

VISVESVARAYA JALA NIGAM LIMITED

Detailed Project Report

Name of Work: Re Diversion and change in land use of 7.53 Ha forest land for 220 kV Transmission line work of Upper Bhadra Project, Package-1 from diverted forest land of Upper Tunga Project.

1. Preamble:

Upper Bhadra Project Lift Irrigation Scheme was conceived long before and several alternatives to Lift water from Tunga, Bhadra and Tungabhadra rivers to feed waters to the water starved districts Chitradurga, Tumkur, some part of Chikkamagaluru and Davanagere of Karnataka were studied by Water resources Department of Government of Karnataka.

Upper Bhadra Project Lift Irrigation Scheme mainly contemplates diversion of 17.40 TMC of water from Tunga river to Bhadra Reservoir and then further lifting of 29.70 TMC of water from Bhadra Reservoir to Chitradurga, Tumkur, some part of Chikkamagaluru and Davanagere to fill 367 Tanks and to irrigate 2,25,000 Hectare through Micro Irrigation. Upper Bhadra Project, Package-1 Envisages of lifting of 17.40 TMC of water from Tunga river to Bhadra Reservoir costing 324.00 Crores.

This Detailed Project report is necessitated for FOREST CLEARANCE needed for execution of "Arranging power supply to Upper Bhadra Project, Package-1 Lift Irrigation Scheme from Varahi-Shimoga (VS-3) 220 kV existing corridor at Kanagalakoppa village to an extent of 35 MVA in favor of Executive Engineer, Visvesvaraya Jala Nigam Limited, Upper Bhadra Project Division – 2, B R Project"

Below set of documents reference has been considered in this context.

- i. Proceedings of 12th Power Sanction Committee Meeting of Hassan Transmission Zone On 05.04.2018 at 4.30 PM at conference hall, Corporate Office Kaveri Bhavan Bengaluru.
- ii. Letter of Chief Engineer (Electy.) O & M Zone MESCOM, Shivamogga CEE-SZ/EEE(O)/AEE(O)18-19/F- /3485-91 Dated: 14 AUG 2018- reg. Power Sanction for EHT installation

Power to the extent as said above was accorded for the Upper Bhadra Project, Package-1 by the Power Sanction Committee which meeting was held dated: 05.04.2018 as referred above.



On the basis of this meeting Chief Engineer (Ele) MESCOM, Shivamogga has issued the Power sanction vide Reference (2) with following conditions,

- a) Consumer to construct 220 KV DC line with MOOSE Conductor from Kanagalakoppa village limit to proposed 220 KV KPTCL Switching station near Muttinakoppa. This transmission line will be in LILO formation.
- b) LILO formation shall be made on existing 220 KV V3 line by Breaking of it at Kanagalakoppa and transmission line is to be laid from Kanagalakoppa to limits of Substation near Muttinakoppa.

2. Scope:



An Extent of 449.5 Hectares of Forest land in Bhadravathi, Shimoga and Koppa Divisions were diverted to Upper Tunga Project (UTP Reservoir) of Karnataka Neeravari Nigam Limited (KNNL) on 14-12-2004 vide MoEF letter No: F.No. 8-30/97-FC. Since the Alignment of 220 kV Transmission line corridor from tapping point at Sy No. 20 of Kanagalakoppa village in Thirthalli taluk, Shimoga District to Substation near Muttinakoppa village of N.R.Pura taluk, Chikkamagaluru district is overlapping the Upper Tunga Project diverted forest area, a proposal for Change in land Use and Re-Diversion of 7.53 Ha in Shimoga and Koppa forest divisions is being submitting for approval.

3. Approvals :

- i. Power supply approval from Chief Engineer (Ele), Planning and Co-Ordination, Bengaluru vide letter No: CEE (P&C)/SEE (plg)/EEE (Plg)/KCO-89/99883/2019-19/10913-919 Dtd: 20-06-2018.
- ii. Power sanction approval from Chief Engineer (Ele), O&M Shimoga zone, MESCOM, Shimoga vide letter No. CEE-SZ/EEE(o)/AEE(o)/18-19/F/3485-91 Dated: 14-08-2018.
- iii. Detailed Survey Report Approval from Superintending Engineer(Ele), Transmission (W&M) circle, KPTCL, Shimoga vide letter No. SEE(o)/AEEE-1/2019-20/F/594-95. (Annexure-A).

4. Budget:

The work is included in the Annual Programme of Works for the year 2020-21 and provisions have been made. The Detailed Price Breakup has been enclosed vide Annexure-B.


Executive Engineer.
VJNL, UBP Division-2,
 B R Project



Annexure-A

TOWER SCHEDULE

work : Conducting Detailed Survey for Proposed 220kV LILO Transmission D/C line on D/C Towers with AAAC MOOSE Conductor from
e Tapping Point to 220kV Switch Station at Kanabur Stage 1 Pump House

rnataka Power Transmission Corporation Limited

By : M/s.Sew Projects Pvt Ltd

: M/s.Vinayaka Surveyors, Hiriyr

Type of Tower	Angle of deviation	Span in mts	Cumulative chainage in mts	Weight span Hot Curve			GPS Co-ordinates WGS-84 DMS		Crossing details/Remarks	Village limits
Proposed				L	R	T	Northing	Easting		
DD+3	-		0	-	26	26	13° 45' 11.9"	75° 27' 46.1"	Survey Commenced from Existing 220kV Varahi-Shivamogga LILO line in between Existing T.No.83 'AP' and T.No.84 'A' (to be dismantled Proposed DD+3)	Nellisara Camp
		55							Back Water	
DD+3	0°0'0"		55	29	102	131				"
		200							Back Water	
DD+3	0°0'0"		255	98	83	181				"
		200							Back Water	
DD+6	38°16'L		455	117	138	255	13° 45' 6.8"	75° 28' 0.1"		"
		250							Tar road from Shivamogga to Thirthahalli, Back Water	
DD+3	59°0'L		705	112	7	119	13° 45' 0.57"	75° 28' 8.4"		"
		200							-	
DD+18	0°0'0"		905	193	229	422				"
		450							LT line, River, 11kV line	
DD+18	0°0'0"		1355	221	172	393				"
		200							11kV line	
DD+6 9 Cross arm	79°47'R	50	1555	28	166	194	13° 44' 44.8"	75° 28' 23.5"		"
									Back Water	
	0°0'0"		1605	-116	33	-83				

s	Type of Tower	Angle of deviation	Span in mts	Cumulative chainage in mts	Weight span Hot Curve			GPS Co-ordinates WGS-84 DMS		Crossing details/Remarks	Village limits
	Proposed				L	R	T	Northing	Easting		
			155								
4	DB+6	5°53'L		1760	122	169	291	13° 44' 40.1"	75° 28' 19"		"
			285							Back Water	
5	DD+0	40°12'L		2045	116	120	236	13° 44' 32.8"	75° 28' 13.4"		"
			280							Back Water	
6	DB+3	12°6'R		2325	160	123	283	13° 44' 24.4"	75° 28' 13.9"		"
			245							Canal, Service Road	
7	DC+0	17°11'L		2570	122	123	245	13° 44' 16.8"	75° 28' 12.7"		"
			270							Canal and Service Road at left side	
8	DC+3	19°19'L		2840	147	142	289	13° 44' 8.2"	75° 28' 14"		"
			280							LT line, Canal and Service Road at left side	
9	DD+3	30°55'L		3120	138	128	266	13° 44' 0.2"	75° 28' 18.3"		Muttinako ppa
			280							Canal and Service Road at left side	
10	DC+6	22°4'L		3400	152	127	279	13° 43' 54.3"	75° 28' 28.2"		"
			250							Canal and Service Road at left side, Tar road, 11kV line	
11	DC+6	15°43'L		3650	123	145	268	13° 43' 53.5"	75° 28' 33.2"		"
			280							Canal and Service Road at left side	
12	DB+3	0°46'R		3930	135	151	286	13° 43' 54.5"	75° 28' 42.3"		"
			280							Canal and Service Road at left side	
13	DB+3	3°31'R		4210	129	119	248	13° 43' 55.4"	75° 28' 51.6"		"
			250							Canal and Service Road at left side	
14	DC+3	17°5'R		4460	131	103	234	13° 43' 55.7"	75° 28' 59.8"		"
			220							Canal and Service Road	
15	D+3	33°54'R		4680	117	140	257	13° 43' 53.9"	75° 29' 6.7"		"

S	Type of Tower	Angle of deviation	Span in mts	Cumulative chainage in mts	Weight span Hot Curve			GPS Co-ordinates WGS-84 DMS		Crossing details/Remarks	Village limits
	Proposed				L	R	T	Northing	Easting		
			280							Canal and Service Road	
16	DD+3	54°40'L		4960	140	124	264	13° 43' 47.3"	75° 29' 12.6"		"
			280							Canal and Service Road at left side	
17	DD+0 9 Cross arm	69°17'L		5240	156	50	206	13° 43' 48.2"	75° 29' 21.7"		"
			80							Service Road, Pipe line	
18	MD+0	40°57'L		5320	30	97	127	13° 43' 50.8"	75° 29' 22.4"		"
			100							-	
19	DD+0 9 Cross arm	90°0'L		5420	3	-	3	13° 43' 53.8"	75° 29' 20.9"		"
			20							-	
	BAY	-		5440	-	-	-	13° 43' 53.4"	75° 29' 20.4"	Joining to Proposed 220kV Switch Station at Kanabur Stage 1 Pump House	"

ABSTRACT OF TOWERS

Name of work : Conducting Detailed Survey for Proposed 220kV LILO Transmission D/C line on D/C Towers with AAAC MOOSE Conductor from Mandagadde Tapping Point to 220kV Switch Station at Kanabur Stage 1 Pump House

Client : Karnataka Power Transmission Corporation Limited

Submitted By : M/s.Sew Projects Pvt Ltd

Surveyors : M/s.Vinayaka Surveyors, Hiriya

Sl. No.	TYPE OF TOWERS	NORMAL	+3	+6	+9	+12	+18	TOTAL
Proposed 220KV D/C Towers (Gadag-Bagalkot Design)								
1	'DB'	4	3	1	-	-	-	4
2	'DC'	5	2	2	-	-	-	5
3	'DD'	13	8	1	-	-	2	13
4	'DD' 9 Cross arm	3	-	1	-	-	-	3
Total								25 Nos.
Proposed 220KV M/C Towers								
1	'MD'	1	-	-	-	-	-	1
Total								1 Nos.

Note :- 1) For Tower No. 1 to 12, Bunching and Settlement is required due to Back water.
2) Minor deviation if any due to way leave problem that may arise during the execution of the work will be incorporated accordingly.

T. R. Naefakar,
For Vinayaka Surveyors
Hiriya

Assistant Executive Engineer,
V.J.N.L., U.B.P. Sub Division
No. 4 Muttinakoppa

Executive Engineer V.J.N.L.
No.1, Upper Bhadra Project Divisi
Muttinakoppa, Chickmagalore Di

Assistant Engineer Ele,
Major Works Sub-division
KPTCL., Shivamogga

Assistant Executive Engineer Ele.
Major Works Sub-division
KPTCL., Shivamogga

Approved

Executive Engineer Ele.,
Major Works Division
KPTCL., Shivamogga

Superintending Engineer Ele.,
Transmission (W&M) Circle,
KPTCL., Shivamogga

Annexure-B

REVISED PRICE BREAKUP FOR ELECTRICAL WORKS (SUB STATION AND TRANSMISSION LINE).

Name of work : Survey, planning, Investigation, design , Construction, Testing & Commissioning of Lift irrigation scheme including O & M for 5 year for lifting 15TMC of water with a static head of approximately 80 m over a period of 5 months in a year from River Tunga to Bhadra Reservoir including Civil, Electrical & Mechanical works and procurement of power on Lump Sum Turkey basis.

Location:-Arranging Power supply to Liftirrigation scheme **STAGE-1** at kanabur, 220kv Transmission line and 2x35 MVA, 220KV/11KV Substation at Upper Bhadra Project, package-1 Muttinakoppa in Narasimharajapura taluk Chikkamagaluru District.

SL NO	Activity	Unit	Supply			Break up of Transportation cost	Erection	Total
			Unit Rate (Rs)	Quantity	Amount (Rs)	Amount (Rs)	Amount (Rs).	Amount (Rs).
9 (a) i&ii/S-1	Substation and Switch yard							
(i) A	Survey, planning, Investigation, design Drawing approval to KPTCL office as follows . SLD, Layout, 220KV Transmission Line Tower schedule ,Station Earthmate, PTCC documents Submission for both stage-1 in the project.	Nos	4500000	1	4500000	230000	0	4730000
(i) B	SUBSTATION with LILO Bay Extension line							
a	Power Transformers							64478250
(i)	Supply of equipment	Nos	31239125	2	62478250	800000		63278250
(ii)	Erection of equipment	Nos	600000	2	0		1200000	1200000
b	Circuit Breakers							11525000
(i)	Supply of Equipment	Nos	1800000	6	10800000	225000		11025000
(ii)	Erection of equipment	Nos	83333	6			500000	500000
c	Isolators							12650000
(i)	Supply of Equipment	Nos	460000	26	11960000	300000		12260000
(ii)	Erection of equipment	Nos	15000	26			390000	390000
d	Current Transformers							8930000
(i)	Supply of Equipment	Nos	360000	23	8280000	250000		8530000
(ii)	Erection of equipment	Nos	17391	23			400000	400000
e	Voltage Transformers/CVT							7020000
(i)	Supply of Equipment	Nos	360000	18	6480000	250000		6730000
(ii)	Erection of equipment	Nos	16111	18			290000	290000
f	Lighting Arrestors							1056990
(i)	Supply of Equipment	Nos	65632	15	984480	40000		1024480
(ii)	Erection of equipment	Nos	2167	15			32500	32500

SL NO	Activity	Unit	Supply			Break up of Transportation cost	Erection	Total
			Unit Rate (Rs)	Quantity	Amount (Rs)	Amount (Rs)	Amount (Rs).	Amount (Rs).
g	Control And Relay Panels							11796713 ✓
(i)	Supply of Equipment	Nos	1570959 ✓	7 ✓	10996713 ✓	400000 ✓		11396713
(ii)	Erection of equipment	Nos	57143 ✓	7 ✓			400000 ✓	400000
h	Station Equipments GI Structures							6896350 ✓
(i)	Supply of Equipment	set	6356350 ✓	1 ✓	6356350 ✓	200000 ✓		6556350
(ii)	Erection of equipment	set	48571 ✓	7 ✓			340000 ✓	340000
i	Fire Protection Equipment							4425000 ✓
(i)	Supply of Equipment	Nos	2000000 ✓	2 ✓	4000000 ✓	100000 ✓		4100000
(ii)	Erection of equipment	Nos	162500 ✓	2 ✓			325000 ✓	325000
j	Bus Bar with clamp and connectors							2420000 ✓
(i)	Supply of Equipment	Set	2000000 ✓	1 ✓	2000000 ✓	160000 ✓		2160000
(ii)	Erection of equipment	Set	260000 ✓	1 ✓			260000 ✓	260000
k	UG Cable 11Kv, Single core 1000Sqmm Armared out door Type							5391000 ✓
(i)	Supply of Equipment	Set	4820500 ✓	1 ✓	4820500 ✓	124999.5 ✓		4945500
(ii)	Erection of equipment	Set	445500 ✓	1 ✓			445500 ✓	445500
l	Insulators with Hardware							2397500 ✓
(i)	Supply of Equipment	Set	2300000 ✓	1 ✓	2300000 ✓	75000 ✓		2375000
(ii)	Erection of equipment	Set	22500 ✓	1 ✓			22500 ✓	22500
m	Aux. Transformer For 220kv substation							2505920 ✓
(i)	Supply of Equipment	Nos	1214210 ✓	2 ✓	2428420 ✓	42500 ✓		2470920
(ii)	Erection of equipment	Nos	17500 ✓	2 ✓			35000 ✓	35000
n	Battery & Battery charger with DCDB							5849000 ✓
(i)	Supply of Equipment	Set	5700000 ✓	1 ✓	5700000 ✓	29000 ✓		5729000
(ii)	Erection of equipment	Set	120000 ✓	1 ✓			120000 ✓	120000
o	Power and Control Cables							5805250 ✓
(i)	Supply of Equipment	Set	5500000 ✓	1 ✓	5500000 ✓	75000 ✓		5575000
(ii)	Erection of equipment	Set	230250 ✓	1 ✓			230250 ✓	230250

SL NO	Activity	Unit	Supply			Break up of Transportation cost	Erection	Total
			Unit Rate (Rs)	Quantity	Amount (Rs)	Amount (Rs)	Amount (Rs).	Amount (Rs).
p	Station Yard Lighting (Out Door)							
(i)	Supply of Equipment	Set	1200000 ✓	1 ✓	1200000 ✓	12500 ✓		1258550 ✓
(ii)	Erection of equipment	Set	46050 ✓	1 ✓			46050 ✓	46050
q	Earthing System							8254200 ✓
(i)	Supply of Equipment	Set	8000000 ✓	1 ✓	8000000 ✓	70000 ✓		8070000
(ii)	Erection of equipment	Set	184200 ✓	1 ✓			184200 ✓	184200
r	11 Kv Capacitor Bank /11KV Panel for 220kv substation related items							4208925 ✓
(i)	Supply of Equipment	Set	4067800 ✓	1 ✓	4067800 ✓	26000 ✓		4093800
(ii)	Erection of equipment	Set	115125 ✓	1 ✓			115125 ✓	115125
s	SCADA AND SAS SYSTEM FOR 220KV TRANSMISSION LINE AND SUBSTATION.							18160500 ✓
(i)	Erection of equipment	set	250000 ✓	1 ✓			250000 ✓	250000
(ii)	Supply of Equipment	Set	17785000 ✓	1 ✓	17785000 ✓	125500 ✓		17910500
(i) C	CIVIL WORKS							
	Cost of Civil work to switch yard							
a	Site Levelling: a) Supplying all labour, Machineries, Tools and Plants etc., and levelling the switchyard area & the approach Road from main road upto station to the required RL, Line, Grade and Cross section. Work includes cutting in all types of soil and rock including hard rock & Hard laterite by blasting/Chisteling and wedging in areas above FGL and filling the areas lower than FGL with excavated soil in layers not exceeding 250mm loose thickness ,spreading, breaking clods, removal of roots and other organic materials, compacting to 96% Proctor's density using PRR duly adding water and disposing the surplus soil and rock (including stocking) within station premises or outside to any notified areas of the local bodies, making good of the deficit soil for filling from excavations for foundations of equipments, structures etc., complete as per specifications, drawings and directions of Engineer in charge of the work.	NOS	6510000 ✓	1 ✓	6510000 ✓	0	0	6510000 ✓

SL NO	Activity	Unit	Supply			Break up of Transportation cost	Erection	Total
			Unit Rate (Rs)	Quantity	Amount (Rs)	Amount (Rs)	Amount (Rs).	Amount (Rs).
b	<p>Foundations: Design, Engineering, supply of all labour, material and construction of RCC (M20 Grade) footings and pedestals of any section/size including the cost of excavation in all types of soil/rock, back filling with available approved earth or borrowed/new earth, disposal of surplus earth/rock to the places directed, concrete (M20 Grade and Lean concrete 1:4:8), reinforcement steel, form work, grouting, underpinning, foundation strengthening in expansive / B.C soil, curing, sundries and other items not mentioned herein but required for the completion of the work for the following station towers and equipments support structures as per technical specification, approved drawings and directions of the Engineer- in-charge of work.</p> <p>1) Station Structures:</p> <p>i) 220KV Station structure fabricated galvanised iron, column type 2T1, 2T2 with peak CT.PT.CVT, LA, PI, CB, ISO, etc.</p>	set	5000000	1	5000000	0	0	5000000
c	Earth work excavation and back filling for Earth Mat formation as per detailed KPTCL R&D. specification, drawings and directions of the engineer incharge.	NOS	4589000	1	4589000	0	0	4589000
d	<p>Compound com security wall/Retaining wall/ Toe wall:- Engineering and construction of size stone masonry Retaining wall/Toe wall as per specifications, drawings and directions of the Engineer incharge of the work. Items of work involved and quantities are indicated below:</p> <p>Earth work excavation for foundation, pipe line, slopes and drainages in all types of soil & ordinary rock including backfilling with available /new earth in layers of 150mm thick and compacting duly adding water and disposing the surplus soil/rock to the places directed within station premises or outside the premises with all leads and lifts etc complete as per specifications, drawings and directions of the Engineer incharge of the work. (including chain link mesh over the Retaining wall and fixing of Main gates as per drawings)</p>	NOS	6567080	1	6567080	0	0	6567080

SL NO	Activity	Unit	Supply			Break up of Transportation cost	Erection	Total
			Unit Rate (Rs)	Quantity	Amount (Rs)	Amount (Rs)	Amount (Rs).	Amount (Rs).
e	Cable Trenches: Construction of RCC (grade M-20) cable trenches and RCC Hume pipe trenches for required section /size including the cost of excavation in all types of soil/rock , backfilling with available approved earth or borrowed/new earth, disposal of surplus earth to the places directed, concrete (RCCM20 grade and lean concrete 1:4:8) precast RCC covers, form work, curing, water stops, brickworks, wherever required, reinforcement steel, steel angles, flats, plates, cable trays, RCC Hume Pipes NP2 class of required size, sundries and other items not mentioned herein but required for completion of work as per technical specification, approved drawings and directions of the Engineer-in-charge of work i) SSV Type - 1 ,Type-2, Type -3, RCC Cable duct.	set	3712000	1	3712000	0	120000	3832000
f	Transformer foundation and associated rail track including buffal wall :- Design, Engineering, supply of labour, material, equipments and construction of transformer and radiator foundations, rail tracks (Concrete grade M-20) including all associated works, jacking pads, Anchor blocks, MS gratings, gravel filling, pylon support system including the cost of excavation in all types of soil/rock, back filling with available approved earth or borrowed/new earth, disposal of surplus soil/rock to the places directed, concrete (RCC M20 grade and lean concrete 1:4:8), strengthening of foundation in expansive/B.C soil, reinforcement steel, structural steel, form work, grouting , jelly , painting, curing, sundries and other items not mentioned herein but required for the completion of the work as per technical specification, drawing and directions of the Engineer in-charge of work (foundation for radiators and cooling system is only for 35MVA and 250KVA Transformer i) 220KV/11 KV Transformer .Oil drainage sump (Waste oil sump): ii) Providing and constructing oil drainage Sump of 4.5mx4.5mx3.5m in size stone massonary , as per enclosed drawing, specification & directions of the Engineer incharge of the work.	Nos	1500000	2	3000000	0	120000	3120000

SL NO	Activity	Unit	Supply			Break up of Transportation cost	Erection	Total
			Unit Rate (Rs)	Quantity	Amount (Rs)	Amount (Rs)	Amount (Rs)	Amount (Rs)
g	Control Room Building - 25mx10m over all size Construction of Control room building including necessary treatment to sub-soil depending upon the soil condition including providing internal water supply arrangements, electrification to the control room building, providing sanitary arrangements (internal and external) and internal RCC Cable ducts as per enclosed drawing, specifications and directions of engineer in charge of work including cost of all material, labour etc., complete.	Nos	6000000	1	6000000	0	250000	6250000
h	Road Works: Construction of roads and walkways/shoulders within sub-station or outside the station as per specification, layout sectional detail drawing and directions of Engineer-in-charge of work etc. complete in all respect. i) 5 Mtr. and 4Meter Wide Road.	set	3500000	1	3500000	500000	0	4000000
	Sub Total - (A)				219515593	4035500	6076124.65	229627217
9 (b) i&ii/S-1	TRANSMISSION LINE including Terminal Bay at Receiving station							
a	Fabrication and supply of Tower parts and accessories							32683533
(i)	Supply of Equipment	Nos	1113279	27	30058533	750000		30808533
(ii)	Erection of equipment	Nos	69444	27			1875000	1874999.88
b	Supply of Conductor And Accessories							16027500
(i)	Supply of Equipment	km	3850000	36.5	14052500	125000		14177500
(ii)	Erection of equipment	km	50685	36.5			1850000	1849999.945
c	Supply Of Insulators And Accessories							4960800
(i)	Supply of Equipment	Set	4725800	1	4725800	60000		4785800
(ii)	Erection of equipment	Set	175000	1			175000	175000
d	Supply of Earth Wire/ OPGW Cable and Accessories							7232500
(i)	Supply of Equipment	Set	4420000	1	4420000	12500		4432500
(ii)	Erection of equipment	Set	2800000	1			2800000	2800000
e	Construction of Civil works in Transmission line							
	Construction of Civil foundation works	Nos	454628.29	27	12274964	0		12274963.83

SL NO	Activity	Unit	Supply			Break up of Transportation cost	Erection	Total
			Unit Rate (Rs)	Quantity	Amount (Rs)	Amount (Rs)	Amount (Rs).	Amount (Rs).
f	Liasoning work							
	a) CEIG Approval b) Inspection & Clearance For Line and substation Equipment from KTCL, TAQC Approval c) PTCC Approval	Nos	1463350	1	1463350	0	0	1463350
g	Testing and pre commissioning work		3700000	1	3700000	0	0	3700000
h	Commissioning and Trial run		3000000	0	3000000	0	0	3000000
	Sub Total - (B)				73695147	947500	6700000	81342647
	TOTAL (A+B)				293210740	4983000	12776124	310969864
	Grand Total STAGE-1 (Supply + Transportation + Erection)				310969864			



Executive Engineer V.J.N.L.
Executive Engineer V.J.N.L.
No.1, Upper Bhadra Project Division
Muttinakoppa, Chickmagalore Dist.

Superintending Engineer
Superintending Engineer
Visvesvaraya Jala Nigam Limited
Upper Bhadra Project Circle-1,
B.R. Project.

L.I.S Consultant
L.I.S Consultant
VJNL

APPROVED
Chief Engineer
V.J.N.L.U.B.P. Chitradurga