b>	<b>44332</b>
	<b>Say Rs</b>	<b>44332</b>
	<b>(ii) WITH PCC POLES</b>	<b>90551</b>
	<b>Say Rs</b>	<b>90551</b>
<b>3H)</b>	<b>SUB HEAD - 'H'</b>	
<b>1)</b>	<b>Manual Carriage Of Material For 1 Km Lead Line Considering Average Distance From Road To Site Of Work 1 Km:-</b>	
a	LT STEEL POLES	19772
b	LT PCC POLES	38640
c	X-ARMS, SHACLE INSULATOR &D-IRONS	1648
d	GI WIRE	499
<b>2)</b>	<b>1-Ø LT LINE</b>	
	<b>(i) WITH STEEL POLES</b>	<b>22917</b>
	<b>Say Rs</b>	<b>22917</b>
	<b>(ii) WITH PCC POLES</b>	<b>41785</b>
	<b>Say Rs</b>	<b>41785</b>
<b>3)</b>	<b>2-Ø LT LINE</b>	
	<b>(i) WITH STEEL POLES</b>	<b>23416</b>
	<b>Say Rs</b>	<b>23416</b>
	<b>(ii) WITH PCC POLES</b>	<b>42284</b>
	<b>Say Rs</b>	<b>42284</b>
<b>4)</b>	<b>3-Ø LT LINE</b>	
	<b>(i) WITH STEEL POLES</b>	<b>23915</b>
	<b>Say Rs</b>	<b>23915</b>
	<b>(ii) WITH PCC POLES</b>	<b>42783</b>
	<b>Say Rs</b>	<b>42783</b>
<b>3I)</b>	<b>SUB HEAD - 'I'</b>	
<b>1)</b>	<b>Manual Carriage Of Pole Mounted Distribution Sub Stn. Average Distance 1 km</b>	
a	S/T POLES	4626
b	X--ARMS ,GO SWITCH, LT CABLE, PLATE FOR FITTING EARTHING SET, LT BOX, INSULATORS ETC.	3470
c	STAY SET	862
d	25KVA	3680
e	63KVA	5520
f	100KVA	8279
g	250 KVA	11039
	<b>TOTAL</b>	
	<b>(i) 25 kVA</b>	<b>12637</b>
	<b>Say Rs</b>	<b>12637</b>
	<b>(ii) 63 kVA</b>	<b>14477</b>
	<b>Say Rs</b>	<b>14477</b>
	<b>(iii)100 kVA</b>	<b>17236</b>
	<b>Say Rs</b>	<b>17236</b>
	<b>(iv) 250 kVA</b>	<b>19996</b>
	<b>Say Rs</b>	<b>19996</b>

## Labour Rates for 11 kV &amp; below lines

S. NO	DESCRIPTION	TOTAL
		WAGES
3J)	<b>SUB HEAD - 'J'</b>	
1)	<b>Dismantling Charges For 1 km Of 11 kV Line Per Conductor With GI Wire 8 SWG, 6 SWG &amp; CU 8 SWG &amp; 6 SWG Wire ACSR 6/1/2.11 &amp; 6/1/2.36 mm</b>	
a	REMOVAL OF CONDUCTOR FROM INSULATOR	825
b	DE-STRINGING	3261
c	ROLLING OF CONDUCTOR	674
	<b>TOTAL</b>	<b>4760</b>
	<b>Say Rs</b>	<b>4760</b>
2)	<b>Dismantling Charges For 1 km Of 11 kV Line Per Conductor ACSR 6/1/2.59 &amp; ACSR 6/1/3.35 mm</b>	
a	REMOVAL OF CONDUCTOR	825
b	DE-STRINGING	4761
c	ROLLING OF CONDUCTOR.	1349
	<b>TOTAL</b>	<b>6934</b>
	<b>Say Rs</b>	<b>6934</b>
	<b>SUB HEAD - 'K'</b>	
S.	<b>DESCRIPTION</b>	
3K)	<b>Erection of 11 kV Underground XLPE Cable (1 km)</b>	
a	Excavation and refilling of Trench [as per HPPWD HPSR]	
b	Laying of Cable	67960
c	Laying of RCC Cable Cover and route indicator etc.	35470
c	Heat Shrinkable Cable Jointing/termination (6 Nos)	24600
d	Earthing (2 Nos)	3324
	<b>TOTAL</b>	<b>131354</b>
		<b>131354</b>

**Abstract of Transportation Charges for 33 kV System**

S.No.	Description	Unit	Road Transpo.	Manual Transportation			Total		
				S/C-SP Δ-Type	S/C-DP H-Type	D/C-DP V-Type	S/C-SP Δ-Type	S/C-DP H-Type	D/C-DP V-Type
<b>1</b>	<b>33 kV Line material for:-</b>								
<b>a</b>	<b>Conductor size ACSR 6/1/4.72mm</b>								
	(i) On PCC poles	Km	16540	91524	172190	181407	<b>108064</b>	<b>188730</b>	<b>197947</b>
	(ii) On Steel tubular poles	Km	16540	45305	79752	88969	<b>61845</b>	<b>96292</b>	<b>105509</b>
	(iii) On 60% PCC & 40% S/T poles	Km	16540	73040	135210	144430	<b>89580</b>	<b>151750</b>	<b>160970</b>
<b>b</b>	<b>Conductor size AAAC 7/ 4.26 mm</b>								
	(i) On PCC poles	Km	16540	90526	171192	179411	<b>107066</b>	<b>187732</b>	<b>195951</b>
	(ii) On steel tubular poles	Km	16540	44307	78754	86973	<b>60847</b>	<b>95294</b>	<b>103513</b>
	(iii) On 60% PCC & 40% S/T poles	Km	16540	72040	134220	142440	<b>88580</b>	<b>150760</b>	<b>158980</b>
							<b>Unloading &amp; Stacking of material</b>		<b>Total</b>
<b>2 (i)</b>	<b>Material for 33/11 kV Sub-Station</b>	No.	310200	--				117600	<b>427800</b>
<b>(ii)</b>	<b>Material for 33/11 kV Terminal Equipment</b>	No.	29300	--				7060	<b>36360</b>
<b>(iii)</b>	<b>Material for 11 kV Auto Voltage Booster/ Sectionalizer/ Auto reclosure</b>	No.	11280	--				2350	<b>13630</b>

\*Note: i) S/C-SP Δ-Type is Single Ckt on Single Pole Δ formation;  
 ii) S/C-DP H-Type is Single Ckt on Double Pole Horizontal formation;  
 iii) D/C-DP V-Type is Double Ckt on Double Pole Vertical formation.

**Average Distance from Divisional Store to Site of Work**

Sr. No.	Name of Sub-Station	Operating Divn. to Divn.	33 kV Tapping Point	Distance from Division Store (km)		Remarks
				Sub/Stn	Site	
1	Chauntra	Joginder Nagar	Bassi	15	5+20 (line length)	
2	Chowari	Dalhousie	Lahru	45	40+5 (line length)	
3	Sandole	Sarkaghat	Jaisinghpur	40	35+7 (line length)	
		<b>Total :-</b>		<b>100</b>	<b>80+32 (line length)</b>	



Average distance of Sub-Station from Divisional store	=	100/3=33.33	Say =	<b>33 Km</b>
Average distance for carriage of 1 km of 33 kV line material	=	32/3 = 10.66	Say =	<b>11 Km</b>
Average distance for carriage of Terminal Equipment	=	80/3= 26.66	Say =	<b>27 Km</b>

**Transportation Charges for 33 kV line and 33/11 kV Sub-Station**

<b>Average Distance Of Divisional Store To Central Stores</b>		<b>77</b>	<b>km</b>
<b>Average Out-turn Of Departmental Truck</b>	<b>Rs.</b>	<b>47</b>	<b>per km</b>

**Transportation Charges For 1 km Of 33 kV Line Material:-**

1	Average Distance of Divisional Store to Central Stores	77	km
2	Average Lead Distance from Divisional Store to Site of Work	11	km
3	Line Material of 1 km of 33 kV Line Length requires 2 trip of truck, so total journey of truck = (77+11)x2x2	352	km
4	Average Out-turn of Departmental Truck	Rs. 47	per km

<b>Transportation charges for items of 33 kV Line material</b>	<b>16544</b>
<b>Say Rs. =</b>	<b>16540</b>

**Transportation charges for 33/11 kV Sub-Station (Manned):-**

1	Average distance of central store to Divisional store (Km)	77
2	Average lead distance from Divisional store to site of work in Kms	33
3	Carriage of material for 1 no. 33/11 kV Sub-Station requires 30 trips of truck, therefore total journey of truck (30x2(77+33))	6600
4	<b>Transportation Charges for 1 No. 33/11kV Sub-Station Material</b>	<b>310200</b>
	<b>Say Rs</b>	<b>310200</b>

**Transportation charges for 33/11 kV Sub-Station (Un-Manned):-**

1	Average distance of central store to Divisional store (Km)	77
2	Average lead distance from Divisional store to site of work in Kms	33
3	Carriage of material for 1 no. 33/11 kV Sub-Station requires 30 trips of truck, therefore total journey of truck (30x2(77+33))	6600
	<b>Transportation Charges for 1 no. 33/11 kV Sub-Station Material</b>	<b>310200</b>
	<b>Say Rs</b>	<b>310200</b>

**Transportation Charges for Terminal Equipment and 11 kV auto Voltage Booster/ Line Sectionalizer/ Auto Recloser**

**Transportation charges for Terminal Equipment :-**

1	Average distance from central store to Divisional store (km)	77
2	Average lead distance from Divisional store to site of work	27
3	Total Journey of truck for 1 no. Terminal Equipment (3 trips)	624
4	Average out turn of truck	47
	<b>Transportation charges for 1 set Terminal Equipment</b>	<b>29328</b>
	<b>Say Rs.</b>	<b>29300</b>

**Transportation charges for 11 kV Auto Voltage Booster/11 kV Line Sectionalizer/ 11kV Auto Recloser**

1	Average distance from Central store to Divisional store (KM)	77
2	Average lead distance from Divisional store to 33/11 kV Sub-Station site	33
3	Average lead distance from 33/11 kV, Sub-Station to site of installation of 11 kV Auto Voltage Booster/ 11 kV Line Sectionalizer/11kV Auto Recloser (km)	10
4	Total Journey of truck (1 trip)	240
5	Average out turn of truck	47
	<b>Transportation charges for 1 no. 11kV Auto Voltage Booster / 11 kV Sectionalizer/11kV Auto Recloser</b>	<b>Rs. 11280</b>
	<b>Say Rs.</b>	<b>11280</b>

**TRANSPORTATION CHARGES (in Rs.) FOR 11 kV AND BELOW SYSTEMS**

S.No.	Description	1 km 11 kV AB Cable Line on STP	1 km 11 kV Underground XLPE Cable	1 km 11 kV Line		Distribution Substation				L.T.Line			
				PCC Pole	STEEL Pole	25 KVA	63 KVA	100 KVA	250 KVA	3-Phase		1-Phase	
										PCC Pole	STEEL Pole	PCC Pole	STEEL Pole
1	Road Transportation by Truck from Central Store to Site of work	10060	30180	10060	10060	10060	10060	10060	10060	10060	10060	10060	10060
2	Manual Carriage from Road to Site of work (Sub-Head '3G', '3H' & '3I')	88664	88664	90551	44332	12637	14477	17236	19996	42783	23915	41785	22917
	<b>Total (Rs)</b>	<b>98724</b>	<b>118844</b>	<b>100611</b>	<b>54392</b>	<b>22697</b>	<b>24537</b>	<b>27296</b>	<b>30056</b>	<b>52843</b>	<b>33975</b>	<b>51845</b>	<b>32977</b>

S.No.	Description	
1	Average distance of Divisional store to Central Store (in km)	77
2	Average lead distance assumed from divisional store to site of work (in km)	30
3	Total Distance for one trip from Central Store to Site of work (in km)	214
4	Average out turn Rate (in Rs)	47
5	Transportation charges per trip for material from Central Store to Site of Work (in Rs)	10058
	<b>Say (Rs):</b>	<b>10060</b>

**Annexure 'A'****Other Charges (including Overhead Charges) & Taxes**

a) Transportation charges on Total cost of material	
b) Erection charges on Total cost of material	
c) Contingency charges on Total cost of material	3%
d) Labour cess on Total cost of material+ (Contingency + Erection + Transportation) Charges	1%
e) GST @ 18% on Transportation and Erection Charges	18%
f) Deptt. Charges on Total cost of material + on Sr. No. (a) to (e)	11%

**RATINGS & SPECIFICATIONS**

- (A) The REC schematic diagrams attached in the end are intended to give a description of BoQ. The specifications there in may vary from those adopted in the Cost Data.

**1 PCC Poles sizes/working load**

a) 8 Mtr.	180kg
b) 9 Mtr.	200kg
c) 9.75 Mtr.	300kg

**2 Steel Tubular poles sizes / working load**

a) 8 Mtr.	148kg
b) 9 Mtr.	200kg
c) 10 Mtr.	300kg
d) 11 Mtr.	300kg

3 Three phase DTRs	11KV		22KV	
	LT current	HT current	LT current	HT current
a) 25KVA	32.8	1.31	32.8	0.66
b) 50KVA	65.61	2.62	65.61	1.31
c) 63KVA	82.67	3.31	82.67	1.65
d) 100KVA	131.22	5.25	131.22	2.62
e) 250KVA	328.05	13.12	328.05	6.56
f) 400 KVA	524.88	21	524.88	10.5
g) 630 KVA	826.68	33.07	826.68	16.53

- (B) Conductors sizes ( ACSR / AAAC/ AAC) & Rating tables are as per British standards. Use of special conductors of type 'Covered' / 'HTLS' may be done under special circumstances with technical justification where the operating conditions are of extreme nature such as heavy wind / snow loading etc.
- (C) System Designs on which Estimates are prepared, shall capture load growth for the next 15 years based on maximum demand recorded in the last 5 years.

**(D) Preferable Standard Conductor Sizes / Current Rating**

Type of conductor	Code Name	mm2 Sizes	Standard dia	Current rating
ACSR	Wesel	30	6/1/2.59	146
	Rabbit	50	6/1/3.35	297
	Horse	70	12/7/2.79	241
	Dog	100	6/7/4.72	312
	Wof	150	30/7/2.59	406
	Luynx	175	30/7/2.59	445
	Panther	200	30/7/3.0	486
AAAC	Cedar	30	7/2.54	145
	Hazel	50	7/3.30	201
	Oak	100	7/4.65	307
	Ash	150	19/3.43	398
	Elar	175	19/3.76	438
	Upas	300	37/3.53	610

Intermediate sizes shall be adopted only under special conditions.