

Name of Work: Construction and commissioning of 132 KV Transmission line from Dhaligaon/GSS to Runikhata/TSS along with construction & commissioning of 132 KV bay extension at Dhaligaon/GSS and modification of 132 KV track crossing & infringement at different locations under Kokrajhar (India) - Gelephu (Bhutan) New Line project (69.05 km) of North-East Frontier Railway.								
Price Variation Formula								
SCHEDULE - A " Supply Part "		Unit	CONCRETE	FERROUS	NON-FERROUS	INSULATOR	GENERAL	ERECTION
SN	Description		T	R	N	I	G	Er
1	Supply of fabricated galvanised steel lattice members for tower superstructure, stub, gantry, bay & equipment structure complete in all respect (excluding bolts, fastener & nuts) as per IS-2062. Design of tower, bay, gantry & equipments structure with details of members drawing should be got approved from authority concern of Railway/AEGCL before starting of work at site for all the location (Tower steel materials will be procured from AEGCL/Rly approved vendor with conducting inspection by concerned Engineer of Rly/AEGCL) Zine coating, mechanical, chemical & metallurgical properties of the materials should conform the parameters of IS.							
a)	M.S steel/HT steel galvanized member of tower.	MT		100%				
2	Supply of galvanised nuts & bolts with spring washer, foundation bolt conforming to IS-2633 1972 and approval and inspection should be done by Railway/AEGCL authority before despatching.	MT		100%				
3	Supply of following items according to approved specification, drg & conducting inspection by Rly/AEGCL Authority before dispatch from factory of approved vender.							
i)	Danger plate for 132 KV as per standard specification.	Nos		100%				
ii)	Phase plate as per standard specification & direction of concerned authority.	Nos		100%				
iii)	Number plates as per standard specification direction of concerned Rly Engineer.	Nos		100%				
iv)	Anticlimbing device for each tower/monopole as per direction of AEGCL/Railway complete with fixing clamps, nut, bolt etc.	Nos		100%				
v)	Supply of bird guard for each tower as per approved drawing & designing of AEGCL/Rly	Nos		100%				
4	Supply of materials for grounding of tower with 50 mm dia, 3.65 mm thick, 06 mtr length medium gauge GI pipe with minim 50X6 mm GI strip, nut, bolt etc of zinc coating measured in micron as per IS, (Materials to be tested by Rly/AEGCL Authority before dispatch)	Nos		100%				
5 a)	Supply of 120 KN disc type antifog insulator with all accessories as per Rly/AEGCL specification & design.	Nos				100%		
b)	Supply of 90 KN disc type antifog insulator with all accessories as per Rly/AEGCL spec. Make - ABI/BHEL/ or any other AEGCL/Rly approved make.	Nos				100%		
6	Supply of following tension/suspension & hardware fittings as per approved drawing & design of AEGCL & conducting test at approved vender's manufacturing premises/Govt recognised Laboratory by Rly/AEGCL Authority.							
i)	Double tension hardware fittings for ACSR panther as per IS -2486 part-I (1974 ) or latest amendment (compression type) as per AEGCL approved design & type.	Set		100%				
ii)	Single tension hardware fittings suitable for ACSR panther as per IS -2486 part-I (1974 ) or latest amendment (compression type) as per AEGCL approved design & type.	Set		100%				
iii)	Double suspension fittings AG type for ACSR panther as per IS -2486 part-I (1974 ) or latest amendment as per AEGCL approved Spec.	Set		100%				
iv)	Single suspension fittings AG type as per IS & AEGCL approved spec.	Set		100%				
v)	Single suspension pilot fittings AG type as per IS & AEGCL approved spec.	Set		100%				

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SN	Description		T	R	N	I	G	Er
7	Supply of conductor ACSR PANTHER size 30/3 00/7/3.00 mm as per IS 398/Pt.II/1996 with suitable machinaries,tools and arrangement ( Conductor will be dispatched from approved manufacturers premises after conducting test by AEGCL/Rly Authority )	Mtr		10%	90%			
8	Supply of mid span compression joint suitable for ACSR panther	Nos			100%			
9	Supply of Repair sleeve suitable for ACSR panther	Nos			100%			
10	Supply of vibration damper 4 R type as per approved drg and spec and conducting test by AEGCL/Rly Authority at approved vendors premises.	Nos		100%				
11	Supply of PG clamp for PANTHER to PANTHER ACSR conductor.	Nos		100%				
12	Supply of 48 Fibre (DWSM) OPGW Fibre optic cable as per standard specification approved drawing & design of AEGCL/Railway.	Km					100%	
13	Supply of Joint Box (48 Fiber) including coiling bracket as per technical requirement and as per approved spec of AEGCL/Rly.	Nos					100%	
14	Supply of FODP 48F: Indoor type, rack mounted with FCPC coupling and pig tails (5 mtrs each) as per approved spec of AEGCL/Rly.	Nos					100%	
15	Supply of Fibre optic approach cable, 48 fibre (DWSM) as per approved spec of AEGCL/Rly.	KM					100%	
16	Supply of Hardware set for above 48 fibre optic approach cable as per approved spec of AEGCL/Rly.	Set					100%	
17	Supply of SDH equipment (STM-4 MADM, upto 3 MSP protected direction) as per approved spec of AEGCL/Rly.							
a)	Supply of Base equipment (common cards, cross connect/control cards, optical base cards, power supply cards, power cabling other hardware & accessories including sub-racks, patch cords DDF, etc. fully equipped including cabinet etc.	Nos					100%	
b)	Supply of Optical interface S4.1	Nos					100%	
c)	Supply of E1 Interface card (Minimum 63 nos.)	Nos					100%	
d)	Supply of internet interface 10/100 Mbps with layer 2 switching (minimum 16 nos.)	Nos					100%	
18	Supply of Drop & Insert Multiplexer as per AEGCL/Rly approved spec & design.	Nos						
a)	Supply of 2 wire (sub/sub) voice channel card	Nos					100%	
b)	Supply of 2 wire (sub/exch) voice channel card	Nos					100%	
c)	Supply of 4 wire E&M voice channel card	Nos					100%	
d)	Supply of Asynchronous sub-channel data card	Nos					100%	
e)	Supply of Synchronous data card N X 64 kbps	Nos					100%	
f)	Supply of Equipment cabinets for SDH equipment, primary multiplexer, drop/insert and DACS.	Nos					100%	
g)	Supply of Software/Hardware (remote)	Nos					100%	
h)	Supply of Software/Hardware (craft terminal)	Nos					100%	
i)	8 commands DTPC	Nos					100%	
j)	Supply of Ethernet Tester with dual port 10/100 Mbps Ethernet option layer 1 & layer 2 functionality	Nos					100%	
k)	Supply of Firewall with deep inspection of IEC 104	Nos					100%	
l)	Supply of OTDR as per AEGCL/Rly approved spec & design.	Nos					100%	
m)	Supply of laser source as per AEGCL/Rly approved spec & design.	Nos					100%	
n)	Supply of optical power metre as per AEGCL/Rly approved spec & design.	Nos					100%	
19	Supply of Vibration Damper for OPGW	Nos					100%	
20	Supply of Down Lead Clamp for OPGW	Nos					100%	
21	Supply of OPGW Tension fitting with earth bond	Nos					100%	

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22	Supply of OPGW Suspension fitting with earth bond	Nos					100%	
23	Supply of Hanger for 132 KV Suspension Tower	Nos						
24 a)	Supply of 76/132 KV single core 400 Sqmm stranded annealed electrolytic copper cable of round wire armoured and screened with extruded semiconducting XLPE insulated compound as per approved spec. of AEGCL/Rly. (Cable to be procured based on approved GTP & spec & after satisfactory testing by Rly/AEGCL). Make- Approved brand of AEGCL/Rly.	Km					100%	
b)	Supply of 3.8/6.6 KV single core 300 Sqmm bonding XLPE copper cable as per approved spec. of AEGCL/Rly. (Cable to be procured based on approved GTP & spec & after satisfactory testing by Rly/AEGCL). Make- Approval brand of AEGCL/Rly.	Mtr					100%	
25	Supply of outdoor straight through joint of 132 KV S/C copper cable of size 400 sqmm as per approved technical specification of Rly/AEGCL	Nos					100%	
26	Supply and erection of 132 KV Dry type self supporting outdoor termination kit with silicon rubber insulator as per AEGCL/rly approved drawing & design	Nos					100%	
27 a)	Supply of 1 Ph Link Box with 3 KV SVL suitable for single core bonding cable of STC capacity 40 KA/3S as per approved GTP and Drawing.	Set					100%	
b)	Supply of 1 Ph Link Box without SVL suitable for single core bonding cable of STC capacity 40 KA/3S as per approved GTP and Drawing.	Set					100%	
28 a)	Supply of HDPE pipe 200mm dia (PN-16.0 grade) for cable protection.	Mtr					100%	
b)	Supply of HDPE pipe 110mm dia (PN-16.0 grade) for cable protection.	Mtr					100%	
c)	Supply of HDPE pipe 40mm dia (PN-16.0 grade) for cable protection.	Mtr					100%	
29	Supply of circuit breaker 132 KV SF6, 3 phase, 3150 Amp, 40 KA (C2-M-2 type with spring-spring mechanism or similar along with all accessories marshalling box etc assembly with support structure complete as per approved technical specification, drawing, design of AEGCL/Rly. Type test should have been completed on the offered model on prior to the opening of tender & should have been under successful operation for at least one year)	Set					100%	
30	Supply of Isolators (3 phase), with core insulator, marshalling boxes, terminal connectors (Motor Operated) with complete moving contact of HDEC copper only. No part of moving contact will be of Aluminium as per approved drawing of Railway/AEGCL							
i)	1250 A, 40 kA with one earth switch (Double break Isolator)	Nos					100%	
ii)	1250 A, 40 kA without earth switch (Double break Isolator)	Nos					100%	
iii)	1250 A, 40 kA without earth switch (Double break Isolator) ( Tandem arrangement)	Nos					100%	
31	Supply of Current transformers 5 core (1 phase) 1200-600-300-150/1-1-1-1-1 A, 5 core 0.2 class, 31.5 kA with 120% extended current rating with marshalling boxes, terminal connectors etc as per approved drawing of Railway/AEGCL	Nos					100%	
32	Supply of 8800 pF CVTs (1 phase) with marshalling boxes, terminal connectors etc as per AEGCL/Railway approved design & specification.	Nos					100%	

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33	Supply of lightening arrester class - III (1 Phase) 120 KV Heavy Duty, Station Class, Gapless as per AEGCL/Rly approved technical specification complete with marshalling box, terminal and connector etc.	Nos					100%	
34	Supply of Line bay materials for 132 KV Main Bus & Transfer Bus complete work including all items.The Main Bus shall be of quad ACSR Moose (s/c, b/c) conductor/bus tubes and Transfer bus ,TBC as well as other Feeder & Jumper shall be strung with double Moose conductor/bus tubes Insulator strings (antifog type) & hardware, spacers, conductor, Bus bar material, BMK (Bay Marshalling Kiosk-One no. for each bay), Clamps, Connectors (Compression type except for IPS Tupe, which may be bolted type) including, Junction box, PVC pipes for equipment and lighting, all accessories etc as per AEGCL approved design & spec.	Set					100%	
35	Supply of 132 KV Soild core type Bus Post Insulators with accessories as per technical specification as per AEGCL/Railway approved design & specification.	Nos				100%		
36	Supply of 132 KV Control, Relay & protection panel (duplex type & with A/R) with numerical distance protection relay and earth fault / over current relays complying to IEC 61850 Protocol with optical fibre ports sufficient DI/DO for scheme with additional 6 DI/DO for spare. All indicating meters and multi function meters shall be communicable types with 0.5 class accuracy with a 12-window annunciator is included for audible and visual alarms as per approved drawing & design of AEGCL/Rly.	Set					100%	
37 a)	Supply of Lighting panel (Outdoor) Type ACP-2 as per approved scheme & design of Rly/AEGCL. Complete with all equipment materials & accessories.	Nos					100%	
b)	Supply of Lighting panel (Outdoor) Type ACP-3 as per approved scheme & design of Rly/AEGCL complete with all equipment materials & accessories.	Nos					100%	
38	Supply of LED integral flood light fitting of pressure die casting alluminium body with IP 66 protection and with high power LEDs, secondary lenses and toughened glass. System efficacy $\geq$ 110/125 LPW including 10 kV SPD complete with control gear/driver and all other accessories 150 watt as per Crompton model:LFLN-150-CDL-60-M or similar complete with connecting cables, fixing arrangements with GI Bracket/Clamp/GI Clamp/GI Plate/Fastners etc. Make Philips/HPL/Crompton/Bajaj/ Havels.	Nos					100%	
39	Supply of IP-66 Powder coated pressure die cast alluminium compact High Power LED street light with heat resistant tuff hand glass with lens street light fitting 45 watt rating.Efficasy $\geq$ 110 LPW, as per Crompton Model No. LSTS-45-CDL-M or similar. Make: Philiphs/Crompton/Bajaj/HPL/Havells.	Nos					100%	

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40	Supply of hot deep galvanized octagonal pole 7 mtr. height conforms to IS complete with arm double/single (90° - 60° - 180° angle) of suitable length as per site condition with provision of electrical connector & control unit comprising of MCB DP 6-32A, 10KA and its fixing accessories, connecting cables 2.5 sq. mm. size twine core suitable for outdoor application from control unit to luminaries & CC foundation with muffing in ratio 1:3:6 of dimension as per site condition and direction of site engineer. Make : Bajaj/CG/Philips/BPP or similar.	Nos		100%				
41	Supply for laying of UG LT Cable 1.1 KV grade, armoured, PVC sheathed, XLPE insulated, stranded aluminium conductor etc conforms to IS 7098 (Pt.I), 1988 with latest amendment (Cables to be inspected by the Rly Engineer/AEGCL at factory premises before delivery). Make : Havells/Polycab/FINOLEX or Similar.							
a)	4 C X 70 sqmm	Mtr					100%	
b)	4 C X 16 sqmm	Mtr					100%	
c)	2 C X 6 sqmm	Mtr					100%	
42	Supply for laying of LT copper control cable 1.1 KV grade, armoured, PVC sheathed, XLPE insulated, stranded copper conductor etc conforms to IS 7098 (Pt.I), 1988 with latest amendment (Cables to be inspected by the Rly Engineer/AEGCL at factory premises before delivery). Make : Havells/Polycab/RR cable/CABCON/FINOLEX.							
a)	2 C X 2.5 sqmm	Mtr					100%	
b)	3 C X 2.5 sqmm	Mtr					100%	
c)	7 C X 2.5 sqmm	Mtr					100%	
d)	10 C X 2.5 sqmm	Mtr					100%	
e)	19 C X 2.5 sqmm	Mtr					100%	
43	Supply for construction of materials for earthing mat with all materials and accessories as well as spikes as per requirement of design as per IEEE standards for complete earthing of grid sub-station with the following. Complete with earth excavation, fitting, dressing etc. as per AEGCL/Rly approved spec & design. (The quantity is tentative and final quantity will depend on actual design):-							
a)	40 mm MS rod for main earth mat	MT		100%				
b)	75X12 mm GI flats for riser for equipments, colume and structures	MT		100%				
c)	Materials for earthing pits with supply of all earthing materials including base plate etc complete in all respect as per technical specifications							
d)	Treated Earthing pits with supply of all materials including a base plate	Nos					100%	
e)	Supply of Untreated Earth pit	Nos					100%	
44	Supply of connection and testing of outdoor type pole/wall mounted cable junction box of following sizes made of thermoplastic polycarbonate (PC-GFS), internally embedded gasket of polyurethane provided with IP65 protection, temperature resistance (- 40° to 120°), Halogen & silicon free resistance, chemical resistance, insulation voltage AC/DC 690 V, class-II protection etc. conforms to IEC 60 439-1 (IS 8623) complete with locknuts, groomet and terminals.							
a)	Cable junction box IP 65 thermo plastic poly carbonate size 210X310X116 as per Hensel model K9105 or similar.	Nos					100%	
Schedule - "B" (Erection, Testing & Commissioning Part)		Unit						
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SN	Description		T	R	N	I	G	Er
1 a)	To carry out the final spot & check survey and submission of report with route & profile drawings of 132 KV OH transmission line for execution of work and execution of peg marking and submission of drawing for the design and type of tower, gantry, GSS bay, structural drg. foundation design and drawing on the basis of soil bearing capacity with approval of concerned AEGCLand RE/Railway Authority.	KM						100%
b)	To carry out the land survey along with 25 mtr wide corridor and for tower base area of proposed 132 KV transmission line to find out land records of land owner/ govt authorities such as khata, khesra, rakwa, jaminbardi, mouza name etc of land owners, valuation of land based on circle rate etc and to prepare all survey related documents and to obtain the verification/approval/genuineness from concerned land official (circle officer/SDM/DM/land aquisition officer) of the state govt. Also if the transmission line comes in forest land then necessary survey to be conducted jointly with forest officers and after going through all documentation and process necessary permission to be obtained from concerned forest departament	KM						100%
2	Carry out exploratory boring as per specification and carry out standard penetration tests as directed by the engineer for the under noted depth below the bed level or below any other level as required during execution of the work with contractor's own labours materials, equipments, plants etc. and submission of report with calculation & result of soil bearing capacity. a) In dry bed or marshy land having water depth up to 1 m above the bed from the bed level upto required depth below bed level	RM						100%
3	Carry out exploratory boring as per specification and carry out standard penetration tests as directed by the engineer for the under noted depth below the bed level or below any other level as required during execution of the work with contractor's own labours materials, equipments, plants etc. and submission of report with calculation & result of soil bearing capacity. a) Extra for collecting undistributed soil sample from any depth and for tests on un-disturbed soil sample. One sample at every 1.5 m depth of bore and change of strata including submission of tests results for taking all soil samples	Each						100%
4	Earth work in excavation for foundation pits of tower, gantry, equipment structural, trench, RCC cable jointing bay etc up to a required depth for normal dry soil including compacted back filling. The pits should be refilled, levelled after completion of foundation works. The excess soil to be removed from the site to a suitable distance from site of tower, gantry, at suitable place as per direction of site Engineer & concerned authority & approved drawing of AEGCL/Rly.	cum						100%
5	Earth work for back filling with good earth (to be arranged & supplied by contractor) inlayers not exceeding 150 mm including raming, watering layer by layer complete with tools, materials,labours carrying etc for area enclosed by revetment wall etc.	cum						100%

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6 a)	Execution of P.C.C/R.C.C foundation in proportion 1: 1.5 : 3 (M-20 ) with maximum size of aggregate 38 mm with shoring, shuttering, batching, mixing, placing, levelling dewatering, pumping etc. for foundation/retaining wall/protection wall/guard wall/RCC cable jointing bay etc and for any other necessary masonry works as per standard procedure and testing of cube. Complete with supply of all materials like cement, sand, chips, clean waters (concrete to be prepared through Mixture machine as per stranded procedure.	cum	90%					10%
b)	Execution of P.C.C/R.C.C foundation in proportion 1: 3 : 6 (M-10 ) with maximum size of aggregate 38 mm with shoring, shuttering, batching, mixing, placing, levelling dewatering, pumping etc. for foundation/retaining wall/protection wall/guard wall and for any other necessary masonry works. as per standard procedure and testing of cube. Complete with supply of all materials like cement, sand, chips, clean waters (concrete to be prepared through Maxine machine as per stranded procedure.	cum	90%					10%
7	Additional P.C.C/R.C.C foundation in proportion with maximum size of aggregate 38 mm with shoring, shuttering, batchning, mixing, placing, levelling dewatering, pumping with suitable pumping etc. for all type of tower foundation, gantry foundation & equipment foundation at GSS, upright etc as per standard procedure. Complete with supply of all materials like cement, sand, chips, clean waters (concrete to be prepared through Maxine machine as per stranded procedure.							
a)	With M-20 grade concrete	cum	90%					10%
b)	With M-10 grade concrete	cum	90%					10%
8	Erection, binding, bending and installation of steel reinforcement of size above 6 mm by TOR/TMT steel and upto 6 mm by MS steel as per drawing & design for foundation of tower gantry, upright etc including cost all materials, loading, unloading, carrying, labour etc. as per requirement at site.	MT		90%				10%
9	Erection, binding, bending and installation of Additional steel reinforcement of size above 6 mm by TOR steel and upto 6 mm by MS steel as per requirement of foundation/retaining wall/RCC slab/side wall/pillar etc as per requirement at site. Including cost all materials, loading, unloading, carrying, labour etc.	MT		90%				10%
10	Supply and laying of Bricks (Common burnt clay non modular Bricks) including filling of joints with sands on a bay of Tower footing and for other masonry works.	Sqmt	90% (equivalent to concrete)					10%
11	Erection ,setting ,Fixing of stub setting angles complete galvanised with cleats fixture each sets consisting of 4 nos. for each tower with using suitable template and as per approved drawing of Rly/AEGCL. (Template will be arranged by contractor by his own arrangement including loading, unloading carrying etc.)							
a)	DA type tower up to + 6 MBE/+9 MBE	Nos						100%
b)	DB type tower up to + 6 MBE/+9 MBE	Nos						100%
c)	DC type tower up to + 6 MBE/+9 MBE	Nos						100%
d)	DD type tower up to + 6 MBE/+9 MBE	Nos						100%
e)	DD type tower up to +12/+15MBE	Nos						100%
f)	220 KV/DD Spl type tower upto +18/25 MBE	Nos						100%

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12	Erection of galvanised lattice steel (HT & MS) for tower superstructure complete in all respect as per IS-2062 including application of suitable paints up to bottom cross arm level. Design of tower with details of members drawing should be got approved from authority concern of Railway/AEGCL before fabrication and starting foundation work at site for all the location. all tower members to be tightened properly with nut & bolt and tack welding of all nuts & bolt up to the height of cross arm.							
a)	DA type tower.	Nos						100%
b)	DB type tower	Nos						100%
c)	DC type tower	Nos						100%
d)	DD type tower	Nos						100%
e)	220 KV DD Spl type tower	Nos						100%
f)	DD type dead end tower.	Nos						100%
13	Erection of galvanised lattice steel (HT & MS) for tower superstructure complete in all respect as per IS-2062 including application of suitable paints up to bottom cross arm level. Design of tower with details of members drawing should be got approved from authority concern of Railway/AEGCL before fabrication and starting foundation work at site for all the location. all tower members to be tightened properly with nut & bolt and tack welding of all nuts & bolt up to the height of cross arm.							
a)	3 mtr body extension for DA type tower	Nos						100%
b)	6/9 mtr body extension for DA type tower	Nos						100%
c)	3 mtr body extension for DB type tower	Nos						100%
d)	6 mtr body extension for DB type tower	Nos						100%
e)	3 mtr body extension for DC type tower	Nos						100%
f)	6 mtr body extension for DC type tower	Nos						100%
g)	3 mtr body extension for DD type tower/DE +3/dwarf tower	Nos						100%
h)	6 mtr body extension for DD type tower	Nos						100%
i)	9 mtr body/+12 mtr extension for DD type tower	Nos						100%
j)	18 mtr body extension 220 KV DD Spl Type tower/+25 MBE	Nos						100%
14 a)	Erection of Danger plate for 132 KV as per standard specification & approved drawing..	Nos						100%
b)	Erection of Phase plate as per standard specification & direction of concerned authority & approved drawing.	Nos						100%
c)	Erection of Number plates as per standard specification direction of concerned Rly Engineer & approved drawing of AEGCL	Nos						100%
d)	Erection of Anticlimbing device for each tower as per direction of AEGCL/Railway.	Nos						100%
e)	Erection of bird guard for each tower as per approved drawing & designing of AEGCL/Rly	Nos						100%
15	Erection and grounding of tower (including measurement of Earth Resistance) with 50 mm dia, 3.65 mm thick,06mtr length,medium gauge with supply of minm 50X6 mm GI strip,nut, bolt etc of zinc coating measured in micron as per IS, and including supply and laying of Chaocoal,salt after soil treatment as per drawing and direction of site Engineer complete with excavation and back filling. (Materials to be tested by Rly/AEGCL engineer before dispatch).	Nos						100%



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SN	Description		T	R	N	I	G	Er
16	Stringing of 132 KV S/C DCSS transmission line with 02 phase ACSR panther conductor (without OPGW & earth wire) complete with all works including stringing of conductor, fittings of hardware hoisting of insulator, erection of armour rods & fixing all other accessories of clamps, sleeve, kits, jumper, VD, guard, jointing etc as required.	RKM						100%
17	Carrying of materials manually from Road/High way to different location of towers.	MTKM						100%
18	Erection, testing & commissioning of 48 Fibre (DWSM) OPGW Fibre optic cable (approach cable) including hardware sets, all cable fittings & accessories (except joint box) as per standard specification approved drawing & design of AEGCL/Railway. .	KM						100%
19	Installation of Hardware assembly of OPGW	Set						100%
20	Erection of Joint Box 2/3/4 way (48 Fiber) including coiling bracket as per technical requirement & approved drawing & design of AEGCL/Railway. .	Nos						100%
21	Installation, Testing & commissioning of communication equipments and to set up communication through OPGW	LS	PV not applicable					
22	Misc expenditure to effect shutdown of EHT/HT/LT OH line from AEGCL/PGCIL etc during stringing of conductor over/adjacent to electric lines of different voltage or during erection of structure near by electric line etc at different times and at different location & for wide publication of notice in news paper, publicity & micing in locality before energisation and commissioning of Transmission. line.	LS	PV not applicable					
23	Trimming of unwanted Trees branches for erection of tower and for stringing of conductor etc.	Nos						100%
24	Laying of entire stretch of approach cable/communication cable through HDPVC conduit pipe from D/E tower to control room of GSS/TSS & connection with communication equipments as per guideline of AEGCL/Rly	Mtr						100%
25	Survey of cable route, preparation of route drawing position & finalizing the cable route in consultation with the Engineer of Rly/AEGCL and submission of X-sectional drawing of cable trench & route alignment drawing and obtain approved from AEGCL/Rly.	Km						100%
26	Laying of 132 KV UG cable as per approved plan, drawing and instruction of site engineer through cable trench/conduits/HDD bore holes etc.	Mtr						100%
27	Erection of outdoor straight through joint of 132 KV S/C copper cable of size 400 sqmm as per approved technical specification of Rly/AEGCL	Nos						100%
28	Erection of outdoor dry type cable termination kit of 132 KV S/C copper cable of size 400 sqmm as per approved technical specification of Rly/AEGCL	Nos						100%
29	Erection of 1 Ph Link Box with 3 KV SVL suitable for single core bonding cable of STC capacity 40 KA/3S.	Nos						100%
30	Erection of 1 Ph Link Box without SVL suitable for single core bonding cable of STC capacity 40 KA/3S.	Nos						100%
31	Construction & fixing of RCC cable marker pillar by M-15 concrete (1:3:4) of size 1.5x0.2x0.2 m showing the details of cable size, voltage grade etc.	Nos	80%	10%				10%

Name of Work: Construction and commissioning of 132 KV Transmission line from Dhaligaon/GSS to Runikhata/TSS along with construction & commissioning of 132 KV bay extension at Dhaligaon/GSS and modification of 132 KV track crossing & infringement at different locations under Kokrajhar (India) - Gelephu (Bhutan) New Line project (69.05 km) of North-East Frontier Railway.								
Price Variation Formula								
SCHEDULE - A " Supply Part "		Unit	CONCRETE	FERROUS	NON-FERROUS	INSULATOR	GENERAL	ERECTION
SN	Description		T	R	N	I	G	Er
32 a)	HDD machine boring (bore dia 200 mm and above) along and across Rly track/Road/High drain/working site/pond/water submerged area etc. at suitable depth of more than 1.5 mtr below the ground level with suitable boring instruments, machines, equipment & necessary arrangement to insert/lay different sizes of pipes depending upon number & size of cable as per technical procedure along with cable pulling.	Mtr						100%
b)	HDD machine boring (bore dia 63 mm to 160 mm) along and across Rly track/Road/High drain/working site/pond/water submerged area etc. at suitable depth of more than 1.5 mtr below the ground level with suitable boring instruments, machines, equipment & necessary arrangement to insert/lay different sizes of pipes depending upon number & size of cable as per technical procedure along with cable pulling.	Mtr						100%
33	Dismantling of existing 132 KV towers by cutting of tower materials with welded bolts, nuts & hardware fittings, insulators etc & loading, unloading on both side including transportation for handing over to 132 KV AEGCL at their depot/store by contractor's own arrangement	MT						100%
34	Release of existing conductors including loading, unloading on both sides for handing over to AEGCL authority at their depot/store by contractor's own arrangement	Mtr						100%
35	Installation, testing & commissioning of circuit breaker 132 KV SF6, 3 phase, 3150 Amp, 40 KA (C2-M-2 type with spring-spring mechanism or similar along with all accessories marshalling box etc assembly with support structure complete as per approved technical specification, drawing, design of AEGCL/Rly. Type test should have been completed on the offered model on prior to the opening of tender & should have been under successful operation for at least one year)							100%
36	Installation, testing & commissioning of Isolators (3 phase), with core insulator, marshalling boxes, terminal connectors (Motor Operated) with complete moving contact of HDEC copper only. No part of moving contact will be of Aluminium as per approved drawing of Railway/AEGCL							
a)	1250 A, 40 kA with one earth switch (Double break Isolator)	Nos						100%
b)	1250 A, 40 kA without earth switch (Double break Isolator)	Nos						100%
c)	1250 A, 40 kA without earth switch (Double break Isolator) ( Tandem arrangement)	Nos						100%
37	Installation testing commissioning of Current transformers 5 core (1 phase) 1200-600-300-150/1-1-1-1-1 A, 5 core 0.2 class, 31.5 kA with 120% extended current rating with marshalling boxes, terminal connectors etc as per approved drawing of Railway/AEGCL	Nos						100%
38	Installation testing commissioning of 8800 pF CVTs (1 phase) with marshalling boxes, terminal connectors etc as per AEGCL/Railway approved design & specification.	Nos						100%
39	Erection, testing and commissioning of lightening arrester class - III (1 Phase) 120 KV Heavy Duty, Station Class, Gapless as per AEGCL/Rly approved technical specification complete with marshalling box, terminal and connector etc.	Nos						100%

Name of Work: Construction and commissioning of 132 KV Transmission line from Dhaligaon/GSS to Runikhata/TSS along with construction & commissioning of 132 KV bay extension at Dhaligaon/GSS and modification of 132 KV track crossing & infringement at different locations under Kokrajhar (India) - Gelephu (Bhutan) New Line project (69.05 km) of North-East Frontier Railway.								
Price Variation Formula								
SCHEDULE - A " Supply Part "		Unit	CONCRETE	FERROUS	NON-FERROUS	INSULATOR	GENERAL	ERECTION
SN	Description		T	R	N	I	G	Er
40	Installation testing commissioning of Line bay 132 KV Main Bus & Transfer Bus complete works as per approved drawing of AEGCL/Rly including all items. The Main Bus shall be of quad ACSR Moose conductor and Transfer bus, TBC as well as other Feeder & Jumper shall be strung with double Moose conductor (S/C, B/C) Insulator strings (antifog type) & hardware, spacers, conductor, Bus bar material, BMK (Bay Marshalling Kiosk-One no. for each bay), Clamps, Connectors (Compression type except for IPS Tupe, which may be bolted type) including, Junction box, PVC pipes for equipment and lighting, all accessories etc including erection of supporting structure, equipment structure, instrumental structure etc.	Nos						100%
41	Installation testing commissioning of 132 KV Solid core type Bus Post Insulators with accessories as per technical specification as per AEGCL/Railway approved design & specification.	Nos						100%
42	Erection of 132 KV Control, Relay & protection panel (duplex type & with A/R) with numerical distance protection relay and earth fault / over current relays complying to IEC 61850 Protocol with optical fibre ports sufficient DI/DO for scheme with additional 6 DI/DO for spare. All indicating meters and multi function meters shall be communicable types with 0.5 class accuracy with a 12-window annunciator is included for audible and visual alarms as per approved drawing & design of AEGCL/Rly.	Nos						100%
43 a)	Erection & commissioning of Lighting panel (Outdoor) Type ACP-2 as per approved scheme & design of Rly/AEGCL. Complete drawing with all equipment materials & accessories.	Nos						100%
b)	Erection & commissioning of Lighting panel (Outdoor) Type ACP-3 as per approved scheme & design of Rly/AEGCL. Complete drawing with all equipment materials & accessories.	Nos						100%
44	Installation testing of LED integral flood light fitting of pressure die casting aluminium body with IP 66 protection and with high power LEDs, secondary lenses and toughened glass. System efficacy $\geq 110/125$ LPW including 10 kV SPD complete with control gear/driver and all other accessories 150 watt as per Crompton model:LFLN-150-CDL-60-M or similar complete with connecting cables, fixing arrangements with GI Bracket/Clamp/GI Clamp/GI Plate/Fastners etc. Make Philips/HPL/Crompton/Bajaj/ Havells.	Nos						100%
45	Testing & fixing of IP-66 Powder coated pressure die cast aluminium compact High Power LED street light with heat resistant tuff hand glass with lens street light fitting 45 watt rating.Efficasy $\geq 110$ LPW, as per Crompton Model No. LSTS-45-CDL-M or similar. Make: Philiphs/Crompton/Bajaj/HPL/Havells.	Nos						100%
46	Erection of hot deep galvanized octagonal pole 7 mtr. height conforms to IS complete with arm double/single (90° - 60° - 180° angle) of suitable length as per site condition with provision of electrical connector & control unit comprising of MCB DP 6-32A, 10KA and its fixing accessories, connecting cables 2.5 sq. mm. size twine core suitable for outdoor application from control unit to luminaries & CC foundation with muffing in ratio 1:3:6 of dimension as per site condition and direction of site engineer. Make Bajaj/CG/Philips/BPP or similar.	Nos						100%

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Price Variation Formula								
SCHEDULE - A " Supply Part "		Unit	CONCRETE	FERROUS	NON-FERROUS	INSULATOR	GENERAL	ERECTION
SN	Description		T	R	N	I	G	Er
47	Laying of UG LT Cable 1.1 KV grade, armoured, PVC sheathed, XLPE insulated, stranded aluminium conductor etc conforms to IS 7098 (Pt.I), 1988 with latest amendment complete with associated accessories like clamps, glands, lugs, feruls, tagging etc. (Cables to be inspected by the Rly Engineer/AEGCL at factory premises before delivery). Make : Havells/Polycab/FINOLEX.							
a)	4 C X 70 sqmm	Mtr						100%
b)	4 C X 16 sqmm	Mtr						100%
c)	2 C X 6 sqmm	Mtr						100%
48	Laying of LT copper control cable 1.1 KV grade, armoured, PVC sheathed, XLPE insulated, stranded copper conductor etc conforms to IS 7098 (Pt.I), 1988 with latest amendment complete with associated accessories like clamps, glands, lugs, feruls, tagging etc. (Cables to be inspected by the Rly Engineer/AEGCL at factory premises before delivery). Make : Havells/Polycab/RR cable/CABCON/FINOLEX.							
a)	2 C X 2.5 sqmm	Mtr						100%
b)	3 C X 2.5 sqmm	Mtr						100%
c)	7 C X 2.5 sqmm	Mtr						100%
d)	10 C X 2.5 sqmm	Mtr						100%
e)	19 C X 2.5 sqmm	Mtr						100%
49	Construction of materials for earthing mat as per approved drawing of Rly/AEGCL with all materials and accessories as well as spikes as per requirement of design as per IEEE standards for complete earthing of grid sub-station with the following. Complete with earth excavation, fitting, dressing etc. (The quantity is tentative and final quantity will depend on actual design):-							
a)	40 mm MS rod for main earth mat.	MT						100%
b)	75X12 mm GI flats for risers for equipments, columns and structures	MT						100%
c)	Materials for earthing pits with supply of all earthing materials including base plate etc complete in all respect as per technical specifications							
i)	Treated Earthing pits with supply of all materials including vbase plate	Nos						100%
ii)	Untreated Earth pit	Nos						100%
50	Fitting fixing, of connection and testing of outdoor type pole/wall mounted cable junction box of following sizes made of thermoplastic polycarbonate (PC-GFS), internally embedded gasket of polyurethane provided with IP65 protection, temperature resistance (- 40° to 120°), Halogen & silicon free resistance, chemical resistance, insulation voltage AC/DC 690 V, class-II protection etc. conforms to IEC 60 439-1 (IS 8623) complete with locknuts, grommet and terminals.							
a)	Cable junction box IP 65 thermo plastic polycarbonate size 210X310X116 as per Hensel model K9105 or similar.	Nos						100%
51	Integration of 132KV bay with SAS at Thakurganj GSS with SCADA design & engineering , SCADA application development and testing, modification in gateway, HMI modification, DR configuration in DRPC for one extension bay etc with the satisfaction of AEGCL	JOB	PV not applicable					