ADVERTISED TENDER

330ED 10,							
M/s							

PR NO	495052
RFQ NO	68323

Name of Work: Annual Rate Contract Tender for Erection, Dismantling &

Maintenance work of HT/LT & TC under Ranuj S/Dn, DO Patan,

UGVCL

Tender Notice No:- MSNCO/068/2022

Estimate cost	Rs. 9,99,885/-
Earnest Money Deposit	Rs. 10,000/- Receipt No & Date
Security Deposit	Rs. 5% of Order Value
Online Preliminary, Technical & Price bid i.e. On line (e-tendering) tender/offer submission last date	Date: 18/06/2022 Up to 18.00 Hrs
Relevant documents (By Registered Post A.D. or Speed Post only) submission date	On or before date 21/06/2022 Up to 18.00 Hrs
Date of opening of Tender fee, EMD cover and Technical Bid physical as well as online(if possible)	Date 23/06/2022 up to 12.00 Hrs
Date of On line Opening of Price Bid (Tentative, if possible)	Date 24/06/2022 up to 16.00 Hrs
Tender Fee	Rs. 1180 (1000 + 18% GST) Receipt No & Date
Time Limit.	2 Year
Page No.	1 to 24



Tender Papers & Specifications may be downloaded from web site https://ugvcl.nprocure.com (To view, download and on-line submission) and UGVCL web site www.ugvcl.com (To view & down load only). Tender fee and EMD amount should be submitted by demand draft on any schedule bank at Patan in favour of UTTAR GUJARAT VIJ COMPANY LIMITED along with submission of Tender in separate sealed cover. "All the relevant documents of tenders to be submitted Physically" will be received only by Registered Post A.D. addressed to Executive Engineer, Uttar Gujarat Vij Company Limited, Division Office, near Gandhi bag, Patan. "NO COURIER SERVICE OR HAND DELIVERY" will be allowed.

Note:

- **1.**Bidders should be in touch with websites https://ugvcl.nprocure.com&www.ugvcl.com for information regarding revision/corrigendum/Amendment in tender till due date of online submission and thereafter. No separate information shall be sent in this regards and also not publish in newspaper.
- 2. It is mandatory for all the bidders to submit their tender documents by both forms viz. on-line (e-tendering) and physically in schedule time. If tender documents submitted in only any one form, say either by on line or physically, in that case the same tender will not be considered.
- 3. Bidder must submit Technical Bid physically at division office Patan UGVCL with all necessary documents in a separate sealed envelope and subscribing the envelope as "Technical Bid" & also subscribing the name of the work and tender opening date etc. Technical Bid shall open manual at Division Office Patan UGVCL. Envelope without subscribing "Technical Bid" & Other Detail will not be accepted & Tender will be rejected. The Bidder must submit their price bid online on N-Procure web site only

In case bidder needs any clarification or if training required for participating in online tender, they can contact the following office:

(n) Procure Cell

(n) Code solutions-A division of GNFC Ltd.,

403, GNFC Info tower, S.G. Road, Bodakdev

Ahmedabad - 380054 (Gujarat)

Toll Free: 1-800-233-1010 (Ext. 501, 512,516, 517, 525)

Phone No. 079-26857315 / 316 / 317

Fax: 079-26857321 / 40007533

Email: nproucre@gnvfc.net

Other terms & conditions are as per tender documents

SUPDT.ACCTT. EXECUTIVE ENGINEER

UGVCL, DO, PATAN UGVCL, DO, PATAN



SCHEDULE - B

Name of work: Annual Rate Contract Tender for Erection, Dismantling & Maintenance work of HT/LT & TC under Ranuj S/Dn , DO Patan, UGVCL

Memorandum showing items of Erection work with rates quantity & amount.

Sr. No.	Description of Work	Estima te Qty.	Unit	TEND ER RATE in Figure	Total
1	2	3	4	5	7
1	HT Tapping from the Existing Pole including Fixing of Cross Arms, Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing Code.9901000001	60	No	313	18780.00
2	Erection of PSC POLES of 8 Mtr X 200 KG including Fixing of PIT and refilling of Earth, fixing of cross Arms, Top Fitting Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing . Code.9902010001	80	No	757	60560.00
3	Erection of PSC POLES of 10 Mtr X 270 KG including Fixing of PIT and refilling of Earth, fixing of cross Arms, Top Fitting Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing . Code.9902010002	50	No	1815	90750.00
4	Erection of Steel Poles of 9 Mtr to 11 Meters including Fixing of PIT and refilling of Earth, fixing of cross Arms, Top Fitting Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing. Code.9902010003	10	No	1268	12680.00
5	Erection of Steel Poles of 13 Meters including Fixing of PIT and refilling of Earth, fixing of cross Arms, Top Fitting Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing Code. 9902010005	10	No	1453	14530.00



	Exection of Double DOLES atmost-res of 0 Mt. V 200 UC DOC				
	Erection of Double POLES structure of 8 Mtr X 200 KG PSC Pole including Excavation of PIT and refilling of Earthing, fixing of Channels, Supporting Angles, Clamps Anti-Climbing Devices,				
6	Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard	10	No	1720	17200.00
	specification but excluding erection of GUY set and Earthing Code.				
	9902020003				
	Erection of Double POLES structure of 10 Mtr X 200 KG PSC				
	Pole including Excavation of PIT and refilling of Earthing, fixing of Channels, Supporting Angles, Clamps Anti-Climbing Devices,				
7	Danger board, Insulators, ETC. Complete and Painting of Fabricated	5	No	4030	20150.00
′	materials and numbering of pole, complete As per standard		110	1020	20120.00
	specification but excluding erection of GUY set and Earthing Code.				
	9902020025				
	Erection of Double POLES structure of 9 Mtr To 11 Meter Steel Pole including Excavation of PIT and refilling of Earth, fixing of				
	Channels, Supporting Angles, Clamps Anti-Climbing Devices,				
8	Danger board, Insulators, ETC. Complete and Painting of Fabricated	5	No	2485	12425.00
	materials and numbering of pole, complete As per standard				
	specification but excluding erection of GUY set and Earthing Code.				
	9902020010				
	Erection of Double POLES structure with mounting of AB Switch ,				
	HG Fuses of 8 Mtr X 200 KG PSC Pole including Excavation of PIT and refilling of Earth, fixing of Channels, Supporting Angles,				
9	Clamps Anti-Climbing Devices, Danger board, Insulators, ETC.	5	No	2067	10335.00
	complete and Painting of Fabricated materials and numbering of pole,				2000000
	complete As per standard specification but excluding erection of				
	GUY set and Earthing Code. 9902020003				
	Erection of Double POLES structure with mounting of AB Switch,				
	HG Fuses of 9 Mtr TO 11 Meter Steel Poles including Excavation of PIT and refilling of Earth, fixing of Channels, Supporting Angles,				
10	Clamps Anti-Climbing Devices, Danger board, Insulators, ETC.	5	No	2712	13560.00
	complete and Painting of Fabricated materials and numbering of pole,		110	2,12	1000000
	complete As per standard specification but excluding erection of				
	GUY set and Earthing. Code. 9902020010				
	Erection of Double POLES structure with mounting of AB Switch ,				
	HG Fuses of 13 Meter Steel Poles including Excavation of PIT and refilling of Earth, fixing of Channels, Supporting Angles, Clamps				
11	Anti-Climbing Devices, Danger board, Insulators, ETC. complete and	5	No	3080	15400.00
	Painting of Fabricated materials and numbering of pole, complete As	5	110	3000	1240000
	per standard specification but excluding erection of GUY set and				
	Earthing Code. 9902010005				



12	Erection of SINGLE POLE structure with mounting of AB Switch, HG Fuses, Transformers, Lightening Arrestors, Distribution BOX ETC. of 8 Mtr X 200 KG PSC Pole including Excavation of PIT and refilling of Earth, carting of Transformers from Store to Site, Fixing of Channels, Supporting Angles, Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing. Code. 9902030003	10	No	2949	29490.00
13	Erection of DOUBLE POLE structures with mounting of AB Switch, HG Fuses, Transformers, Lightening Arrestors, Distribution BOX ETC. of 8 Mtr X 200 KG PSC Pole including Excavation of PIT and refilling of Earth, carting of Transformers from Store to Site, Fixing of Channels, Supporting Angles, Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing.	10	No	5900	59000.00
14	Erection of DOUBLE POLE structures with mounting of AB Switch, HG Fuses, Transformers, Lightening Arrestors, Distribution BOX ETC. of 10 Mtr X 200 KG PSC Pole including Excavation of PIT and refilling of Earth, carting of Transformers from Store to Site, Fixing of Channels, Supporting Angles, Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing. Code. 9902030003	5	No	7430	37150.00
15	Erection of DOUBLE POLE structures with mounting of AB Switch , HG Fuses , Transformers , Lightening Arrestors , Distribution BOX ETC. of 9 Mtr to 11 Meter STEEL Poles including Excavation of PIT and refilling of Earth, carting of Transformers from Store to Site, Fixing of Channels, Supporting Angles, Clamps Anti-Climbing Devices, Danger board, Insulators, ETC. complete and Painting of Fabricated materials and numbering of pole, complete As per standard specification but excluding erection of GUY set and Earthing. Code. 9902030007	5	No	6899	34495.00
16	Erection of GUY SET including Excavation of PIT and refilling of Earth, AS PER STANDARD SPECIFICATION WITH STAY CLAMPS, STAY WIRE, ANCHOR ROAD, TURN BUCKLE, EYE BOLT, GUY INSULATORE, CC BLOCK ETC. Code.9902040001	126	No	364	45864.00
17	CONCRETING OF POLES, GUYS, ETC. INCLUDING COST OF CEMENT SAND METAL (1:2:4) AND WATER ETC. AS PER STANDARD SPECIFICATION	10	CM T	5900	59000.00
18	Erection of COIL TYPE/ CI PLATE TYPE EARTHING INCLUDING COST OF COAL SALT ETC. BUT WITHOUT COST OF GI WIRE AS PER STANDARD SPECIFICATION Code. 9902040002	200	No	419	83800.00



19	STRINGING OF 30MM2 ACSR/34MM2, 55MM2 AAA CONDUCTOR FOR 11/22KV & LT LINES INLCUDING FIXING OF INSULATORS, BINDING JUMPERING ETC. Code. 9903000001	11	Km	1373	15103.00
20	STRINGING OF DOG. CONDUCTOR FOR 11/22KV & INLCUDING FIXING OF INSULATORS, BINDING JUMPERING ETC Code. 9903000001	1	Km	3162	3162.00
21	PROVIDING OF 1-ph NEW CONNETIN WITH PVC 2.5 MM2 CABLE FROM TERMINAL POLE TO METERING POINT INCLUDING FIXING OF METER, MMB(SMC) SERVICE PIPE, GI WIRE NO-10,EGG INSULATOR REEL INSULATOR WITH METEREARTHING COMPLETE WORK AS PER STANDARD SPECIFICATION ETC. Code. 9912020008	10	No	258	2580.00
22	Providing Three phase 4 wire service connection with PVC 4mm2/10mm2 four core cable from terminal pole to metering point including fixing of meter with meter earthing complete work as per slandered specification but excluding cost of material Code . 9912020008	10	No	355	3550.00
23	PROVIDING GUARDING TO HT LINE/LT LINEON ROAD / RAIL CORSSING Code:9906000001	50	Meter	58	2900.00
24	LT LINE TAPPING SINGLE PHASE (WHERE ADDITIONAL NUT BOLTS & FABRICATIONS/U- CLAMPS FITTING IS REQUIRED Code. 9901000002	50	No	32	1600.00
25	LT LINE TAPPING THREE PHASES (WHERE ADDITIONAL NUT BOLTS & FABRICATIONS/U- CLAMPS FITTING IS REQUIRED Code. 9901000002	30	No	59	1770.00
26	Stringing / Laying of overhead LT cable for road crossing HT line crossing & telephone line crossing ETC. Code. 9906000001	20	No	162	3240.00
27	Dismantling of 8 Mtr. PSC POLE in usable Condition with crediting of fabrication at STORE & STACKING OF POLE AT SAFE AND ON ROAD SIDE	25	No	511	12775.00
28	Dismantling of 10 mtr psc pole/ 13 MTR. GIRDER SIZE 100X150 MM IN USABLE CONDITION WITH CREDITING OF FABRICATION AT STORE & STACKING OF POLE AT SAFE AND ON ROAD SIDE Code. 9907000017	20	No	1028	20560.00
29	Dismantling of transformer centre (PSC Pole) with crediting of fabrication materials & Transformer at store and safe stacking of pole at road side with Transformer Code. 9907000007	4	No	3025	12100.00
30	Dismantling of transformer centre (PSC Pole) with crediting of fabrication materials & Transformer at store and safe stacking of pole at road side. Without Transformer Code. 9907000007	5	No	2057	10285.00
31	CARTING OF PSC POLE AT DESTINATION (PER POLE) MORE THAN 4 KM & UP TO WORK DESTINATION Code. 9914020002	40	LS	246	9840.00
32	Replacement of 11 KV PIN INSULATOR by new pin insulator /Composite Pin Insulator with Binding Code. 9908000002	250	No	31	7750.00



33	Replacement of 11 KV DISC INSULATOR WITH H/W by new Disc Insulator / Composite Disc insulator As per Specification. Code. 9908000003	50	No	106	5300.00
34	Replacement of LT Shackle insulator By New One. Code. 9908000008	50	No	21	1050.00
35	Re Fixing OF V cross arm in proper positions. Code. 9911000010	50	No	41	2050.00
36	Replacement of V cross arm By New One. Code. 9911000010	50	No	139	6950.00
37	Re Fixing of Top fitting arm in proper positions Code. 9911000010	50	No	27	1350.00
38	Replacement of Top Fitting Bye New One Code. 9908000002	50	No	34	1700.00
39	Straighting of tilted PSC Poles/ RSJ Poles at Pin Point Code. 9911000002	50	No	189	9450.00
40	Straighting of tilted PSC Poles/ RSJ Poles at tension (shackle) Point Code 9911000002	50	No	207	10350.00
41	Re-Tightening of loose GUY set in all aspects. Code. 9911000007	25	No	104	2600.00
42	Re-Jumpering work of HT/LT LINE for SHACKLE POLE, TAPPING DO AB SWITCHES AS PER SPECIFICATION Code. 9911000031	25	Per Pole	59	1475.00
43	Erection Of Support pole (PSC/RSJ) for stay (i.e. stud Pole). 9911000002	25	No	418	10450.00
44	PIN REBINDING OF CONDUCTOR & CLEANING OF 11 KV PIN INSULATOR AS PER INSTRUCTION OF ENGINEER INCHARGE Code. 9911000004	53	Per Pole	12	636.00
45	PIN BINDING OF CONDUCTOR & CLEANING OF LT SHACKLE INSULATOR AS PER INSTRUCTION OF ENGINEER INCHARGE Code. 9911000004	50	Per Pole	9	450.00
46	Converting Pin Point to Shackle point including dismantling & restringing etc including the cost of Nuts & Bolts Code. 9908000118	2	No	1619	3238.00
47	Removal / Dismantling of Existing HT/LT line conductor from line 34/55 MM2 and crediting to store. Conductor has to dismantle from shackle to shackle pole, with minimum nos. of cut piece as instruction of Engineer incharge. Code. 9907000009	5	Per Cond Per KM	650	3250.00
48	Removal / Dismantling of Existing HT/LT line conductor from line DOG 100 MM2 (Above 55MM2 size conductor) and crediting to store. Conductor has to dismantle from shackle to shackle pole, with minimum nos. of cut piece as instruction of Engineer in charge. Code. 9907000009	4	Per Cond Pe KM	1450	5800.00
49	Re-stringing of HT & LT line (34 mm2 to 55mm2) conductor/coated conductor with new pin binding (SPAN-35 MTR) Code. 9911000008	1	1 Wire per span	69	69.00
50	Re-stringing of HT & LT line (Above 55mm2 size conductor) conductor /coated conductor with new pin binding (SPAN-40 MTR) 9911000008	1	1 Wire per span	71	71.00



51	Trimming of TREE BRANCHES on strutting HT/LT line on one tree size more than 5 inch.	145	Per tree	35	5075.00
52	Trimming of bigger size of tree branches/whole tree on strutting HT/LT line Code. 9911000009	7	Per Day per labour	315	2205.00
53	Stringing of 11 KV Arial Bunch Cable size 70 to 120sqmm with fittings of all accessories, i.e. Special design suspension clamp fixing of cross arm, lt scheckle insulator etc for fixing of Messenger wire complete, as required and directed by Engineer incharge. Code. 9913000017	1	Km	28994	28994.00
54	STRINGING OF ARIAL BUNCH CABLE (3c 16 to 95 sq mm) with fittings of all accessories, i.e. Special design suspension clamp fixing of cross arm, lt scheckle insulator etc for fixing of Messenger wire complete, as required and directed by Engineer incharge. Code. 9913000016	0.5	Km	14707	7353.50
55	STRINGING OF ARIAL BUNCH CABLE (1c 16 to 95 sq mm) with fittings of all accessories, i.e. Special design suspension clamp fixing of cross arm, lt scheckle insulator etc for fixing of Messenger wire complete, as required and directed by Engineer incharge. Code. 9913000016	0.5	Km	5883	2941.50
56	Strip type Earthing of XLPE Cable by providing and fixing 25*3 mm GI hot dip strip of total length of stip - 09 Mtr,300*300*10 mm CI earthing plate, 2" PVC Pipe of 2 Mtr length; providing of wood charcoal (25 KG Appx.) and salt cubes (25 KG Appx.) or bentonite powder (50 KG Appx.) with material. Earthing shall be as per REC standard and specifications.	20	No	1450	29000
	Supply Part:-				
57	Providing and fixing HT push on/heat shrink type Outdoor termination kit "3M/Raychem/Frontier/Yamuna" make on cable jointing Kit suitable for 3C X 70 to 120 SQ.MM. 11 KV HT AB Cable as per specification of UGVCL. Code. 9703010005	4	No	5982	23928.00
58	Providing and fixing HT push on/heat shrink type Straight joint suitable for "3M/Raychem/Frontier/Yamuna" make on 3c X 70 to 120/Sq.mm.HT AB Cable as per specification of UGVCL. Code. 9703010003	5	No	7655	38275.00
59	SUPPLY OF SELF TIGHTENING ANCHORING (DEAD END) CLAMP WITH POLE BRACKET USING STAINLESS STEEL STRAP & BUCKLE Code:2601000134	100	No	135	13500.00
60	SUPPLY OF SELF LOCKING SUSPENSION CLAMP WITH POLE BRACKET USING STAINLESS STEEL STRAP & BUCKLE Code:2601000136	150	No	150	22500.00
61	SUPPLY OF PRE INSULATED MID SPAN JOINTS FOR PHASE & NEUTRAL FOR 16 SQMM TO 50 SQMM Code:0414000002	100	No	135	13500.00
62	SUPPLY OF STAINLESS STEEL OF SIZE STRAP 20MM X 0.7MM & BUCKET WIDTH 20MM Code:2601000136	105	No	38	3990

	Total Rs. (A)	9,99,885.00
	Bidders offer(+/-) in % (B)	
	Grand Total (C) = A +/- (A*B)	
Goods a	nd service Tax D= C x GST % GST Rate:% SAC Code:	
Grand	Total including GST E= C + D	
	Final Offer in RS.=	
Final Offer RS. In words		

The Bidder shall quote FIRM Prices only. The prices quoted will not be subject to any escalation till completion of work.

Nut & bolt will be supplied by UGVCL Patan. If same are not available with UGVCL Patan Store & provided by Contractor then it will be reimbursed after producing of bills. But Rate of Nut-Bolt claimed should not be more than approved running rate by Circle office Mehsana at that time.

The above prices are inclusive of all taxes, levies Duties etc. except Goods & Service Tax (GST). GST will be paid extra as applicable from time to time on a given taxable goods and/or services.

Seal & Signature of Bidder

Executive Engineer UGVCL, DIVISION PATAN

GENERAL INSTRUCTION TO TENDERERS

- 1. Sealed Tenders are invited for the work of erection of HT/LT line & T/c. from the contractors/firms who have executed works of similar nature and magnitude successfully.
- 2. Date of Demand Draft should not be older than 30 Days from the last date of receiving of tender. If D.D is older & its due date is over or bank not accept the same due to any reason at the time of opening of Technical Bid, authority may reject your tender.
- 3. Tenders are in two bids system i.e. "Technical Bid" and "Price Bid".

Technical bid should be submitted with documents as under, failing which tender is liable for rejection.

- a. Solvency certificate issued from any Nationalized/Scheduled Bank minimum amounting to sum equivalent of estimated cost
- b. PAN Card
- c. EPF Registration And EPF Paid Challan copy
- d. Insurance copy
- e. Latest income tax Return Copy
- f. Minimum 1 year of work Experience certificate with work order & work completion certificate issued by authorized officer of Distribution Company
- g. Electrical contractor license
- h. Labour license if applicable
- i. Vendor Registration Certificate in appropriate class as a contractor Under GUVNL Or its subsidiary company (i.e Class C & Above)
- j. GST Registration If applicable

The above documents should be submitted in form of **self attested true copies** along with technical bid.



- 4. Bidder must submit Technical Bid physically at division office Patan UGVCL with all necessary documents in a separate sealed envelope and subscribing the envelope as "Technical Bid" & also subscribing the name of the work and tender opening date etc. Technical Bid shall open manual at Division Office Patan UGVCL. Envelope without subscribing "Technical Bid" & Other Detail will not be accepted & Tender will be rejected.
- 5. The Bidder must submit their price bid online on N-Procure web site only. "Price bid" of only qualifying bidders on the basis of Technical bid shall only be opened **online** at Division Office Patan UGVCL. Price of bidders, who are not qualified technically as per requirement of technical bid shall not be opened.
- 6. Failing submission of any of one bid cause for rejection of tender.
- 7. The bidders shall submit their offer without any deviations in general terms and conditions of the contract or in Technical specification/items. Tenders of such deviations may also be rejected. Incomplete and conditional tenders shall not be considered.
- 8. Intending bidders should submit their tenders after studying all tenders documents carefully and visiting the site for satisfying themselves of actual site conditions, location and accessibility of site and nature, extent of the work involved etc. Submission of tenders implies that bidders have obtained all necessary information and other data required for executing the work.
- 9. Successful Bidder is bound to work under any S/Dn of Division Office Patan. Concern authority may transfer your total/partial order to any S/Dn of Division Office Patan & Bidders is bound to work there with the same rate, conditions & without any type of extra charges.
- 10. Contractor has to issue required safety Tools & Tackles to Each Person of Gang.
- 11. Penalty clause: in case, the work is not completed within the period stipulated in the sub work order, penalty shall be levied at 0.5 per week on the total sub work order subject to maximum 10 % of respective sub work order plus applicable GST.
- 12. If the bill for the work (after reconciling inventory given to contractor and depositing back the surplus material to respective Divisional Store) is not



submitted within Three Month from the work completion date as per work completion date, then penalty @Rs. 200 per week or part thereof plus applicable GST subject to maximum of 10% of order value plus applicable GST will be deducted.

- 13. All the works shall be carried out as per company standard specifications & work quantity may be increase or decrease during actual work within order amount.
- 14. Tenders which do not fulfill all or any of the conditions of the tender of incomplete in any respect, are liable to rejection.
- 15. UTTAR GUJARAT VIJ COMPANY LTD, reserves the right to reject any or all tenders without assigning any reason thereof.

Contractor's signature with seal

Executive Engineer
Patan DO,UGVCL

SPECIFICATIONS

For erection work of 11 KV Transmission lines. LT distribution lines and transformer sub-stations.

ERECTION OF HT AND LT LINES.:

(a) Site clearing and tree cutting which come in the way of line will be done by the contractor at his cost. Any claim for compensation in above respect will have to be borne by the contractor.

(B) Fixing: Pole position:

The position of pole structures guys and earthings will be fixed by the department and shown to the contractor. He shall adhere to these locations in all circumstances unless directed by the department to make any change.

(c) Pole setting:

Where poles are set in good solid ground the depth of pit shall be 1/6 the height of the pole and for grounds of any other nature depth of the pit shall be decided by the department. The poles and guys must not be set at the edge of cut/at shore/ embankments where soil is liable to be washed or eroded out such setting should be avoided while back filling, the each must be packed tight and in no case must earth be dumped to greater depth than four inches without being rammed hard before the next layer is thrown in extra earth should be packed around the poles and rammed.

The cost of damage done to the pole during the erection will be recovered from the contractor. No pole which is out of plumb or out of alignment shall be accepted. The contractor will keep the poles and other materials in his safe custody in erected and he is liable to compensate to the Company the full cost of same along with supervision charges, if the pole is broken during the erection or stolen from him custody. He should be able to render full account of the poles entrusted to him whenever the supervising officer demands to scrutinizes the same.

1. Erection of Complete Single Pole Structure.

Erection of single pole structure comprises of shifting of pole from the place in the village to the site of actual work in that village excavation of pit erection in position (with base place where required) of 26' to 33' PSC poles 60 lbs/Yds. 30' to 42' long rail or suitable size girder or any other suitable pole fitting up clamps and cross arms and fabricated materials etc. Complete as per drawing inclusive of numbering fixing of caution Company and anticlimbing device. All size of Bolts and Nuts required should be used by the contractor at his cost.

All the fabricated materials such as cross arms clamps turn buckles etc. fitted on the PSC poles of RCC poles should be painted first coat with red lead paint and then two coats of aluminum paint. The tenderer has to use all the paints at his cost and should got approved by the Engineer-in-charge before use.

2. Special two poles structures.

Special two poles structures such as for HT line tapping Railway crossing any other HT, LT or telephone line crossing, terminal structure comprises of excavation of suitable pits and refilling of earth, erection in position of two numbers 26' to 33' PSC poles 60 lbs/Ybs 30' to 42' long rails or any other suitable poles fitting of clamps and cross arms. Cross bracing etc. as per drawing inclusive of mounting H.G.Fuses (or A B Switch or HT metering equipments etc. numbering, fixing of caution Board and anti climbing device. The D.P. must be properly aligned and must be special structure if included will be erected as per drawing supplied. A size of bolts and nuts required for fitting the fabrication should be used by the at his cost including painting as per item No.1.

3. Stringing of Conductors.

This includes stringing of standard and solid bare conductors with fitting has necessary HT/LT pin and strain insulators, binding on insulators, jumpering jointing, The jointing in HT line will be done by twisting sleeve joints as per standard practice, Care must be taken in handling the conductor must not be drawn over tough or rocky ground, where it is liable to be damaged Alluminium and ACSR conductors must be drawn on wooden or alluminium pulleys only the conductor or coil must not be dropped Westage and cutting should be avoided as far as possible, Not more than 5% scrap will be accepted in the material account drawing to the proper tension. The sag and spans will be maintained as per drawing and design. The cross arms and insulators must be so fixed that neither tills or bends in any position. The rate quoted should be per conductor route kilometer.

The span and sag. However may vary according to sizes of poles available but these dimensions will be specified by the field Engineer before commencement of work. The sagging should be uniform for all conductors and uneven sagging will not be allowed.

4. Stringing of Continue cuss Earth Wire.

Where required the stringing of G.I. Wire No. 1 or S.W.G. is to be carried out for continuous earth wire and sag should be kept appropriate as per the conductor and continuous earth wire should be fixed on cross arm by using "OII" size bolts nuts and washers. The required bolts nuts and washers should be used by the contractor at his cost. All the fabricated cross arms sifted on the pole should be connected to the earth wire by G.I. Wire.

4.(a) Guarding.

The guarding will have to be provided between crossing of HT and LT lines below the entire railway crossing. At the crossing at the crossing to telephone or telegraphs line (Licensee's HT and LT lines are passing below Company's HT line) road crossing and such other places as indicated by the department. The work comprises of fixing of guard cross-arms, eye bolts guard cradle as per design.

Binding cross arms must be used where the HT line crosses the road. A clearance of 20 ft. must be available for all road crossing. The poles for road crossing must be concreted. The work has to be carried out as per drawings specially prepared for the purpose Guarding for railways crossing is to be carried out as per instructions of the Engineer-in-charge.

5. Erection of Stay set.

The erection of stay comprises of excavation of pit of 2'x2'x4' depth burying stay rods anchor plate, fixing of turn buckle binding of GI Stay wire. The stay insulators must be inserted in the stay wire on all stays as per drawing. The wrapping of the Guy wire strands at both ends at the stay insulator must be even and must present neat appearance and good workmanship. No stay should be left loose but should be tight and straight to withstand any cyclone or stand storm. The item includes refilling of earth and painting paint should be used by the contractor at his cost.

If the guys are not required to be concreted, a per-casted cement concrete block will be supplied by the department at his divisional store at Vijapur which the contractor will have to transport at his cost to the site of work and will have to use for fixing the guy road rate includes transportation and using the same in place of cement concerting of the guy. If the block is damaged during transport the cost of same will be recovered from the contractor.

- **6.** Cement concreting for rail of R.S.J. pole or stay rod should be carried out in preparation 1:3:6 i.e. one part of cement three part of washed river sand and six part of well burnt brick-bat of 1x 1FF" size metals. The mixture should be prepared on the GI sheets and should be free from the dust the river sand, cement and the metal or brickbat should be used by the contractor at his cost.
- **7.** Concreting for muffing of poles or stay rods should be as per item No. 6 above and size of the boxing provided should be Dia. Of 1.5 feet X height 3 feet and 1.5 feet should remain below the ground level and 1.5 feet should remain above the ground level.

8. Earthing

A pit of 2'x2'x6' is to be dug about 3' away from the pole on which earthing is required to be carried out. The earthing pipe supplied should be erected in the pit and should be hammered in the ground as far as possible and G.I.Wire for earthing should by bolted with the pipe and should be connected with earth wire of the pole by means of bolt 10 kg. of common salt and coal-dust should be provided per earthing by the contractor at his cost. Bolts nuts and washers should be used by the contractor at his cost.

9. Erection of Pole Mounted Transformer Center.

This work includes erection of special two pole structure as per item No.2 and fixing of all fabricated materials for support of line, L.A.H.G. fuses. A.B. switches transformer L.T. Dist. Box etc. The work includes of transportation and hoisting of transformer fixing of H.G. fuses A.B. switch L. As Distribution Box bilding numbering and V.I.R. or P.V.C. wiring and prodding two earthings as per the specifications and the instructions of the Engineer-in-charge including painting.

- (a) Up to and including 100 KVA
- (b) -do- as above but transformer above 100 KVA capacities.

10. Painting of Transformer Structure.

All the fabricated materials used on the structure including the poles, also should be painted first with on coat of red lead and then with two coats of good quality of alluminium paints should be applied by the contractor at his cost. The paint should be got approved by the Engineer-in-charge before use.

- (a) same as above vat for P.S.C. poles.
- 11. **Safety**: Before starting any work on line or pole etc by the labours of the contractor it will be the responsibility of the contractor to obtain line clear from the concerned officer. The Company is not liable for any injury or damage to contractor's workman or his equipment respectively during execution of this contract and the Company will not pay any compensation for any reasons whatsoever. The contractor is also responsible for any damage to private property i.e. standing crops in farms or Gram Panchayat property.

Signature of Contractor

Executive Engineer Patan.

GENERAL

The work should be strictly as per specification and approved designs of the company, which can be supplied by the Engineer-in-charge for reference at the request of the contractor. The inferior and unsatisfactory work is liable to be rejected.

Before commencing the erection of lines the contractor will be provided with the schedule and the detailed layout. The work will have to be carried out as per programme laid down by department and under the entire supervision of field engineer and contractor should employ supervisor who could supervise the work through out and he should remain present on site.

Marshy or water logged location must be avoided as per as possible. It is becomes inevitable locate poles at such points, special precautions about foundation will have to be taken and work carried out as per instruction of the Engineer-in-charge.

The spans shall be specified in the poles schedule and the minimum spacing between the power conductors and conductors and neutral shall be as shown in approved drawings.

No tools will be supplied by the department. The work if found inferior and not to be standards of Company is liable to be rejected at the risk and cost of the contractor, any expenditure incurred for rectification work carried out departmentally or by employing hangamy labour will recovered from his R.A. Bills. If the contractor fails to rectify the inferior work done by him inspite of the instructions to rectify the same.

Contractor will have to submit the certificate of work of the IInd Class Wireman under whose under whose supervision the work has been carried out.

IMPORTANT

Before starting the work (new alteration or addition) and during the works the contractor must obtain line clear wherever necessary from the concerned officer of this Department or other during transport of erection non observance of rules the responsibility of the contractor.

All conductors Earth and stay set must be tight stay rod pit must be as per the specifications.

All the poles must be in plumb Fabrication fitting on pole must be tight Generally following span should be kept on HT line

(1) 28 Ft or 30 Ft. long	250 Ft.	
		70/80 Meters Average
(2) 33 Ft long note	300 Ft	

All road crossing must be provided with briding arrangement and minimum 22 Ft. clearance must be kept between conductor and road level.

LT lines, in open field with 5 wires will have at least span of 60 Meters on an average.

So long as line is not handed over to the company the responsibility of its safe custody of all the fixture and materials etc. lies with contractor.

PROCEDURE OF STORES

(A) ISSUE OF MATERIALS

The following materials shall be supplied by the Company free of cost for use of the works contracted for and will be issued as and when required from Divisional Store. The transport will have to be arranged by the contractor at his cost. (except PSC poles)

LIST OF MATERIALS

- (1) A.C.S.R. and All aluminum conductor
- (2) The poles will be supplied by Company within a radius of about 5 Kms. From the place of works.
- (3) HT/LT insulators with hardware.
- (4) Cross arms clamps bracing of required sizes
- (5) Stay wire G.I.Wire
- (6) Transformer, LT Dist. Box, HT/LT lighting arrestors, pipe fitting of transformer center wiring V.I.R. wire for transformer centres, H.G. Fuses, A.B. switches.
- (7) Danger Board, anti climbing device or barbed wire, earthing pipe.
- (8) Aluminum tape and binding wire P.G. Clamps.
- (9) Stay tighteners stay rods and stay block whenever necessary.
- (10) V.I.R. wire and reel insulators for overhead V.I.R. line narrow streets.
- (11) Street light work.

The rates quoted should be inclusive of transporting to site from the above store erection and setting to work.

The following materials will be supplied by the contractor at his cost for which no payment will be made.

- 1. Aluminum and red lead prints of approved quality.
- 2. Salt sand cock for earthing.
- 3. Paint for numbering.
- **(B)** The quantities mentioned in schedule are approximately Actual quantities may increase or decrease according to the local condition. The department reserves the right for revising or omitting any of the quantities to be credited during the execution.
- **(C)** The contractor will draw and will be given only those materials and in anticipated quantities that are just sufficient for the works to be carried out by him. The contractors should first intimate his requirement to the concerned field Engineer who will approve the list and as per this list, the materials can be drawn from the Stores.
- **(D)** The materials will be issued to the contractor himself or his duly authorized representative only in case if any authority or power of attorney is to be ruminated. Action instruction in this respect must be intimated by Registered post to the Executive Engineer and concerned sub-divisional officer.
- **(E)** The contractor must get the approved requisition three days before he requires the materials on site from the Engineer-in-charge.

Executive Engineer Patan

All the above instructions stated above are accepted by me unconditionally.

TERM AND CONDITIONS

- 1. The contractor will have to give the following undertaking.
- **A.** Should this tender be accepted I/we hereby agree to a bide by fulfill all the terms and provision of the tender and contract of works as applicable and in fault there of to forfeit and pay to the company the sum of money due.
- **B.** The full value of earnest money deposit paid herewith should be absolutely forfeited to the Company, should I/we not deposit the full amount of specified Security Deposit, within specified time limit.
- **2.(A)** The contractor shall co-operate with the Company in recording measurement etc. as expeditiously as possible and he shall fulfill all the requirements which are necessary to finalize his outstanding bills within one month from the date of completion of work. Failing which the Company shall finalize the account on the basis of its records and pay him such amount as found due to him together with the amount of Security Deposit, if any, remaining payable to him after deducting there from the amount due by him to the Company for shortage of materials rectification in complete work etc. and the Company shall not entertain any further claim from him thereafter.
- **2.(B)** The competent authority can delete any item in schedule 'B' on the tender if he feels that the rat quoted by the contractor for that item is abnormally high when compared to the estimate rate.
- **2.(C)** In case of any dispute E.E. will be the final authority for deciding the same and his decision will be final and binding on the contractor and Department and no further appeal will be entertained.
- **3.(A)** The contractor will have to see that safety equipments are used by his laborers etc. While working on line, equipment etc. of the Company and he will be responsible for the same.
- **3.(B)** The contractor will have to under taken responsibility of accidents etc. for his persons working on line and same will be on stamped paper of Rs.300 or the appropriate value (if revised by Gove) The cost of stamped will be borne by contractor.
- **3.(C)** The contractors will have to take insurance of suitable amount for his labours.
- **3.(D)** The contractor will have to give the Bank Guarantee, against solvency which will be 20% of contract value No materials will be issued, if contractor fails to furnish the Bank guarantee of appropriate value.
- **3.(E)** Contractors should be carried out the work under supervision of UGVCL.

Signature of Contractor.

Executive Engineer
Patan

GENERAL CONDITION OF CONTRACT

1. Earnest Money Deposit

- (a) Earnest Money deposit (1% the estimated cost) as indicated on the face sheet should be paid by the tenderer along with the tender in cash or by Demand Draft on any schedule Bank in favour of Uttar Gujarat Vij Company Limited in which case receipt shall be attached with tender invariably.
- **(b)** Tender without earnest money will not be considered for acceptance.
- (c) Earnest money Deposite will be forfeited in case the successful denderer after his tender has been accepted fails to pay the prescribed security deposit and execute the contract on a non-judicial stamp of appropriate value at his own cost and sign the contract booklet proceed at 0.50 ps.

2. Validity of tenders.

All tenders shall be open for acceptance by the company for a period of 90 days from the date of opening the tenders and may be further extended to 30 days required and the tenders shall be bound to execute the work on acceptance of his tender within this period.

3. Acceptance of tenders.

- (a) The Company does not bind itself to accept the lowest or any tender neither with any reason be assigned for the rejection it is also not binding on the company to disclose any analysis reports on the tender
- **(b)** Accepting authority reserves the right of rejection of any or all tenders without assigning any reason thereof.
- (c) Any tender which does not comply the above requirements is liable to be rejected.

4. Security Deposit.

The lowest tenderer whose tender is accepted shall have to pay 5% security deposit of the tender cost out of 2.5% is payable in cash within 8 days from the receipt of the acceptance order and the balance 2.5% will be recovered from the 1st two R.A. bill or in the first and final bill.

5. Contract Documents.

The lowest tenderer whose tender is accepted will have to execute as stamped agreement in standard from of the Company and will have to sign the contact booklet in viz. Tender an contract for works at his own cost. In case of partnership firms necessary partnership documents records will have to be produced for verification by authority to sign the bills measurements and enter in to contract as well as correspondence with the Company. Wherever required necessary power of attorney will have to be produced specially when the partnership deed is silent on the point of authority of deal with the Company the contractor will have to execute the documents and sign the booklet tender and contract for works before starting the work.

6. Jurisdiction.

Any dispute or difference arising under out of in connection with the contract shall be subject to the exclusive jurisdiction of Patan.

7. Time Limit

The work should be completed within months from the date of receipt of commencement order otherwise penalty (a) 0.5% per day subject to maximum of 10% of the work order value will be imposed for late completion of the work.

8. Materials.

- (a) In case of shortage loss or damage of materials the cost of the same will be recovered from the contractor at stock issue rate or prevailing market the time of finalization of bill whichever is higher 15% overhead charges.
- **(b)** The contractor will be fully responsible for any damage, breakage loss or theft of materials during transit or erection, issued to him from stores till the time the work is handed over to taken over by the Company. The Cost of loss or damage shall be recovered from him.
- **(c)** The contractor at the time of taking materials from the stores. Shall have to give letter of authorization in triplicate to the concern division store specifically stating and would sign the requisitions for and on behalf of the contractor and shall be binding upon the contractor.
- (d) All materials supplied to contractor shall remain the absolute property of the Company and shall on no account be removed from the site of the work and shall at all time be open to inspecting by the Engineer-incharge.

Any such materials remaining unused and in perfectly good condition at the time completion of the contract shall be returned to the Company store for which no carting charges are payable to the contractor.

- **(e)** The contractor will have to make his own arrangements to keep the materials under lock key and he will be responsible for theft of loss on account of any reason whatsoever.
- **9.(a)** Additions and alterations of any kind in tender forms, conditions etc. by the tender without the consent of the undersigned is not permissible.
- **9.(b)** If in any item the rates are above estimated rates but the total is within the estimated amount then while paying the R.A.Bill contractor will be paid at estimated rate and the difference will be released in the final bill.
- **10.(a)**The tenderer must quote his rates unit specified in the schedule in figures as well as in words if there is difference between rates quoted in words and figures rates quoted in words shall prevail. Further should there by any discrepancy between rate and amount then rates shall prevail.
- **(b)** The tenderer must quotes his rates net lowest and the rates not conforming to the unit specified in schedule may be not be considered even through they may be lowest.
- (c) The prices must be stated for each item separately and in addition the percentage of reduction in the local price if any should also be quoted.
- (d) Any variation in rates etc. will not be allowed on any ground once the tender submitted is opened for consideration.
- **(e)** The tenderer's own condition of the contract will not be considered as forming the part of the tender. The tenderer must sign the tenders.
- **(f)** All correction what so ever made in the tendered rate must be signed fully with date by the tenderer before submitting the tenders.
- **(g)** Rates must be quoted without any conditions in case of divergence between rates in figures and words. It will be constructed to read the rate most favourable to Company.

11. Totaling up of figures.

While quoting the rate per unit against each item Tenders are required as well as grand total of the work in figures and words.

12. Addressing Tenders.

Tenders must be submitted in **envelopes** which must be **properly sealed** by the tenderer with their office seal and must be super scribed with the following a tender No. and the name of the proposed work (b) Returnable date and time of tender. It is the responsibility of the tender to see that the tenders are received in Company's office tender Box within the stipulated time and date the envelope must **bear full address of the tenderer**.

13. The Company's general conditions of contract will apply to all the contractors and he is deemed to be fully aware of the company's general conditions of contract for the works in respect of security deposited terms of payments penalty for late completion of work etc. any ignorance of these conditions will not exempt the contractor from the liability to abide by the same (Copies are available from the Company's office at 0.50 paisa only).

Submission of a tender by a tenderer implied that he has read the instructions and condition of contract contained in booklet and has made himself aware of the scope and specification of the or to be done and of the conditions and rate at which stores etc. will be issued to him and local conditions and other factors bearing on execution of work.

- **14 (a)** If the contractor stands lowest for more than one tender it will be at the discretion of the competent authority whether to award more than one work or not without assigning and reason therefore.
- **15.** Before starting any work on line or pole etc. by the labourers of the contractor it will be the responsibility of the contractor to obtain line clear from the concerned officer the Company in not liable for any injury or damage to contractor's workman or his equipment respectively during execution of this contact and the Company will not pay any compensation for any reasons whatsoever.

The contractor is also responsible for any damage to private property i.e. standing crops in farms of Gram Panchayat or Private property.

- **16.** The contractor shall not demand or accept and help from the intending consumers in line erection works or in transport of materials.
- **17.** The erection work should be started from the date of commencement given in the order and should be completed within the prescribed period for each work the contractor is bound to complete the work within the specified period of each work given by Executive Engineer.

18. Extension of time limit.

It for any reasons the contractor is not in a position to complete the work within the stipulated period he should put his application to the Engineer-n-charge before one month of the expiry of the stipulated time limit of completion of work for the extension of time limit giving valid reasons for there required extension.

19.(a) In case of any non supply of materials from stores, the contractor will have to intimate the S.D.O. as well as the divisional officer quoting the M.R.No. and date for non receipt of materials the intimation will be considered for extension in time limit.

In case the contractor fails to act as above delay on this ground will not be accepted.



- **20.** Priority of work would be decided by the Executive Engineer and contractor shall carry out the work within the stipulated period of the order by the Executive Engineer.
- **21.** The contractor must have adequate resources and gang of unskilled personnel to undertake the work at different places simultaneously.
- **22.** The contractor will be given separate order separate order for each work on the basis of the rate contract order the date of completion of work will be stipulated in the order which the contractor has to agree otherwise the penalty will be livable from the late completion of work as company's standard conditions.

The R.A. bills and final bill will be admitted against this order and will be finalized accordingly.

- **23.** If during 12 calendar months from the date of handling over charge after completion of work the erected lines are found defective in any way the same should be rectified by the contractor at his cost and risk.
- **24.** The contract will remain in force for the period of one year from the date as mentioned in the detailed order.

25. TERMS OF PAYMENT:

- (a) The payment will be made to the contactor by crossed/Account payee cheque on local Bank subject an advance stamped receipt being received from payee.
- **(b)** The total payment through all the R.A.Bills combined to gather will not exceed 75% or the order value of the sub-order placed against the annual rate contract.
- **(c)** In respect of electrification of village/Erection of transmission and distribution lines works contracts. The payment to the contractor through R.A.Bill will be made only after 50% of work is done and provided the contractor furnishes the materials accounts in respect of previous R.A.bills shall not be made R.A.Bills will not be aid without recording the measurement and the preparation of material account.

26. RECORDING OF MEASUREMENT IN THE PRESENCE OF CONTRACTOR.

(a) If case of work carried out satisfactorily by the contractor.

In the work has been carried out satisfactorily the contractor with prior intimation from the company's officers shall have to witness the recording of measurements on the appointed date within one month of the completion of work.

It the contractor fails to remain present on the appointed date a notice under Registered cover with A.D. will be served on him to witness the recording of measurement by prior appointment with the Company's officer within ten days of the receipt of notice or within such extended period applied for by the contractor and granted by the company's officer if the contractor still fails to come for recording of measurements within the original or extended period of time granted by the company's officer, then the recording of measurement will be carried out there after unilaterally by the company's officer and the Final Bill finalized as per measurements, recorded by the company's officer and the same shall be binding on the contractor no request than will be entertained.

(b) In case of work not carried out satisfactorily.

In case of work not carried out satisfactorily, either during the progress of work or on its completion the conditions as specified vide conditions No.5 read with condition No.4 (b) of tender and contract for works

booklet shall apply and the recording of measurements shall be done within one month of completion of work after rectification of defects by contractor or by the Company at the contractor's cost as the case may be and any further delay in the recording or measurements and finalization of the final bill due to the fault of the contractor shall be subject to the conditions as laid down in clause 9 (a) above of the contract booklet.

27. SUBMISSION OF ACCOUNTS BY CONTRACTOR.

The contractor shall submit materials account with each R.A.Bill also he shall on completion of the work have to prepare and render the final detailed materials account of the materials received by him from the Company's store within one month from the date of completion of work if however the contractor does not render the materials accounts a notice shall be issued to be contractor under Registered A.D. to render the materials account within ten days from ten date of issue of the notice in default, the materials account and procedure which shall have to be accepted by the contractor and disputes if any raised shall not be entertained the balance materials also will have to returned by the contractor within one month from the date of completion of work otherwise Company is not liable to accepted at a of date.

- **28 (a)** The contactor will not be allowed to transfer materials from one work to another without written permission of the field officer justifying the reasons for such transfer.
- 28 (b) The contractor will have to use the materials for which they are drawn.
- **29** Any rules farmed or instructions issued regarding contractor by the Company or its representative after awarding this contract shall also from part of this contract and will be binding to the contractor. On completion of work contractor will inform the Dy.Engineer concerned in within and Dy.Engineer will see that if any rectifications are to be carried on that work will intimate the contractor 15 days in writing from the date of receipt of the letter from the contractor giving him time limit of 7 days to carry out the rectifications pointed out.

If the contractor fails to do the rectification, addition, or alterations etc. within the above time limit of 7 days then the same will be got done through other agency or Deptt Labour at the risk and cost of the contractor without giving any further notice or any intimation. No complaint will be entertained from the contractor in this regards and amount will be recoverable with 15% supervision charges.

Signature of the Contractor

Executive Engineer Patan