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TENDER NO. BHEL/ NR/SCT/KOSTI/PPG:488

TENDER SPECIFICATIONS

FOR

TENDER FOR THE WORK OF “ERECTION OF RAW WATER(GRP) INTAKE PIPING, FUEL OIL INTAKE PIPING & CONDENSER CW PIPING INCLUDING THEIR PRE-COMMISSIONING CHECKS/TESTS FOR 4 X 125 MW POWER PLANT IN KOSTI, SUDAN”.

PART II – PRICE BID



Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)



**ISO 9001-2000, ISO 14001
and OHSAS 18001 certified
company
SubContract and Purchase
Deptt.**

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northren Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)
Phone: 0091-0120-2515476 / 2515464 / 2515479
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TENDER NO. BHEL/ NR/SCT/KOSTI/PPG:488

IMPORTANT NOTE

PURCHASER OF THIS TENDER DOCUMENT IS ADVISED TO CHECK AND ENSURE COMPLETION OF ALL PAGES OF TENDER DOCUMENT AND REPORT ANY DISCREPANCY TIMELY FOR CORRECTIVE ACTION, IF ANY, TO THE ISSUING AUTHORITY BEFORE THE BIDS ARE SUBMITTED. ORIGINAL COPY/ DOWNLOADED COPY OF TENDER DOCUMENT COMPLETE IN ALL RESPECTS MUST BE SUBMITTED BACK (DULY SIGNED AND STAMPED) AS PART OF THE BID WITHOUT WHICH THE SAME IS LIABLE TO BE REJECTED BY BHEL.

THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northren Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)

PROCEDURE FOR SUBMISSION OF SEALED TENDERS:

The tenderers must submit their tenders as required in two parts in separate sealed covers prominently superscribed as Part-I Technical bid and Part-II ,Price bid also indicating on each of the cover tender specification no., date and time as mentioned in tender notice.

TECHNICAL BID (COVER-I)

Except Price bid Part-II, complete set of tender document consisting of General conditions of Contract, "Technical specifications & Special terms and conditions" (Part-I) issued by BHEL/ downloaded from BHEL website shall be enclosed in Part I Technical Bid only. All schedules, data sheets and details called for in the specification shall also be submitted along with technical bid. All details / Data / Schedules including offer letter duly signed and stamped are to be submitted in duplicate.

PRICE BID (COVER-II)

Tenderers may please note that price bid is to be submitted only in original copy of Tender i.e. Price bid (Part-II) issued by BHEL/ downloaded from BHEL website.

These Two separate covers i.e. cover I & II shall together be enclosed in a third envelope (Cover-III) and this sealed cover shall be superscribed with tender specification No., due date, time and submitted to officer inviting tender as indicated in tender notice on or before due date as indicated.

ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE SCHEDULE CUM BILL OF QUANTITIES	
				TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING	
AA : ITEMS FOR MECHANICAL WORKS					
1	Rate in USD per MT for fabrication of pipes, elbows, fittings etc of different sizes from steel plates issued by BHEL for complete scope of work as per tender specification for CW Piping systems for 4 x 125 MW Kosti TPP.	MT	1950		
2	Rate in USD per MT for handling, erection, testing, commissioning, trial operation and handing over of complete scope of work as per tender specification for CW Piping systems for 4 x 125 MW Kosti TPP.	MT	2100		
3	Rate in USD per SQM for supply & application of wrapping & coating of buried portion of complete scope of work as per tender specification for CW Piping systems for 4 x 125 MW Kosti TPP. (Please refer Clause 43 of SCC. Surface Area of pipe shall be considered for measurement / payment purpose)	SQM	17000		
4	Rate in USD per MT for handling, erection, testing, commissioning, trial operation and handing over of complete scope of work as per tender specification for Raw Water GRP Piping systems for 4 x 125 MW Kosti TPP.	MT	600		
5	Rate in USD per MT for handling, erection, testing, commissioning, trial operation and handing over of complete scope of work as per tender specification for Crude Oil Piping systems for 4 x 125 MW Kosti TPP.	MT	600		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
BB : ITEMS FOR CIVIL WORKS					
100	EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION AND DRAWINGS				
101	Excavation including providing coffer dams, shoring, strutting, sheeting, bracing, draining and pumping out water other than water below ground water table, clearing all grass, vegetation etc. including trimming of excavation bottom, staking, levelling, grading etc. of excavated materials all complete as per specifications, drawings and instructions of the engineer, including a lead(disposal) up to 100 meters and a lift up to 2.0 meters.				
i)	In all types of soils including expansive soil, ash, morrum, laterite	CUM	178100		
102	Extra over item 101 above, for all types of soil/rock (soft rocks only, requiring no chiselling / blasting), for additional lifts beyond the initial lift of 2 meters (included in item 1 above) all complete as per specifications, drawings and instructions of the engineer for the following lifts:				
i)	In all types of soils				
a	beyond 2 m and upto 4 m	CUM	66700		
b	beyond 4 m and upto 7 m	CUM			
103	Extra over item 101 above for excavation below ground water table including lowering of ground water table to maintain dry working conditions for all activities up to filling/testing all complete as per specifications, drawings and instructions of the engineer. However dry working conditions will have to be maintained till completion of all works in excavated area	CUM	1250		
104	Extra over item 101 above for carriage of all types of excavated materials beyond the initial lead of 100 m (included in item 1 above) all complete as per specifications, drawings and instructions of the engineer for the following leads				
i)	Carriage beyond initial lead of 100 m but not exceeding 500 m	CUM	40100		
ii)	Carriage beyond initial lead of 500 m but not exceeding 2 Km	CUM	40000		
iii)	Carriage beyond initial lead of 2 Km but not exceeding 5 Km	CUM	50000		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
iv)	Carriage beyond initial lead of 5 Km but not exceeding 10 Km	CUM	20000		
v)	Carriage beyond initial lead of 10 Km but not exceeding 15 Km	CUM	20000		
105	BACKfilling using selected excavated materials in trenches, plinths, foundations and other underground structures, pipes, etc. in layers not exceeding 200 mm thickness including re-excavation and loading from stock pile, transporting (from a lead upto 1 KM), unloading, filling, watering and compacting/ramming each layer to required degree as mentioned below for all leads and lifts all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
i)	Minimum 85% Standard Proctor density	CUM			
ii)	Minimum 90% Standard Proctor density	CUM	100		
iii)	Minimum 95% Standard Proctor density	CUM	200		
105A	BACKfilling using selected excavated materials directly from excavation area in trenches, plinths, foundations and other underground structures, pipes, etc. in layers not exceeding 200 mm thickness including filling, watering and compacting/ramming each layer to required degree as mentioned below for all leads and lifts etc all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
i)	Minimum 85% Standard Proctor density	CUM			
ii)	Minimum 90% Standard Proctor density	CUM	200		
iii)	Minimum 95% Standard Proctor density	CUM	2000		
106	BACKfilling in trenches, plinths, foundations, and other underground structures, pipes etc using selected soil from borrow areas in layers not exceeding 200 mm in thickness and including excavating, loading, unloading, transporting, filling, watering and compacting/ramming each layer to required degree for all lead and lifts etc all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
i)	With selected soil non expansive soil brought from borow areas arranged by contractor including royalties, fees if any etc.				
a	Minimum 90% Standard Proctor density	CUM	128000		
b	Minimum 95% Standard Proctor density	CUM	11600		

	4X125 MW KOSTI Thermal Power Plant	RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
ii)	With selected sand brought from quarries/river bed arranged by contractor including royalties, fees if any and compacting to minimum 80% relative density etc.	CUM	1000		
106A	Filling using selected materials from borrow areas below foundations and other under ground structures, pipes etc. in layers not exceeding 200 mm in thickness including excavating, loading, unloading, transporting, filling, watering and compacting/ramming each layer etc for all leads and lifts all complete as per specifications, drawings and as directed by the engineer for the following . With selected non expansive soil brought from borow areas arranged by contractor, including royalties, fees etc. if any compacted to 100% Standard Proctor Density	CUM	62400		
200	PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING AND CURING, (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) COMPLETE AS PER DRAWING AND SPECIFICATIONS UNLESS SPECIFIED OTHERWISE FOR THE FOLLOWING: (IN CASE OF UNDERGROUND WATER AGRESSIVENES, SPECIAL CORRESPONDING CEMENT TO BE USED)				
202	Concrete of grade M10 as levelling course , under and around foundations/floors etc with 40 mm nominal size graded aggregate.	CUM	10		
202 A	Concrete of grade M15 as levelling course , under and around foundations/floors etc with 40 mm nominal size graded aggregate.	CUM	30		
203A	Concrete of grade M20 (1 part cement, 2 part sand, 4 parts of 12.5 mm graded aggregate by volume) as under bed to floors etc complete.	CUM	5		
204	Concrete of grade M-25 in foundations, under floors etc complete with 20 mm nominal size graded aggregate.	CUM	1200		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
205	Concrete of grade M-25 in superstructure from finished floor level complete at all heights with 20 mm nominal size graded aggregate	CUM	2		
209	Concrete of grade M-25 in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjusant precast units with M30 concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm).	CUM	1		
210	Concrete of grade M25 in foundation, superstructure of water retaining structures either below or above finished floor level including addition of suitable plastisizer confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and subsequent reduction in cement content upto a maximum 10% complete etc. as per specification with 20 mm nominal size graded aggregate.	CUM	10		
212	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.				
i)	Plain cement concrete of all grades	CUM			
ii)	Reinforced cement concrete of all grades	CUM	1		
214 A	Providing and laying 50mm thick lime powder below earth fill complete as per specifications	SQM	100		

	4X125 MW KOSTI Thermal Power Plant	RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
300	SUPPLYING, FIXING AND REMOVING FORMWORK AT ANY ELEVATIONS FOR ALL STRUCTURES, AS PER SPECIFICATIONS AND INCLUDING ALL LABOUR MATERIAL, SCAFFOLDINGS AND CENTERING COMPLETE INCLUDING POCKETS ETC. FOR THE FOLLOWING:				
301	Ordinary form work below finished ground floor level for foundations, footings, bases of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	1000		
302	Fairface form work below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. for exposed concrete works.	SQM	400		
303	Ordinary form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	20		
304	Fairface form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	100		
400	REINFORCEMENTS				
401	Providing, straightening cutting, bending, placing in position at any level, binding of mild steel reinforcements in concrete including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	1		
402	Providing, straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in concrete including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	20		
500	WATER PROOFING AS PER SPECIFICATIONS. (Contractor has to furnish a guarantee for material and workmanship for a minimum period of 20 years.)				

	4X125 MW KOSTI Thermal Power Plant	RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
504	Providing and mixing approved water proofing compound in concrete or cement mortar for works wherever specified or directed as per specification/manufacturer's instructions, testing of samples for water proofing etc. complete.	KG	5		
600	SUPPLYING & INSTALLATION OF JOINT FILLER AND SEALING COMPOUND:				
601	Supplying & installation of bitumin impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin, labour, material, equipments etc all complete at all levels as per specification, drawings and instruction of engineer in charge:				
a	12mm thick joints.	SQM	1		
b	20mm thick joints.	SQM	1		
c	25mm thick joints.	SQM	1		
700	M.S. EMBEDMENTS				
701	Supply, fabricating and fixing of embedments, MS inserts, pipe sleeves, guide rails, angle pieces, foundation bolts, anchor bolts, rungs of various diameters, plates of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, rivetting, bolting, cutting, drilling, scaffolding and setting as per specifications and drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	1		
800	GROUTING AS PER SPECIFICATION FOR THE FOLLOWING:				
801	Providing & grouting cement slurry mix at any elevation/depth with pressure pump for water retaining concrete structures, including fixing nozzles, cost of approved cement, admixture, curing, etc all complete as per specification and as directed by the Engineer.	SQM	1		

	4X125 MW KOSTI Thermal Power Plant	RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
803	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with mix 1:1(1 part cement : 1part sand) at any elevation including roughening surface, cleaning, ramming, curing etc complete (non-shrink flowable grout as per specification using approved admixture) as per specification and as directed by the Engineer.	CUM	1		
1000A	BLOCK WORKS MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, SCAFFOLDING ETC. COMPLETE AS PER SPECIFICATIONS, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:-				
1003A	Providing and laying 200mm thick block work in cement mortar 1:6 (1cement : 6 coarse sand) consisting of 200mm hollow concrete block for walls, chambers etc. at all heights, places and position above plinth including raking out joints, curing, scaffolding, etc complete but excluding plastering and painting, having compressive strength of 10N/mm2 manufactured as per approved methodolgy and as per specification.	CUM	1		
1004A	Providing and laying 150mm thick block work in cement mortar 1:6 (1cement : 6 coarse sand) consisting of 150mm hollow concrete block for walls, chambers etc. at all heights, places and position above plinth including raking out joints, curing, scaffolding, etc complete but excluding plastering and painting, having compressive strength of 10N/mm2 manufactured as per approved methodolgy and as per specification.	CUM	1		
1000	BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR ETC. COMPLETE, AS PER SPECIFICATIONS. CONTRACTOR WILL HAVE TO SET UP A BRICK MANUFACTURING UNIT OF CAPACITY SUITABLE FOR ALL BRICKWORK ACTIVITIES OF THE ENTIRE PACKAGE. THE UNIT SHALL BE SET UP AS PER SPECIFICATION. LOCALLY AVAILABLE BRICKS CAN BE USED PROVIDED THESE MEET THE STRENGTH / STABILITY PROPERTIES REQUIRED AS PER RELEVANT IS CODES AND CLASS DESIGNATION				

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.				
i)	Using ordinary bricks of class designation 7.5 of nominal dimension	CUM	2		
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.				
i)	Using ordinary bricks of class designation 7.5 of nominal dimension	CUM	1		
1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS LABOUR, SHUTTERING, CENTERING, CURING ETC., COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS.				
1101	Damp Proof Course 50mm thk. 1:1.5:3 concrete (10mm down aggregate) with 2% of approved admixture of water proofing compound. Hot bitumen @ 1.7Kg./sqm shall be applied before & after the DPC as per specification.	SQM	5		
1200	CEMENT MORTAR PLASTER INCLUDING ALL MATERIALS SCAFFOLDING, CURING ETC. COMPLETE AS PER SPECIFICATION				
1201	Providing 12 mm thick plaster in cement mortar 1:6 on walls, finished to a smooth finish as per specification and conforming to IS 1661	SQM	10		
1204	Providing 18 mm thick plaster in two layers in cement mortar 1:6 on walls finished to a wooden float/smooth/rough finish as per specification and conforming to IS 1661	SQM	10		
1300	FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACES, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, SCAFFOLDING ETC. ALL COMPLETE				

	4X125 MW KOSTI Thermal Power Plant	RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
1305	Two or more coats of cement paint (for internal use) of approved brand and manufacture to give an even shade including priming coat complete.	SQM	10		
1312	Providing and applying 2 or more coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	SQM	10		
1800	MISCELLANEOUS				
1801	Providing and fixing PVC water stops 225mm wide, 6 mm thick.	RM	1		
1810	Providing and fixing GI rungs in concrete/brick walls at all elevations including @ zinc coating shall not be less than 900 g/sqm all complete.	KG	3		
2200	SANITARY WORKS				
2207	Supply, laying and jointing 100mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead caulking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	2		
2208	Supply, laying and jointing 150mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, a coat of bitumenous paint, M.S holder bats/clam lead caulking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	2		
2211	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete 250mm dia, as per specifications.	RM	100		
2212	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete 300mm dia , as per specifications.	RM	100		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
2213	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete 500mm dia , as per specifications.	RM	100		
2214	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete 600mm dia , as per specifications.	RM	100		
2218	Providing and fixing C.I Manhole cover of size 600mmx450mm including frame from reputed manufacture all complete as per specifications.	NO.	4		
2300	STRUCTURAL STEEL WORKS				
2301	Supply, fabrication, erection, alignment, welding, primer painting (primer coat consisting of 2 coats of redoxide zinc-chromate as per IS:2074 & IS:1477 (Parts I & II). One coat to be applied at shop and the other after erection) of structural steel made from mild steel conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052 and mild steel rounds, at all elevations involving rolled sections (including mild steel rounds), built up sections fabricated out of plates, rolled sections and combination of plates and rolled sections, in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, shear connectors, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, diaphragm, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails (G.I.), toeplates,	MT	30		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
	posts, stays, louvers, lacings, gusset plates, safety chains for walkways adjacent to crane girders etc, collection of steel from stores, transportation, straightening, making cutting plan, cutting, bending, rolling, grinding, drilling, bolting, erection bolts & nuts (weight erection bolts & nuts not payable, Supply of permanent bolt of grade C mild steel bolts & nuts to be paid separately under ST NO. 2310 (i)), assembly, edge preparation, preheating(& use of low hydrogen/radiogenic electrodes as per specification), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures (Scaffolding, Access ladders, Working Platforms etc.), setting column bases, surface preparation, touch-up painting, dismantling and removal of all temporary structures (weight of temporary structures not payable) complete with all				
	labour, material, electrodes and other consumables, equipment, testing (mechanical and non- destructive), preparation of fabrication drawings, joint design calculations and all other general and special requirements, all other activities required for completion of the work including return of surplus/ waste steel materials to store etc. as per specification, drawings and instructions of the Engineer. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)				
2303	Extra over ST NO. 2301 for providing and application of two coats of primer consisting of chemical resistant epoxy resin and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 m2 area of surface) instead of primer coat of red oxide zinc-chromate, including touch up painting as per specification and instruction of the Engineer.	MT	30		
2304	Treatment of structural steel complete including surface preparation, painting etc complete as per attached write up, specification, drawings and instructions of the Engineer.	MT	30		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL WORKS FOR CW PIPING, GRP AND CRUDE OIL INTAKE PIPING WORKS INCLUDING ALL CIVIL WORKS FOR GRP AND CRUDE OIL INTAKE PIPING			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN USD	AMOUNT IN USD
2310	i) Supplying and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C` as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work complete as per specification, drawings and instructions of the Engineer.	QUINTAL			
	ii) Supply and fixing in positing of high strength structural bolts (of property class 8.8 and product grade `C` as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8` as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work complete as per specification, drawings and instructions of the Engineer.	QUINTAL	1		
NOTES:					
1	In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work, if awarded, will be on the lowest quoted rate obtained against that item.				
2	The rate shall be entered in figures as well as in words. In case of difference in rates between words and figures, the lesser of the two will be treated as valid rate.				
3	The bidders shall enter both `Unit Rate` & `Amount`. In case of any mismatch between `Total Amount based on Unit Rate` & `Total Amount as quoted`, the lower of the two shall be considered for evaluation and award.				
4	The quantities indicated against each item above are tentative and are liable to vary depending upon the site requirement. The contractor has to supply / install actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be adjusted on the basis of quantities actually erected at site & payment will also be regulated accordingly for the same. The contractor confirms that unit rate quoted above takes care of such variations during execution stage.				
5	Evaluation of the bids shall be done based on total price against this BOQ.				
6	Unit Rate` as well as `Amount` against each item to be quoted in USD only.				
7	The piping systems include pipe, bends, valves, H & S, fittings etc. to make the system complete in all respect & payment will be released for above items as per applicable rates against rates for item No. 2, 4 & 5 of rate schedule, for respective piping system. The additional structure & platforms required for completion of piping systems will be payable as per rates against item No. 2301 of rate schedule				