



Rajasthan Rajya Vidyut Prasaran Nigam Limited

(CIN: U40109RJ2000SGC016485)

(An ISO: 9001-2008 Certified Company)


Office of the Executive Engineer (T&C), RRVPNL, Bikaner
66 KV GSS Premises, Sagar Road, Bikaner Phone No 0151-2226272.

NO: RRVPNL / Executive Engineer (T&C) /Bikaner /Tech. /Estt/D. 764 Dated 26/10/16


To
The Superintending Engineer (T&C)
Rajasthan Rajya Vidyut Prasaran Nigam Limited,
Bikaner

Sub: - To Uploaded consent from the registered contractor for the construction of 132 KV GSS, Kitarasr and Construction of LILO Sridungargarh-Ratangarh transmission line for 132 KV GSS, Kitarasr

Kindly arrange to uploaded on the Web Portal of RVPN to execute to work of construction of 132 KV GSS, Kitarasr and Construction of LILO Sridungargarh-Ratangarh transmission line for 132 KV GSS, Kitarasr


Er. A.K. Malhotra),
Executive Engineer (T&C),
R.R.V.P.N.Ltd., Bikaner
Phone no.:- 0151-2226272, 9414061376
Email:- xen.cm.bikaner@rvpn.co.in

Copy forwarded to the Assistant Engineer-II (T&C), RRVPNL, Bikaner for information & necessary action please.


Executive Engineer (T&C),
R.R.V.P.N.Ltd., Bikaner

"G" Schedule for the construction of 132 KV GSS KITASAR


CODE NO.	DESCRIPTION	UNIT	RATE	QTY.	AMOUNT
1	2	3	4	5	6
1	EARTH MESH WORK				
A-1	Laying of earthmesh with 25 mm / 28mm. MS at a depth of 0.80 metre from top level of foundations, including excavation of trench of required depth and backfilling of the same, transportation of M. S. Rod to M.S. Rod along the length, at crossings & with earth electrodes as per drawings, application of bitumen compound & covering with bitumen impregnated tape on all welded joints, for the type of soil prevalent at 0.80 meter below top level of foundations (M.S. Rod of above sizes & M.S. Flat as required shall be made available by RVPN).				
	(a) In case electricity is made available by RVPN without charges.				
B-1	Laying of earthing risers of 50X10 mm /50X12 mm. Size M.S. Flat at a depth of 0.80 metre from top level of foundations, including excavation of trench of required depth & backfilling of the same, transportation of M.S. Flat from site store to locations, preparation of risers, bending as per requirement (after heating if necessary), fixing on and welding / bolting to equipment / structure & peaks of structures, laying in the trench, welding to the earth mesh of M.S. Rod as per drawing, including welding of extra length of M.S. Flat if required, application of bitumen compound and covering with bitumen impregnated tape on all welded joints, painting of all surfaces of risers above ground level with red oxide and green paint, for the type of soil prevalent at 0.80 meter below level of foundations (M.S. Rod of above sizes & M.S. Flat as required shall be made available by RVPN).	Metre	18.00	2100	37800.00
	(i) Normal soil				
	(a) In case electricity is made available by RVPN without charges.				
C-1	(i)Placing / driving of earth electrode of 25/28 mm dia. M.S. Rod of length 3.30 metres (approx.) to a depth of 3.80 metres from the top level of foundations, including excavation of pit as required & back filling of the same, transportation of M.S. Rod from site store to locations, cutting of M.S. Rod to desired length, preparation of one end as spike if necessary, welding of earth electrode to earth mesh of M.S. Rod as per drawing, application of bitumen compound and covering with bitumen impregnated tape on all welded joints, for the type of soil prevalent at 3.80 meter below top level of foundation (M.S. Rod of above sizes & M.S. Flat as required shall be made available by RVPN)	Metre	20.00	2000	40000.00
	(i) Normal soil				
	(a) In case electricity is made available by RVPN without charges.				
2	ERECTOR OF SUB-STATION STEEL STRUCTURES columns, beams, lighting mast & equipment structures (excluding Circuit breakers & Capacitor banks) of all types including transportation of structure members, nuts & bolts, washers etc. from site store to locations, their assembly, placing on foundation, fixing of template, with foundation bolts as required, leveling & preparing for grouting as required, but excluding grouting, erection after grouting and tightening & punching of nuts & bolts. (Maximum height of structures up to 20 meters)	MT	1744.00	65	113360.00
3	BUS-BAR WORK				
A	Stringing of 220 KV, 132 KV, 33KV, 11KV busbar of ACSR conductor, including transportation of conductor, disc insulators and tension hardware from site store to location, laying and cutting required length of conductor, cleaning and assembly of disc insulators as required with fitting of bolted type or compression type tension hardware as made available (compression machine shall be provided by RVPN on rent free basis), making up at one end, stringing of conductors between the beams with specified sag and tension, also equalizing sag and fitting spacers and spacer T- clamps for twin conductor, for three phases of conductors in each bus-section.				
	(i) Single ACSR Panther	Section	875.00	5	4375.00
	(ii) Single ACSR Zebra	Section	1019.00	7	7133.00
	(iii) Double ACSR Zebra	Section	1469.00	3	4407.00
B	Jumpers of ACSR conductor (three nos. Y-type) between bus to equipment, or between equipment to equipment or between bus to bus, including transportation of conductor, disc insulators and hardware from site store to locations, cleaning and assembly of disc insulators as required along with fitting of suspension hardware and erection as required, cutting required length of conductor, making connections, fixing of spacers & spacer T-clamps as required, tightening of clamps / connectors, dressing, etc. for three phases.				
	(i) Single ACSR Panther / Zebra conductor	Set	250.00	100	25000.00
	(ii) Double ACSR Panther / Zebra conductor	Set	500.00	2	1000.00
	TOTAL				239825.00

B/F		TOTAL			239825.00
4	Stringing of earth wire (size 7/3.15 mm or 7/4.00 mm), including transportation of earth wire , tention hardware etc. from site store to locations, laying and cutting required length of earth wire, fitting of bolted type or compression type hardware as made available (compression machine shall be provided by RVPN on rent free basis), making up at one end , stringing of earthwire between structure peaks with specified sag and tension, jumpering and connecting earth bonds , for single earth wire.	Each	219.00	45	9855.00
5	ERECTION OF SUB STATION EQUIPMENTS				
A	Erection of 33/0.4 KV 500 KVA Station Transformer on existing masnory platform including transportation of transforme & accessories from site store to location erection of horn gap fuse set, jumpering from isolator to horn gap to transformer	Each	2981.00	1	2981.00
B	Erection of current transformer /Potential transformer /Capacitive voltege Transformer/Series reactor/Residual voltage Transformer /Neutral Current Transformer with clamps & connectors ,On already erected steel structure including transportation from site store to locations, fabrication of base frame,fixing of terminal connectors, tightening of nuts & bolts etc. complete in all respects.				
	(ii)132 KV CT/PT/CVT	Nos.	1063.00	21	22323.00
	(iii)33 KV CT/PT/CVT	Nos.	400.00	24	9600.00
C	Erection of Lightning Arrestor on already erected steel structure including transportation of LA , clamps and connectros, surge counter etc. from site store to locations, fabrication of base frame , fixing of terminal connectors, surge counter, tighting of nuts & bolts etc.				
	(ii)132 KV	Nos.	1069.00	9	9621.00
	(iii) 33 KV	Nos.	238.00	18	4284.00
D	Erection of isolators on already erected steel structure including transportation of base frame, PI's, contact, mechnism box, clamps and connectors etc. from site store to locations, minor fabrication as required and fixing of terminal connectors etc., adjustment / alignment of isolator and its earth blade, if provided, for their smooth operation and final adjustment if required after jumpering.				
	(ii) 132 KV				
	(a) without earth blade	Nos.	1950.00	9	17550.00
	(b) With EB	Nos.	2288.00	2	4576.00
	(ii) 33 KV				
	(a) with earth blade	Nos.	1025.00	5	5125.00
	(b) without earth blade	Nos.	688.00	16	11008.00
E	Erection of wave trap on already erected beam, including transportation of wave trap, disc insulators, hardware, clamps and connectors, etc. from site store to location , cleaning & assembling of disc insulators alongwith fitting of suspension arrangement and erection, fixing of terminal connectors, etc.				
	II) 132 KV	Nos.	450.00	4	1800.00
G	Erection of 220 KV or 132 KV or 33 KV Circuit Breakers,including transportation of equipment ,structure members nuts & bolts ,clamps & connectors ,accessories etc. from site store to locations ,assembly of support structure , their placing of foundation, levelling & preparingfor grouting as required , but excluding grouting, assembly / placing of support columns /poles,mechanism box /control cubicle and other accessories as per manufacturer's drawings, fitting of SF6 gas pipeline fabrication of air / oil pipeline as required, electrical wiring from pole to control cubicle. fixing of terminal connectors as required, but excluding commisioning of CB, for all types of operating mechanism as required.				
	(ii)132 KV Circuit Breaker	Nos.	11438.00	4	45752.00
H	33 KV or 11KV Outdoor Type (VCB / SF 6) 33 KV or 11KV Outdoor Type (VCB / SF 6) Erection of 33 KV or 11 KV Circuit Breakers including transportation of equipment, structure members, nuts & bolts, clamps & connectors, etc. from site store to location, assembly of support structure, their placing on foundation, levelling and preparing for grouting as required, but excluding grouting, assembly / placing of poles, mechanism box, etc. on support structure as per manufacturer's drawings, fitting of terminal connectors, etc. but excluding commissioning of CB.				
	(i)33 KV Circuit Breaker	Nos.	5563.00	7	38941.00
I	Erection of Post Insulators on already erectedstructures including transportation of P. i.'s nuts & bolts ,clapms & connectors etc. from site store to locations, fabrication of base frame & assembly if required ,fixing of clamps etc.				
	(i) 132 KV PI	Nos.	500.00	3	1500.00
	(ii) 33 KV PI	Nos.	56.00	6	336.00
C/F		TOTAL			425077.00

B/F		TOTAL			425077.00
J	Erection of 32 KV Class EHV Transformer (tank already placed on foundation with wheels) including transportation of accessories from site store to location, erection of HV, IV, LV & Neutral of bushings, erection of cooler bank with associated pipeline, radiators, fans, pump, main & OLTC conservator, equalising pipe line, marshalling kiosk etc. as per manufacturer's drawing, preparation of oil, oil filling, dehydration of transformer along with cooler bank & diverter switch (Filter machine, oil tank & operating staff shall be provided by RVPN), electrical wiring from individual equipment e.g. buchholz relay, M.O.L.G. OSR, fans, pumps, bushing CT's etc. to marshalling kiosk etc. but excluding testing & commissioning of transformer.				
	a) If electricity is available & arranged by RVPN without charges.				
	i) Transformer Received oil filled	Nos.	31625.00	1	31625.00
6	Erection of control & Relay Panels complete in all respects including transportation from site store to control room, placing on foundation / cable trench as per layout, interconnection between control & relay panels and with existing panels, fixing of side / top covers and doors, earthing to existing earth strip in control room, connection of bus wiring to existing panel and between control & relay panel as required				
	ii) Duplex Panel	Nos.	950.00	4	3800.00
	iii) Simplex Panel, DC Panel, RTCC Panel, PTCC Panel etc.	Nos.	475.00	7	3325.00
	iv) L.T. Panel	Nos.	1306.00	1	1306.00
7	Erection of Marshalling Kiosk/ Line matching unit (LMU) / Line matching & Distribution unit (LMDU) complete in all respect including transportation from site store to locations, placing on foundation / cable trench as per layout, preparing for grouting of foundation bolts but excluding				
	i) 220/132 KV Marshalling kiosk	Nos.	281.00	4	1124.00
	ii) 33 KV Marshalling kiosk	Nos.	144.00	4	576.00
8	Erection of Battery charger complete in all respect including transportation from site store to location, placing on foundation / cable trench as per layout. Etc.				
	ii) 110 Volt DC, 200 AH	Nos.	950.00	1	950.00
9	BATTERY SET				
B	Assemblu, erection and commissioning of Maintenance free VRLA Battery set including transportation of cells, battery stand, nuts & bolts and accessories from site store to battery room, assembly of stand, placing the cells on stand, making their interconnection, initial charging, discharging and final charging as per procedure recommended by battery manufacturer.				
	a) If electricity is available & arranged by RVPN without charges.				
	ii) 110 Volt DC, 200 AH	Nos.	6031.00	1	6031.00
10	LAYING AND TERMINATION OF CABLES				
A	Control Cables				
	i) Laying of PVC insulated unarmoured / armoured control cables of 1.1 KV grade with copper conductor in cable trenches as per specification as required, including transportation of cable drums from site store to locations, laying in cable trenches, cutting to required length, placing them on cable racks / cable trays / cable batten & dressing, including removing and re-fixing trench covers as required, making necessary connections, testing, cable marking on both the terminating ends, etc. as required for all sizes from 2c x 2.5 sq.mm. to 20c x 2.5 sq.mm., 4c x 4				
	a) Unarmoured control cable	Metres	4.00	10000	40000.00
	ii) fixing of control cables in position with single compression nickel plated brass cable glands confirming to IS: 12943 & having three metal washers & one rubber ring including preparation of cable & drilling of corresponding holes in gland plates etc. as required and including post of cable glands, for each cable gland of size.				
	a) 19 mm unarmoured control cable	Nos.	33.00	50	1650.00
	iii) Termination of wires of cables with copper conductor using copper terminal ends (pin or ring type as required of Dowell's or equivalent make as approved by the Engineer - in charge) duly drimped with crimping tool, including making wire ends ready for crimping, ferruling & dressing of wires, etc. as required, including cost of terminal ends for all wires, for each cable at both ends for cables of the following sizes.				
	b) 3c x 2.5 sq.mm.	Each	24.00	25	600.00
	c) 4c x 2.5 sq. mm	Each	32.00	15	480.00
	f) 12c x 2.5 sq.mm.	Each	96.00	30	2880.00
	g) 18c x 2.5 sq.mm.	Each	143.00	20	2860.00
	In case all the wires of any cable are not got terminated, then a deduction at the rate of Rs. 4.00 shall be made for each end of the wires not terminated.				
	i) 4c x 4.0 sq.mm.	Each	43.00	90	3870.00
	In case all the wires of any cable are not got terminated, then a deduction at the rate of Rs. 4.00 shall be made for each end of the wires not terminated.				
A	L.T. Control Cables				
	i) Laying of PVC insulated sheathed armoured / unarmoured L.T. cables of 1.1 KV grade with aluminium conductor as per IS:12355 in ground / cable trenches / well surface including transportation of cable drums from site store to locations, excavation of 30 cm x 75 cm size trenches providing 25 mm thick under layer of sand & 2nd class brick covering & refilling earth in remaining position, fixing as per approved specing by means of M.S.U. clamp etc. as per specification, including making as required of following sizes.				
	c) 3.5 core x 300 sq mm	Metres	40.00	110	4400.00
	ii) fixing of power cable in position with single compression heavy duty nickel plated brass cable glands as per IS: 12943 & having three metal washers & one rubber ring including preparation of cable & drilling of corresponding holes in gland plates etc. including post of cable glands, if required for each cable gland of size.				
	c) 3.5 core x 300 sq mm cable with material	Nos.	181.00	2	362.00
	iii) Termination of wires of cables with aluminium conductor using aluminium terminal ends as per IS: 8309 duly drimped with crimping tool, including making wire ends ready for crimping, ferruling & dressing of wires, etc. as required, including cost of terminal ends is required, for each cable at (4 Nos. per end) for cables of the following sizes.				
	f) 3.5 core x 300 sq mm cable with material	Nos.	372.00	2	744.00
	TOTAL				531660.00
	Add 50 % above on BSR rates				265830.00
	Grand Total				797490.00

(Rs. Seven Lac Ninety Seven Thousand Four Hundred Ninety Only)

Note- Rates are taken as per new BSR for RVPN 01-01-2011.
CLRC premium are taken on CLRC Order 2013.


Executive Engineer (T&C)
RRVPNL, Bikaner


Assistant Engineer-II (T&C)
RRVPNL Bikaner

**G-Schedule for construction of 132 KV S/C Sri Dungeregarh- Ratangarh Tr. Line LILO for 132 KV
GSS Kitarar**

1	2	3	4	5	6
	Discription of Works		Qty	Rate	Amount
1	<u>Detail Survey As per tentative route</u> Which includes the following major activities: Pegging of line route, Providing of survey Pillar at an interval of 3-4 Km in the route with required jungle clearance for survey profile preparation of approved route on graph sheet and marking of offset on either side of the line marking of side clearance for hills sand dunes etc as per specification and tower Scheduling	KM	3	4875.00	14625.00
2	<u>Check Survey as per approved route of line which includes-</u> Re-checking of the line route as per approved profile chainage,tower centre marking pit marking bisection of angle tower as required at site	KM	3	1812.00	5436.00
3	<u>Excavation</u> Excavation excluding backfilling including shoring shuttering dewatering etc upto the required depth as per foundation specification/ drawing				
	(i) Normal soil	CUM	1450.00000	144.00	208800.00
4	<u>Setting of template & Stub /Anchor Bolt</u> Setting of template & Stub/Anchor bolt & removal after concreting excluding cost of excavation and concreting but including backfilling with excavated borrowed earth (with lead & lift) in layers with ramming and watering as per specification				
	(A) 132KV D/C towers up to +6 m. Extn.				
	(i) TTA	NOS	5	1861.00	9305.00
	(iii) TTB	NOS	2	2597.00	5194.00
	(iv) TTD	NOS	3	3014.00	9042.00
	(B) 220 KV D/C towers up to +6 m. Extn.				
	(iv) TTD	NOS	1	4152.00	4152.00
5	<u>CONCRETING</u> Providing and laying cement concrete for all types of foundation as per latest ISS:456 including cement sand, dtone aggregate 20 mm nominal size, water etc., preparing surfaces, shuttering mixing placing ramming,cutting, finishing as per specification and drawings				
	(i) 1:3:6	CUM	20.0000	4746.00	94920.00
	(ii) 1:4:8	CUM	20.0000	4217.00	84340.00
	(iii) 1:2:4	CUM	170.0000	4890.00	831300.00
	6. Steel Reinforcement	MT	2.00000	42795.00	85590.00
6	<u>Earthing:</u> A) Earthing of towers with pipe type Earthing excluding supply of pipes, wires, flats & Connectors but including Coke/Charcoal etc. excavation/auguring and back filling in all types of soil	SET	11	1091.00	12001.00
7	<u>ERECTION OF TOWERS</u> Erection of super structures including D-Schackles, ACD, Hangers,u-bolt, step bolts, danger plate, phase plate number plate etc. Also including tackwelding of bolts &nuts upto bottom cross arm/ beam level including application of Zinc rich paint				
	(A) 132 KV Double circuit Tower				
	(i) Tangent tower (TTA)	NOS	5	7343.00	36715.00
	(ii) Small angle tower (TTB)	NOS	2	10583.00	21166.00
	(iv) TTD	NOS	3	17093.00	51279.00
C/F				TOTAL	1473865.00

B/F				TOTAL	1473865.00
	(B) 220 KV D/C towers				
	(iv) TTD	NOS	1	25270.00	25270.00
8	Erection of 3 meter extension including tack welding of all bolts & nuts and application of Zinc rich paint				
	(A) 132 KV Double circuit Tower				
	(i) Tangent tower (TTA)	NOS	2	1123.00	2246.00
9	Erection of 6 meter extension including tack welding of all bolts & nuts and application of Zinc rich paint				
	(A) 132 KV Double circuit Tower				
	(i) Tangent tower (TTD)	NOS	1	4313.00	4313.00
	(B) 220 KV D/C towers				
	(iv) TTD	NOS	1	6061.00	6061.00
10	Conductor stringing A) Stringing of ACSR Panther including hosting, of Insulator string, laying, Jointing & tensioning, of conductor, clamping with Armour Rods and Fixing of Vibration Dampers per route Km. of the Line				
	i) 6 Conductor D/C Line.	KM	3.000	32148.00	96444.00
11	Earth wire stringing Stringing of galvanized steel standard wire including Laying, jointing & tensioning, clipping and fixing vibration dampers and earth bond etc.				
	i) One no. 7/3.15 mm galvanized wire	KM	3.000	3737.00	11211.00
12	Conductor Restringing A) ReStringing of ACSR Panther including hosting, of Insulator string, laying, Jointing & tensioning, of conductor, clamping with Armour Rods and Fixing of Vibration Dampers per route Km. of the Line				
	i) 3 Conductor S/C Line.	KM	4.256	22079.00	93968.22
13	Earth wire Restringing Re-Stringing of galvanized steel standard wire including Laying, jointing & tensioning, clipping and fixing vibration dampers and earth bond etc.				
	i) One no. 7/3.15 mm galvanized wire	KM	4.256	3737.00	15904.67
14	DISMENTLING OF TOWERS Dismantling of super structures including D-Schackles, ACD, Hangers, u-bolt, step bolts, danger plate, phase plate number plate etc. Also the member piece joint with tackwelding of bolts & nuts upto bottom cross arm/ beam level. same is deposite in site store from loc. to site store with proper stacking of material				
	(A) All type of Tower Material	MT	2.0	3255.00	6510.00
TOTAL					1735792.90
ADD 64 % ABOVE AS PER BSR					1110907.45
GRAND TOTAL					2846700.35

(Rs. Twenty Eight Lacs Forty Six Thousand Seven Hundred Only)

Executive Engineer (T&C)
RRVPL Bikaner


Assistant Engineer-II (T&C)
RRVPL Bikaner