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**TENDER NO. BHEL: NR(SCT):KOSTI:CIVIL(4):412**

**TENDER SPECIFICATIONS**

**FOR**

**CIVIL WORKS FOR BOILERS, ESPS, BOPS ETC. 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)  
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**TENDER NO. BHEL: NR(SCT): KOSTI:CIVIL(4):412**

**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-----

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**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.

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
<b>100</b>	<b>EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION AND DRAWINGS</b>				
101	<b>Excavation</b> 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 <b>a lift up to 2.0 meters.</b>				
i)	In <b>all types of soils</b> including expansive soil, ash, morrum, laterite	CUM	472907		
102	Extra over item 101 above, for all types of soil/rock (soft rocks only, requiring no chiselling / blasting), <b>for additional lifts</b> 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	368489		
b	beyond 4 m and upto 7 m	CUM	53796		
c	beyond 7 m and upto 10 m	CUM	73450		
d	beyond 10 m and upto 15 m	CUM	1530		
103	Extra over item 101 above for excavation below ground water table including <b>lowering of ground water table</b> 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	59000		
104	Extra over item 101 above for <b>carriage of all types of excavated materails</b> 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	122136		
ii)	Carriage beyond initial lead of 500 m but not exceeding 2 Km	CUM	139879		
iii)	Carriage beyond initial lead of 2 Km but not exceeding 5 Km	CUM	108332		

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iv)	Carriage beyond initial lead of 5 Km but not exceeding 10 Km	CUM	197693		
105	<b>BACKFilling using selected excavated materials</b> 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	25049		
ii)	Minimum 90% Standard Proctor density	CUM	39887		
iii)	Minimum 95% Standard Proctor density	CUM	125070		
105A	<b>BACKFilling using selected excavated materials</b> directly from <u>excavation area</u> 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	550		
ii)	Minimum 90% Standard Proctor density	CUM	35106		
iii)	Minimum 95% Standard Proctor density	CUM	54166		
106	<b>BACKFilling</b> 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 <b>selected soil</b> non expansive soil brought from borow areas arranged by contractor including royalties, fees if any etc.				
a	Minimum 90% Standard Proctor density	CUM	145112		
b	Minimum 95% Standard Proctor density	CUM	248648		

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ii)	With <b>selected sand</b> brought from quarries/river bed arranged by contractor including royalties, fees if any and compacting to minimum 80% relative density etc.	CUM	9544		
106A	<b>Filling using selected materials</b> 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	140254		
107	<b>Filling</b> in trenches, plinths, area paving and other underground structures <b>with stone</b> (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer-in-charge.	CUM	15309		
108	<b>Filling</b> in transformer pits etc. , with clean 40 mm nominal size <b>stone aggregate</b> including all labour, materials, royalties, equipments etc. complete as per instructions of engineer in charge.	CUM	100		
109	<b>Buldozing earth</b> for grading of ground including removable of vegetation complete including disposal of debris upto 5 kms.	CUM	102		
110	Cutting of trees, including transportation, stacking at storage yard and disposal of unused material as per the direction of engineer in charge.				
i)	300 mm upto 600 mm girth	Nos.	15		
ii)	601 mm upto 900 mm girth	Nos.	15		
<b>GRADING &amp; LEVELLING</b>					

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111	Earth work in <b>stripping</b> of top soil upto a minimum depth of 0.20m below ground level so as to exclude all debris, grass, vegetation, bushes, trees including roots and organic materials etc for levelling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means including stacking/ disposal of stripped materials/earth, debris, vegetation, bushes, trees etc <b>within a lead of 1km etc</b> all complete as per specification and as directed by the engineer.	SQM	90300		
112	Earth work in <b>cutting (excavation)</b> upto any level in all types of <b>soil and soft rock</b> including ash, laterite, moorum, weathered rock, decomposed rock etc which can be excavated by means of crow bar, pick axe etc but does not require chiselling or blasting for levelling and grading including dressing the sides, levelling to grade and ramming the bottom, stacking/disposal of excavated material <b>within a lead of 1km etc</b> all complete as per specification and as directed by the engineer.	CUM	18360		
114	<b>Disposal</b> of surplus excavated earth beyond an <b>initial lead of 1km and upto a lead of 5km</b> including levelling the disposed material etc all complete as specified and as directed by the engineer.	CUM	5100		
115	<b>Earth work in filling</b> for levelling and grading using approved quality of borrowed cohesive non swelling soil (borrowed earth to be arranged by the bidder at no extra cost to the Owner/BHEL) on prepared surface obtained by compacting with mechanical means including setting out, sorting, breaking clods, handling, transportation, spreading, dewatering if necessary, watering, compaction in layers not exceeding 200mm compacted thickness compacting to a minimum 95% of maximum dry density (modified Proctor test) obtained as per IS:2720, Part VIII, levelling, dressing, finishing to required slopes and grades including all lifts and leads etc all complete as per specification and as directed by the engineer.	CUM	18360		

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116	Providing, stacking and laying 300mm thick <b>boulder pitching</b> on the slopes of earth fill/cut with approved quality of rock fragments including necessary excavation (if any) compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	256		
117	Providing anti termite treatment under floors etc. as per specifications.	SQM	4400		
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)				
201	<b>Concrete of grade M7.5 as filling course</b> at any level below finished floor level, under and around foundations/floors, mass dumps etc with 40 mm nominal size graded aggregate.	CUM	331		
202	Concrete of <b>grade M10 as levelling course</b> , under and around foundations/floors etc with 40 mm nominal size graded aggregate.	CUM	400		
202 A	Concrete of <b>grade M15 as levelling course</b> , under and around foundations/floors etc with 40 mm nominal size graded aggregate.	CUM	15742		
203	Concrete of <b>grade M20</b> in foundations, under floors etc complete with 20 mm nominal size graded aggregate.	CUM	900		
203A	Concrete of <b>grade M20</b> (1 part cement, 2 part sand, 4 parts of 12.5 mm graded aggregate by volume) as <b>under bed</b> to floors etc complete.	CUM	1450		
204	Concrete of grade <b>M-25 in foundations, under floors</b> etc complete with 20 mm nominal size graded aggregate.	CUM	39500		
205	Concrete of grade <b>M-25 in superstructure</b> from finished floor level complete at all heights with 20 mm nominal size graded aggregate	CUM	11041		

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206	Concrete of grade <b>M-25</b> in <b>T.G. Block</b> and machine foundations at all heights from finished floor level <b>except top deck</b> including addition of suitable plasticizer conforming to IS 9103-latest to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate.	CUM	7714		
207	Concrete of grade <b>M-25</b> in <b>top deck</b> of machine foundations including addition of suitable plasticizer conforming to IS 9103-latest to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate.	CUM	50		
208	<b>Screed concrete</b> 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness complete.	CUM	359		
209	Concrete of grade <b>M-25 in precast works</b> 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	1089		
210	Concrete of grade <b>M25 in foundation, superstructure of water retaining structures</b> 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	27750		
211	Concrete of <b>Grade M-20</b> in paving, plinth protection, pipe encasing etc. complete with 20 mm nominal size graded aggregate.	CUM	148		

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212	<b>Dismantling concrete</b> 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	15		
ii)	Reinforced cement concrete of all grades	CUM	36		
213	<b>Chipping of concrete</b> in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement	CUDM	970		
214	Extra over and above St No 213 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge.	SQM	281		
214 A	Providing and laying 50mm thick <b>lime powder</b> below earth fill complete as per specifications	SQM	124500		
215	Providing and adding of ice of approved quality in concrete to maintain concrete tenmperature below 23 degree centigrade	CUM	717		
<b>300</b>	SUPPLYING, FIXING AND REMOVING FORMWORK AT ANY ELEVATIONS FOR ALL STRUCTURES, AS PER SPECIFICATIONS AND INCLUDING ALL LABOUR MATERIAL, SCAFFOLDINGS AND CENTEREING COMPLETE INCLUDING POCKETS ETC. FOR THE FOLLOWING:				
301	<b>Ordinary form work below finished ground floor level</b> for foundations, footings, bases of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	68889		

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302	<b>Fairface form work below finished ground floor level</b> for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. for exposed concrete works.	SQM	30358		
303	<b>Ordinary form work above finished ground floor level</b> for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	4913		
304	<b>Fairface form work above finished ground floor level</b> for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	75029		
306	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm contact surface area with concrete) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.				
i)	Upto 300 mm depth	Nos.	154		
ii)	From 301 mm upto 600 mm depth	Nos.	72		
iii)	From 601 mm upto 1000 mm depth	Nos.	36		
400	REINFORCEMENTS				
401	Providing, straightening cutting, bending, placing in position at any level, binding of <b>mild steel reinforcements</b> in concrete including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings. <b>(Steel shall be supplied free of cost by BHEL as per Clause 39.1)</b>	MT	15		
402	Providing, straightening, cutting, bending, placing at any level, binding in position <b>high yield strength steel reinforcements</b> 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	6985		

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403	Providing, straightening cutting, bending, placing in position at any level, binding of <b>mild steel reinforcements</b> in brickwork 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	6		
404	Providing, straightening, cutting, bending, placing at any level, binding in position <b>high yield strength steel reinforcements</b> in brickwork 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	223		
500	WATER PROOFING AS PER SPECIFICATIONS. (Contractor has to furnish a guarantee for material and workmanship for a minimum period of 20 years.)				
501	<b>Providing and laying roof water treatment with high solid content liquid applied elastomeric water proofing membrane with separate wearing course as per ASTM C-898 . Thickness of membrane shall be min 1.5 mm. Treatment shall include application of polymerized mastic over roof achieving a smooth surface. Wearing course on the top of membrane shall consist of 25 mm thick PCC (1:2:4) cast in panels of maximum size 1.2 X 1.2 m and reinforced with 0.56 mm dia galvanised chicken wire mesh and sealing of joints using sealing compound / elastomeric water proofing membrane complete complete as directed by engineer in charge.</b>	SQM	7479		
502	Providing and laying <b>chequered concrete tiles</b> over water proofing of minimum size 200 X 200 and minimum thickness 22 mm conforming to IS 13801 including 15 mm thick cement mortar (1:4) bedding. (water proofing paid else where)	SQM	400		

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502A	Providing and laying foam concrete block insulation over roofs including minimum 15 mm cement sand plaster finished smooth over foam concrete and providing of expansion joints at intervals as per the recommendation of manufacturer. Thermal conductivity of the foam concrete shall not exceed 0.125 KCL/Sqmh degree C and weight shall be from 0.3 to 0.5 gm/cu.cm, all complete with fillets as per specification.				
a	75 mm thick	SQM	1800		
b	100 mm thick	SQM	100		
503	Providing minimum two coats of bituminous paint on concrete surfaces in contact with soil in water retaining structures, of grade 85/25 conforming to IS: 702 @ 1.7 kg/sqm.	SQM	19900		
504	Providing and <b>mixing</b> approved <b>water proofing compound</b> 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	99500		
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	152		
b	20mm thick joints.	SQM	20		
c	25mm thick joints.	SQM	81		
d	50mm thick joints.	SQM	4		

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602	Supplying and filling in position hot applied bitumin sealing compound(Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints at all levels including application of primer, labour, material, equipments etc. all complete as per specification/drawing, instruction of engineer in charge.	Kg	154		
700	M.S. EMBEDMENTS				
701	<b>Supply, fabricating and fixing of embedments,</b> 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	270		
702	Fixing of <b>embedments, MS inserts, pipe sleeves, rails, guide rails</b> angle pieces, anchor bolts of various diameters, plates of dimensions as required including cost of all labour, materials and equipment for fixing in position, scaffolding and setting in position, transportation from stores within the plant boundary to work spot, loading, unloading etc. complete as per specifications and drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	133		
703	Providing, fabricating, transporting, erecting and installing at all elevations miscellaneous steel/PVC pipes, expansion fasteners in concrete/brickwall, for all kind of works, including the cost of labour, material and equipment, setting material in concrete, layout, scaffolding, handling at site, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete as per drawings and specifications and instructions of engineer.				
i	MS pipes of all diameters	Quintal	14		
ii	PVC conduits of all sizes	Quintal	7		
iii	Expansion fasteners (galvanised) of HILTI make or equivalent of safe tension capacity as specified below:				

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	250 kg	Each	350		
	500 kg	Each	350		
	750 kg	Each	150		
704	Supply, fabrication, transportation, delivery at site, erection, installation and allignment of <b>MS foundation bolt</b> (Grade-1 of IS:432 & IS:2062) assembly in concrete along with nuts, lock nuts (IS:1363, IS:1364 & IS:3138), anchor plates, stiffner plates, protective tape etc. upto and including 80 mm dia, 3000 mm long including furnishing of labour, materials, equipments, welding, cutting, grinding, threading, drilling, pipe sleeves etc. all complete as per specification, drawing and instruction of the engineer.	MT	29		
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	2		
802	Providing and grouting of pocket holes, pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with mix 1:1:2 (one part Cement : 1part Sand : 2 parts of 6mm down graded stone chips) at any elevation including roughening surface, cleaning, ramming, curing etccomplete (non-shrink hand grout using approved admixture) as per specification and as directed by the Engineer.	CUM	20		
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	20		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
804	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection and alignment if necessary, structural steel work, machinery at any elevations including roughening surface, cleaning, ramming, curing, etc with CobextraGP-2/CobextraGP-1/Pidigrout10/Pagel or equivalent all complete as per specifications. (Cost of all material and clearing the pocket by compressed air shall be in the scope of the contractor).	CUM	12		
900	DOORS, WINDOWS, VENTILATORS, LOUVERS, ROOF VENTILATORS, ROLLING SHUTTERS, PARTIONS ETC. COMPLETE AT ALL ELEVATION INCLUDING FRAMING, KICK PLATES, STOPPERS AS PER SPECIFICATION AND DRAWINGS (all steel doors, windows and rolling shutters etc. shall be blast cleaned to near white metal surface (Sa 2 1/2), painted with two coat of red oxide zinc primer and finished with two coats of synthetic enamel paint confirming to IS2074)				
901	Providing, fitting and fixing <b>solid core flush door</b> shutter as per IS2202 part II, 35 mm thick homogeneous particle board (decorative veneer prelaminated on both sides) bonded with BWP type phenol formaldehyde synthetic resin, particle board core conforming to IS3087 type I, 35/12 mm thick teak wood beading all around including preparation of working drawings, butt hinges, tower bolt, sliding bolt handles, knobs, door stoppers (all fitting shall be anodised aluminium color dyed), screws etc complete as per drawing, specification and instructions of engineer in charge.	SQM	54		
901A	Providing and fixing 12 mm thick <b>particle board</b> , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading (excluding the cost of aluminium works).	SQM	8		
902	Providing and fixing openable/fixing <b>steel windows and ventilators</b> with steel sections as per IS:1361 including wire mesh, painting with minimum 2 coats of synthetic enamel paint on primer complete.	SQM	1727		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
903	Providing and fixing <b>steel single or double door</b> shutters. Shutters shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers side, top, bottom edges of shutter shall be of pressed steel channels of 1.2mm thk voids to be filled with mineral wool (48 kg/cum density) including all fittings like tower bolts, handles, stoppers, aldrops etc. and painting with minimum 2 coats of synthetic enamel paint on primer complete.	SQM	814		
904	Providing and fixing <b>fire proof steel doors</b> (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	91		
905	Providing and fixing anodised aluminium work for doors, windows, ventilators and partitions etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, screws or with fixing clips, including necessary fillinf of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-mettalic protection etc.	KG	2476		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
905	including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).				
906	Providing and fixing of <b>over head hydraulic door closers</b> of approved make & quality as directed by Engineer.	Nos	103		
907	Providing and fixing <b>floor mounted Hydraulic door closer</b> of approved make & quality as directed by engineer	Nos	12		
908	Providing and fixing pressed <b>steel frames</b> fabricated from 1.6 mm thk gauge M.S sheet mortised, reinforced strikes, hold fasts, adjustable floor anchors, floor tiles/weather bars etc. complete as per specifications.	KG	20262		
909	Providing and fixing in position <b>rolling shutters</b> of approved make as per IS 6248, made of 80x1.25mm M.S laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, 3coats of approved enamel paint etc., all complete as per specification- <b>Mechanically operated.</b>	SQM	332		
910	Providing and fixing in position <b>rolling shutters</b> of approved make as per IS 6248, made of 80x1.25mm M.S laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, 3coats of approved enamel paint etc., all complete as per specification- <b>Hand operated.</b>	SQM	5		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
911	Providing and fixing in position <b>rolling shutters</b> of approved make as per IS 6248, made of 80x1.25mm M.S laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, 3 coats of approved enamel paint etc., all complete as per specification- <b>Electrically operated.</b>	SQM	177		
912	Providing, fabricating and fixing in position window grills as per approved design pattern at all elevations and of all sizes including with or without openings for operating window handles with all labour, material. Handling, equipment complete etc as per specification, drawing and instructions of engineer in charge.				
i)	Made of anodised aluminium sections	Kg	110		
913	Providing, fitting and fixing of glazing including poly carbonate sheet of superior (selected) quality, first grade class, at various elevations, where required, cleaning after fixing, with all labour and material etc. complete as per specification, drawing and instructions of engineer in charge.				
i)	4 mm clear sheet glass	SQM	53		
ii)	4 mm clear float glass	SQM	33		
iii)	5.5 mm clear float glass	SQM	1491		
iv)	6 mm wired glass	SQM	279		
v)	6 mm thick polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	11		
vi)	5.5 mm tinted glass	SQM	5		
vii)	Two nos. 6 mm thick clear toughened safety glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation.	SQM	68		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
914	Providing, fitting and fixing heavy duty minimum six lever mortised <b>lock</b> of godrej or equivalent make with handles or knobs to single and double leaf door (wooden/steel/aluminium) with duplicate set of keys and masterkeyed locks, openable from one side by the key and from the other side by the handle etc. all complete as per drawing, specification and instruction of engineer in charge.	Each	53		
915	Providing and fixing <b>PVC doors</b> of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	50		
916	Providing and fixing in position of 25 mm wide aluminum Venetian blinds of approved shade with aluminum extruded duly epoxy powder coated top channel including mechanism etc complete as per specifications, drawing and instruction of engineer in charge	SQM	1709		
<b>1000A</b>	<b>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:-</b>				
<b>1003A</b>	Providing and laying <b>200mm thick block work in cement mortar 1:6</b> (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	600		
<b>1004A</b>	Providing and laying <b>150mm thick block work in cement mortar 1:6</b> (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	235		

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		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
<b>1005A</b>	Providing and laying <b>Hollow glass block work</b> of approved quality using suitable binding material as per manufacturers instructions including reinforcing the joints and filling the connections with adjacent concrete block work with fibrous/plastic non load bearing substance etc all complete as per specification.	CUM	90		
<b>1007A</b>	<b>Dismantling existing block work</b> at all level including stacking and removing the <b>debris within a lead of 1Km.</b> , including transportation, loading, unloading, etc all complete and as directed by Engineer.	CUM	45		
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. <b>LOCALLY AVAILABLE BRICKS CAN BE USED PROVIDED THESE MEET THE STRENGTH / STABILITY PROPERTIES REQUIRED AS PER RELEVANT IS CODES AND CLASS DESIGNATION</b>				
1001	Providing <b>brick work</b> 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 <b>below plinth</b> including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.				
i)	Using <b>ordinary bricks</b> of class designation 7.5 of nominal dimension	CUM	131		
1002	Providing <b>brick work</b> in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position <b>above plinth</b> including raking out joints, curing, scaffolding etc complete excluding plastering and painting.				
i)	Using <b>ordinary bricks</b> of class designation 7.5 of nominal dimension	CUM	1873		
1003	<b>Ruled pointing</b> in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	638		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1004	Providing <b>brick work</b> in cement <b>mortar 1:4</b> (1 cement 4 coarse sand) in <b>partition walls</b> , chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing H.B. wetting at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.				
i)	Using <b>ordinary bricks</b> of class designation 7.5 of nominal dimension	SQM	7		
1005	Providing <b>brick soling</b> spreading of earth, ramming, watering including 12mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item). <b>Using brick on edge.</b>				
i)	Using <b>ordinary bricks</b> of class designation 7.5 of nominal dimension	SQM	600		
1006	Providing <b>brick soling</b> including spreading of earth, ramming, watering including 12mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item.).- <b>Using flat bricks.</b>				
i)	Using <b>ordinary bricks</b> of class designation 7.5 of nominal dimension	SQM	466		
1008	<b>Breaking</b> of existing brick <b>work</b> at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	10		
1009	<b>Breaking</b> of existing brick <b>partition wall</b> at all levels including plastering, cutting of reinforcement, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	SQM	10		
1010	Providing and <b>encasing</b> of structural steel member with <b>masonry work</b> around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with checken wire mesh with 50mm lap etc. complete as per specification.	CUM	54		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1012	<b>Making openings</b> in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	80		
1013	Supply and placing in position <b>mild steel wire fabric</b> of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc. complete.	SQM	654		
1014	Providing and filling brick bats in soak pits.	CUM	8		
1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS LABOUR, SHUTTERING, CENTERING, CURING ETC., COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS.				
1101	<b>Damp Proof Course</b> 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	235		
1200	CEMENT MORTOR PLASTER INCLUDING ALL MATERIALS SCAFFOLDING, CURING ETC. COMPLETE AS PER SPECIFICATION				
1201	Providing <b>12 mm thick</b> plaster in cement mortar <b>1:6</b> on walls, finished to a <b>smooth finish</b> as per specification and conforming to IS 1661	SQM	19033		
1202	Providing <b>12 mm thick</b> plaster in cement mortar <b>1:6</b> on walls, with a <b>rough finish</b> as per specification and conforming to IS 1661	SQM	1239		
1203	Providing <b>12 mm thick</b> plaster in cement mortar <b>1:6</b> on walls with a paste of <b>neat cement</b> @1kg/sqm and rubbed smooth with trowel as per specification and conforming to IS 1661	SQM	311		
1204	Providing <b>18 mm thick</b> plaster in two layers in cement mortar <b>1:6</b> on walls finished to a <b>wooden float/smooth/rough finish</b> as per specification and conforming to IS 1661	SQM	18081		
1205	Providing <b>6mm thick</b> plaster in cement mortar <b>1:4 on ceilings</b> finished to a smooth finish as per specification.	SQM	12266		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1206	Providing and making <b>decorative plaster</b> (cement plaster, ratio 1: 6 mortar) over existing plastered surface of all types and design on walls, ceilings, arcs, columns with various thickness upto 20 mm including finishing all complete .	SQM	311		
1207	Providing <b>Plaster of Paris</b> 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	SQM	10034		
1208	Providing <b>screed/grading plaster</b> of average 20 mm thickness in ratio 1:6 nominal by volume including finishing smooth and even etc. all complete at all levels above or below grade level.	SQM	7986		
1208-1	Providing and making <b>decorative interior plaster</b> of heritage finish over existing plastered surface of all types and design on walls, ceilings, arcs, columns including finishing all complete.	SQM	143		
1208-2	Forming groove of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	77		
1208-3	Providing drip coarse on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	246		
1209	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over galvanised hexagonal chicken wire of 0.9 mm wire diameter and 19 mm mesh size as per IS3150 including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (rate shall include the cost of GI chicken wire mesh)	SQM	312		

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<b>1300</b>	<b>FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACES, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, SCAFFOLDING ETC. ALL COMPLETE</b>				
1301	Two or more coats of <b>exterior masonry paint</b> (water or solvent base) of special resins, adhesives and additives mixed with fine, hard stone aggregate and finest available pigment. The paint shall be applied on a coat of primer over dried, prepared plaster surface as manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent, alkali resistant and extremely durable with color fastness as per specification.	SQM	250		
1302	Two or more coats of <b>white wash/ colour wash</b> as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	10153		
1303	Providing and applying two or more coats of <b>oil bound distemper</b> as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline including plaster of paris punning minimum 2 mm.	SQM	11596		
1304	Two or more coats of <b>dry distempering</b> of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	6806		
1305	Two or more coats of <b>cement paint ( for internal use)</b> of approved brand and manufacture to give an even shade including priming coat complete.	SQM	5804		
1306	Providing and applying 2 or more coats of <b>acid/alkali resistant chlorinated rubber paint</b> of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	2162		
1307	Two or more coats of flat oil paint as per IS: 137 or fire resistant transparent <b>paint</b> as per IS: 162 over french polish as per IS: 348 on all woodwork as per specifications.	SQM	103		

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1308	Two or more coats of <b>oil resistant paints</b> epoxy based and ammine cured, 150 micron over primer of approved grade and manufacture to give an even shade.	SQM	820		
1309	Providing and applying two or more coats of <b>acrylic emulsion paint</b> as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline including plaster of paris punning minimum 2 mm.	SQM	7635		
1311	Providing and applying <b>resin bonded granular textured finish, for external applications</b> shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	901		
1312	Providing and applying 2 or more coats of <b>water proof cement paint</b> of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	SQM	16675		
<b>1400</b>	<b>FLOORING AND SKIRTING INCLUDING ALL MATERIALS, LABOUR, CURING, POLISHING, FINISHING, EXPANSION JOINTS, GROOVES, ETC. COMPLETE IN ALL RESPECTS AS SHOWN ON DRAWINGS AND DESCRIBED IN SPECIFICATIONS. (Under bed to be paid seperately under relevant item)</b>				
1401	Providing and laying 40 mm thick <b>heavy duty cement concrete flooring</b> with <b>metallic hardener pigmented topping</b> of 12 mm thick uniform graded treated iron particles <b>in flooring complete as per specification.</b>	SQM	10079		
1402	Providing and laying 25 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles <b>in skirting and dado complete as per specification.</b>	SQM	346		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1404	Providing and Laying Precast Terrazo tiles including preparation of underbed all complete as per specifications	SQM	787		
1406	Providing and laying <b>removable false flooring</b> with fire resistant particle board panels bonded by phenol formaldehyde of size 610X610 mm with all panel edges finished to a tolerance of +- 0.2 mm including 2 mm thick non static PVC top and lipping, supporting arrangement as per specification, drawings and engineer in charge.	SQM	100		
1407	Providing & fixing <b>chemical resistant (Acid &amp; Alkali) Tiles</b> as per IS 4860 of minimum thickness <b>40 mm thick</b> in <b>flooring/Dado</b> . The tiles shall be abrasion resistant and durable. The potassium silicate 6 mm thick mortar as per IS 4832 used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic as per IS 9510 and IS 412 complete as per specification.	SQM	2601		
1408	Providing & fixing <b>chemical resistant (Acid &amp; Alkali) Tiles</b> as per IS 4457 of minimum thickness <b>20 mm thick</b> in <b>flooring/Dado</b> . The tiles shall be abrasion resistant and durable. The potassium silicate as per IS 4832,6 mm thick mortar used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic complete as per IS 9510 and IS 412 and as per specification.	SQM	1032		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1409	Providing & fixing <b>chemical resistant (Acid &amp; Alkali) bricks</b> (75 mm thk) as per IS 4860 in the <b>floor</b> of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing ( epoxy/furane/CNSL ) and acid curing shall be done complete as per specification.	SQM	102		
1410	Providing & fixing <b>chemical resistant (Acid &amp; Alkali) bricks</b> (115 mm thk) as per IS 4860 in the <b>walls</b> of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing ( epoxy/furane/CNSL ) and acid curing shall be done complete as per specification.	SQM	82		
1411	Providing <b>epoxy coating</b> 150 micron <b>over epoxy primer</b> over MS Grating/Chequered plate/any other steel structure complete as per engineer in charge.	SQM	77		
1411A	Providing <b>epoxy coating</b> on operatinf floor as per spec.	SQM	77		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1412	Providing and laying <b>polished Kota stone</b> 20 mm thk in <b>flooring</b> . The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. complete.	SQM	1494		
1413	Providing <b>polished Kota stone</b> 20 mm thk in <b>skirting</b> projecting 6mm from adjacent plaster all complete .	SQM	151		
1414	Providing and laying <b>polished Granite stone</b> of approved color and texture <b>25 mm thk</b> and 600x600 size in flooring with brass dividers of 30x6 mm size at 1.8mx 1.8m intervals. The granite stone slabs/tiles laid over under bed of cement sand mortar (1:3) 15mm thick, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. complete .	SQM	100		
1415	Providing and laying <b>polished Granite stone 20 thk</b> in <b>skirting, facia and dado</b> including pigments, curing, grinding, granite polishing etc. complete.	SQM	25		
1416	Providing and laying 7 mm thk <b>vitriified ceramic tiles of polished variety</b> of size 300x300 from reputed manufacturer, complete as per specification.	SQM	2215		
1417	Providing and laying 7 mm thk <b>vitriified ceramic tiles of unpolished variety</b> of size 300x300 from reputed manufacturer, complete as per specification.	SQM	983		
1418	Providing and laying <b>7 mm thk vitriified ceramic tiles of polished variety</b> of size 300x300 from reputed manufacturer, <b>for skirting and dado</b> up to specified height complete as per specification.	SQM	91		
1419	Providing and laying <b>7 mm thk vitriified ceramic tiles of unpolished variety</b> of size 300x300 from reputed manufacturer, <b>for skirting and dado</b> up to specified height complete as per specification.	SQM	8		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1419 A	Providing and fixing white glazed tiles from reputed manufacturer all complete as per specifications	SQM	878		
1420	Providing and laying <b>granite stone slab</b> of 12mm thickness single piece for wash basin slab, wall of black or approved colour with cutting and opening complete.	SQM	17		
1421	Providing and laying <b>Heavy Duty dust pressed Ceramic Tiles in floors</b> of size 300x300x7mm thick of reputed manufacturer of approved finish shade and colour.	SQM	100		
1422	Providing and laying <b>colored Ceramic Tiles</b> 5mm thick in dado of reputed manufacturer of approved finish shade and colour.	SQM	590		
1423	Providing and laying 40 mm thick heavy duty <b>cement concrete flooring</b> with cement concrete mix 1:2:4 ( 1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded ) with required finish as per specification, drawing and instructions of engineer in charge.	SQM	3090		
1425	Providing and laying of <b>PVC flooring</b> & skirting of minimum thickness 2 mm anti static flexible tiles as per IS 3462 and IS 5318.	SQM	794		
1427	Providing and laying <b>cinder filling</b> in the toilets complete as directed by engineer in charge.	CUM	11		
1428	Providing and laying <b>precast mosaic tiles</b> 20 mm thick of approved shade with marble chips of sizes upto 6 mm laid in floors, skirtings and landings, jointed with neat cement slurry with pigment to match the shade of tiles including rubbing and polishing complete.	SQM	1209		
1429	Providing and laying 12 mm thick cast <b>in situ terrazo finish</b> consisting of marble chips of size 1 mm to 12 mm nominal size laid in white/grey cement or mixture of both in propotion 1:1.5 (1 part cement, 1.5 parts chips) with marble powder 3:1 (3 parts cement, 1 part marble powder) in propotion mix dry in cement including pigments, rubbing, grinding, polishing etc in floors, skirtings, treads, risers and landings complete.	SQM	54		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1430	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.				
i)	Glass strips 40 mm wide and minimum 6 mm thick.	RM	6		
ii)	Aluminium strips 40 mm wide and min 3 mm thick	RM	6		
1500	PROVIDING AND ERECTING ROOFING/SIDE CLADDING INCLUDING LAPS, SCAFFOLDING HOOKS, WASHERS, CORNER PIECES, ETC. COST OF ALL MATERIAL, LABOUR, EQUIPMENT, CLEATS, SHEETING RUNNER, RAILS MILD STEEL WIND TIES (HORIZONTAL/VERTICAL) AND ANY OTHER STEEL WORKS ETC. COMPLETE FOR THE FOLLOWING:				
1501	Designing, providing and fixing permanently color coated galvanised <b>MS troughed metal sheet decking</b> plate over roof purlins as per relevant IS code and specification. Thickness of deck plate shall be minimum 1.2mm (base metal excluding coating), with minimum trough depth of 38 mm, with minimum yeild strength of 240Mpa and shall serve as permanent shuttering to the cast-in-situ roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads during construction spanning between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc.complete as per engineers approval and specification. (height of trough required as per design should be included in the cost). M.S. Trough decking plate shall be connected to the top surface of the purlin, top chord of truss with self tapping self drilling white zinc plated heat treated high carbon steel screws of	SQM	746		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
	min 5.6mm diameter at spacing of 390mm C/c in the trough and sealing it with epoxy sealent including all material, labour, tools, etc complete. In addition shear connector of 16mm dia and min 75mm long mild steel studs at spacing 520mm C/c shall be fixed on top cord of purlin passing through the metal decking. (Note:-Leak proofing of the metal decking and concrete system shall be demonstrated by the contractor). Measurement shall be of the plan area of roof covered by MS trough metal decking. (Fabrication / erection of purlins is excluded from the scope of this item)				
1505	Providing and installing <b>under deck insulation</b> comprising of 50 thick resin bonded mineral wool insulation mat conforming to IS: 8183. This mat shall be backed with minimum 0.05 mm thick aluminium foil and 24Gx25 mm wire mesh netting. This shall be fixed to ceiling or wall as the case may be with 100x50x6 slotted mild steel plaie welded to MS plate inserts embedded at the soffit of the slab at 600 mm c/c and 14 G steel wire drawn through slots and fixed to wire nettingas per specification, drawing and instructions of engineer in charge.	SQM	3886		
1506	Proving and fixing <b>Corrugated GI sheet</b> as cladding/roofing as per IS 277 and minimum grade of galvanisation shall be 450 gm/sqm including all fixing accessories, labour, material, scaffolding etc all complete as per specification, drawing and instructions of engineer in charge.	MT	75		
1507	Proving and fixing <b>profiled aluminium sheet</b> as cladding including all fixing accessories, labour, material, scaffolding etc all complete as per specification, drawing and instructions of engineer in charge.	SQM	308		
1600	PROVIDING AND FIXING FALSE CEILING INCLUDING SUPPLY OF CEILING MATERIAL, WORKING LAYOUT DRAWINGS AND DETAILS, SUSPENSION SYSTEM AND ALL OTHER MATERIALS REQUIRED FOR THE WORK INCLUDING MAKING RECESS FOR LIGHT FIXTURES, ALUMINIUM DIFUSERS, FIRE ALARMS ETC., POLISHING/PAINTINGS, LABOUR ETC., ALL COMPLETE AS PER SPECIFICATION.				

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1601	Providing and fixing glass reinforced gypsum (GRG) ceiling system consisting of supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preperation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.				
i)	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat.	SQM	860		
ii)	12 mm thick GRG board in profile (dome etc.) with galvanised light gauge steel load bearing supporting GI frame and finished flat.	SQM	157		
iii)	12 mm thick GRG board in tile of 600mmX600mm with double web design, galvanised steel with prepainted steel capping of approved shade and color, supporting Tee frame (24mmX38mm).	SQM	16		
1602	Providing and fixing <b>prepainted coil coated steel ceiling</b> system consisting of 0.5mm thick coated (as per IS277) galvanised to grade 180 mild steel (as per IS513), with regular modified polyster coating (DFT-10 microns) of required color and shade on the exposed surface and supporting grid system of roll formed double web design galvanised steel Tees 24mm X 38mm (with prepainted steel capping of approved shade and color) froming panels of specified size, for tile type panels, and roll formed stove enamelled 0.6mm thick steel carrier for fixing of lineal type panels by clip on arrangement, suspended from RCC slab/structural steel or catwalkway steel channel grid above with 4mm (minimum) galvanised wires (rods) with special height adjustment clips, including preperation of working drawings, providing openings for AC ducts, return air grills, light fixtures etc but excluding the cost of catwalkway all complete as per drawings, specifications and instructions of engineer				
i)	Tile type square pattern panels of 600mm X 600mm size with Tee support.	SQM	16		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
ii)	Lineal pattern (closed type) of 100 mm nominal width with carrier support	SQM	16		
1602A	Providing and fixing Lineal Aluminium -Luxalon or equivalent false ceiling (type 84-c interior) with necessary fixtures and fittings all complete as per specifications.	SQM	843		
1700	PROVIDING AND FIXING RAIN WATER DOWN TAKE PIPES INCLUDING 2 COATS OF APPROVED PAINT OVER A PRIMARY COAT, ALL SPECIALS AND ACCESSORIES ETC. COMPLETE AS PER SPECIFICATION.				
1701	<b>GI</b> down take pipes conforming to IS1239/IS3589 as per specification of following dia.				
i)	100 mm dia	RM	79		
ii)	150 mm dia	RM	820		
iii)	200 mm dia	RM	265		
1702	<b>CI</b> down take pipes conforming to IS1230 with lead joints as per specification of following dia.				
i)	100 mm dia	RM	7		
ii)	150 mm dia	RM	236		
iii)	200 mm dia	RM	140		
1800	<b>MISCELLANEOUS</b>				
1801	Providing and fixing <b>PVC water stops</b> 225mm wide, 6 mm thick.	RM	123		
1802	Supplying and installation of <b>25mm thick vibration damping, resilient pads</b> around foundation of vibrating equipment and other locations as directed by the Engineer-in-charge including cost of all materials labour equipment etc. complete as per drawing and specifications.	SQM	16		
1803	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm and down broken stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction and cost of all material, labour all complete as per specification and as directed by the Engineer.	SQM	362		

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		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1803A	Providing 50mm thick anticorrosive layer laid to slope consisting of compacted crushed stone screenings, fine gravel, clean sand or similar material as directed by the Engineer, mixed in hot asphalt 10% by volume and rolled or compacted complete as per drawings and specifications, below fuel oil tanks and at such other places as per specifications and as directed by the Engineer.	SQM	362		
1805	Providing and fixing <b>aluminium strips</b> minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including aluminium screws, rawl plugs all complete as per specification.	RM	129		
1806	Preparation of detail fabrication drawing, supply, fabrication of <b>structural steel</b> (rolled section, built up section or combination), delivery at site, transportation, work in columns, girders, beams ,gantry girders, trusses, purlins, bracings, cleats, shear connectors, chequered plates, gratings, hand rails and other fittings including cutting, grinding, machining (where ever applicable), drilling, bolting (including MS or HSFG bolts and nuts), welding, reheating of welded joints, use of hydrogen/radiographic electrodes, shop coat of paint and touch of paints and final painting including all <b>Non Destructive Tests</b> complete. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	56		
1807	Providing, laying and fixing <b>transformer rails</b> including guide rails in concrete including joining of rails. Anchoring lugs etc. complete as per specification.	MT	17		
1808	Laying of <b>earthing mats/rods</b> including transportation from yard stores, loading, unloading, cutting to length, welding etc. complete as per specification and as directed by Engineer-in-charge. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	62		
1809	Providing and fixing <b>weep holes</b> in Drains consisting of 100 mm dia LDPE pipe sleeves along with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening along with 300 X 300 mm sq., 300 mm deep, 40 mm aggregates to cover fabric mesh mouth complete as directed by engineer in charge.	Nos.	5		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1810	Providing and fixing <b>GI rungs</b> in concrete/brick walls at all elevations including @ zinc coating shall not be less than 900 g/sqm all complete.	KG	2626		
1811	Design, supply, fabrication, erection of <b>stoplog gates in CW/RW and other Pump houses</b> as per specification with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc 750 gms/sqm., following by an application of etching primer and dipping in black bitumen as per B.S. 3416, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc., all complete as per specifications and approved drawings. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose)	MT	45		
1812	Supplying, fabricating, erecting in position and testing / examining bolted and / or welded structural steel work at all levels for <b>stationary screens</b> made out of rolled sections and / or plates including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc as 750 gms./sqm. followed by application of an etching primer and dipping in black bitumen as per BS 3416, complete as per drawing and directed.	MT	10		
1813	Providing and laying dry <b>stone pitching</b> of minimum thickness of 230 mm for slope protection in cement mortar 1:6 with hammer dressed 230 mm size stones including racking of joints, pointing, preparing the bedding surface and voids filling with stone aggregate etc. complete.	CUM	1428		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
1814	Providing and fixing PVC <b>pressure release valve</b> of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 2 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall all complete as per specification, drawing and instruction of engineer in charge.	Nos	204		
1815	Providing and fixing ms vent pipes with cowls as per specifications, drawings and instructions of engineer in charge	KGS	510		
1816	Providing and fixing <b>LDPE pipes</b> in cable duct banks, openings in RCC work at all elevations of following sizes including cutting, fixing and levelling in position as per drawings, specifications all complete.				
	I) 100 mm dia	RM	102		
	ii) 150 mm dia	RM	102		
	iii) 200 mm dia	RM	857		
2000	<b>FENCING AND GATES.</b>				
2001	Supplying and erecting in position 2.5 m high <b>PVC coated gavanised chain linked fencing</b> of minimum 8 gauge (including PVC coating ) of mesh size 75 mm and galvanised concertina . The diameter of the steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing confirming to IS 298 at top of chain link fencing shall be provided with 4 stands of height of 600 mm including all accesories as per specification all complete. Required civil works like excavation & concreting for fencing shall be paid seperately as per respective item rate. Quoted rate for this item shall include erection / fabrication of steel post, supplying & fixing of all accessories like clips, anchors etc.as per drawing. However Material for fabrication of steel post shall be supplied free of cost by BHEL. Drawing for subject shall be provided at site during execution	SQM	949		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
2002	Supplying and fixing <b>G.I. barbed wire in fencing</b> including G.I clips etc. complete as per specification Required civil works like excavation & concreting for fencing shall be paid seperately as per respective item rate. Quoted rate for this item shall include erection / fabrication of steel post, supplying & fixing of all accessories like clips, anchors etc.as per drawing. However Material for fabrication of steel post shall be supplied free of cost by BHEL. Drawing for subject shall be provided at site during execution	MT	1		
2003	Supply, fabrication and installing in position and testing galvanised <b>MS Gates</b> out of channels, joists, angles, flats, plates, pipes & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, ball bearing arrangements, castor wheels,etc. all complete as per drawing, specification and as directed by Engineer-in-charge with 600mm high GI barbed wire fencing at top all complete. GI barbed wire shall be paid as per Item No. 2002	MT	16		
2100	<b>WATER SUPPLY</b>				
2101	Providing and fixing in position tested heavy duty type <b>chromium plated brass long neck bib cocks</b> including sockets, union, nut etc. complete <b>15mm nominal bore.</b>	NO.	57		
2102	Providing and fixing in <b>position heavy duty brass stop cock</b> of approved quality including all specials etc. complete as directed by Engineer <b>15mm nominal bore.</b>	NO.	39		
2103	Providing and fixing in position heavy duty <b>brass full way valve</b> with wheel of approved quality <b>25mm nominal bore.</b>	NO.	32		
2104	Providing and fixing in position heavy duty <b>brass full way valve</b> with wheel of approved quality <b>50mm nominal bore.</b>	NO.	29		
2105	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc. complete (internal work) <b>15 mm nominal bore.</b>	RM	171		
2106	Providing and fixing <b>GI pipes</b> complete with GI fittings a clamps including cutting and making good the walls etc. complete (internal work) <b>20 mm nominal bore.</b>	RM	298		

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<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
2107	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc.complete ( <b>internal work</b> ) <b>25 mm nominal bore (N.B).</b>	RM	308		
2108	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc. complete ( <b>external work</b> ) <b>15mm nominal bore (N.B).</b>	RM	150		
2109	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete ( <b>external work</b> ) <b>20mm nominal bore (N.B).</b>	RM	139		
2110	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete ( <b>external work</b> ) <b>25mm nominal bore (N.B).</b>	RM	94		
2111	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete ( <b>external work</b> ) <b>50mm nominal bore (N.B).</b>	RM	98		
2112	Providing and fixing <b>610mmx453mmx5mm thk mirror</b> from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets etc. complete with CP screws as per specification.	NO.	72		
2113	Providing and fixing <b>610mmx127mmx6mm thk clear glass</b> with <b>C.P Guard rails</b> and mounted on C.P. brackets etc. complete as per specification.	NO.	56		
2114	Providing and fixing <b>20mm dia</b> chromium plated M.S. pipes wall mounted <b>towel rod</b> with C.P. brackets etc. all complete as per specification.	NO.	25		
2115	Providing and fixing <b>C.P. soap holder</b> mounted with C.P. screws etc.complete as per specification.	NO.	78		
2116	Providing and fixing <b>C.P. liquid soap dispenser</b> . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc.complete as per specification.	NO.	78		

	<b>4X125 MW KOSTI Thermal Power Plant</b>	<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
2117	Providing and fixing glazed vitreous wall mounted <b>paper holder</b> with suitable cover cum cutter fitted with CP screws etc. complete as per specification	NO.	23		
2118	Providing and fixing <b>chromium plated brass shower</b> rose with 15 or 20 mm inlet all complete.	No.	21		
2119	Providing & fixing <b>P.V.C. /Polyethylene water tank</b> (Syntex or equivalent) in position of <b>5000 litres</b> capacity conforming to IS 12701. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	2		
2120	Providing & fixing <b>P.V.C. /Polyethylene water tank</b> (Syntex or equivalent) in position of <b>2000 litres</b> capacity conforming to IS 12701. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	3		
2121	Providing & fixing <b>P.V.C. /Polyethylene water tank</b> (Syntex or equivalent) in position of <b>500 litres</b> capacity conforming to IS 12701. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	10		
2122	Providing & fixing <b>P.V.C. /Polyethylene water tank</b> (Syntex or equivalent) in position of <b>1000 litres</b> capacity conforming to IS 12701. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	7		
2200	<b>SANITARY WORKS</b>				
2201	Supply and fixing <b>vitreous china wash basin</b> size 600x450 with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, cutting and making good the walls where required etc. complete as per specifications	NO.	68		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
2202	Providing and fixing approved <b>vitreous china acid/alkali resistant laboratory sink</b> of size 600x450x200mm with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass bottle trap with necessaary union complete including painting the fittings, cutting and making good the wall where required as per specification.	NO.	6		
2203	Providing and fixing colour <b>European type water closet</b> with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre glazed stone water flushing cistern with valveless fittings, necessary C.P connections etc. complete as per specification.	NO.	24		
2204	Providing and fixing Orissa type <b>glazed vitreous china pan</b> conforming to IS2556 ( Part 3)with foot rests and high level 12.5 litre C.I flushing cistern with valveless fittings, necessary C.P connections, foot rests shall be made of white glazed vitreous china with chequered surface allcomplete with cistern painting, C.I brackets etc. as per specification.	NO.	54		
2205	Providing and fixing wall type <b>glazed vitreous china urinals</b> with C.I automatic flushing cistern approximately once every five minutes for every four urinals (max.) with flush pipes, lead pipes, gratings, CP bottle traps and necessary C.P fittings all complete as per specifications.	NO.	73		
2206	Supply, laying and jointing <b>75mm dia heavy duty cast iron pipes</b> including bends, branches and all other necessary fittings, lead cocking, 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	152		
2207	Supply, laying and jointing <b>100mm dia heavy duty cast iron pipes</b> 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	172		

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
2208	Supply, laying and jointing <b>150mm</b> dia heavy duty <b>cast iron pipes</b> 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	131		
2209	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>150mm</b> dia, as per specifications.	RM	213		
2210	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>200mm</b> dia, as per specifications.	RM	216		
2211	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>250mm</b> dia, as per specifications.	RM	216		
2212	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>300mm dia</b> , as per specifications.	RM	1		
2213	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>500mm dia</b> , as per specifications.	RM	63		
2214	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>600mm dia</b> , as per specifications.	RM	31		
2215	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>900mm dia</b> , as per specifications.	RM	3		
2216	Providing, laying light duty non pressure <b>NP2 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. as per specifications for dia:				

<b>4X125 MW KOSTI Thermal Power Plant</b>		<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
i)	150mm	RM	98		
ii)	250mm	RM	125		
iii)	300mm	RM	125		
iv)	400mm	RM	242		
v)	500mm	RM	134		
vi)	600mm	RM	83		
vii)	750mm	RM	67		
2218	Providing and fixing <b>C.I Manhole cover</b> of size <b>600mmx450mm</b> including frame from reputed manufacture all complete as per specifications.	NO.	14		
2219	Providing and fixing circular heavy duty <b>man hole cover of 600mm</b> dia with frame all complete as per specification.	NO.	7		
2220	Providing and fixing <b>square mouth S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size <b>100x100mm</b> P or S Type.	NO.	9		
2221	Providing and fixing square mouth <b>S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size <b>150x100mm</b> P or S Type.	NO.	14		
2222	Providing and fixing square mouth <b>S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size <b>150x150mm</b> P or S Type.	NO.	10		
2223	Providing and fixing <b>C.I. floor traps with C.P jalli</b> complete as per specification.	NO	85		
2224	Providing and installing approved brand single tap <b>water cooler of 80 L</b> cooling capacity complete in all respect.	NO.	11		

	<b>4X125 MW KOSTI Thermal Power Plant</b>	<b>RATE SCHEDULE CUM BILL OF QUANTITIES</b>			
		<b>TOTAL CIVIL WORKS FOR BALANCE OF PLANT PACKAGE INCLUDING BOILER AREA WORKS (EXCLUDING STRUCTUTRAL STEEL WORKS)</b>			
<b>ST. NO</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE IN USD</b>	<b>AMOUNT IN USD</b>
2225	Providing and installing approved brand single tap <b>water cooler</b> of <b>150 L</b> cooling capacity complete in all respect.	NO.	9		
2226	Providing and fixing white vitreous <b>urinal partitions</b> all complete as per specification.	NO.	49		
2701	RIVER FLOW STUDY AND C/S SURVEY  "River flow study will mean finding out the max, min water level, invert level, High flood level, bed soil properties required for construction of channel, optimum angle for chanell wall with the river direction, depth of channel inside the bank etc. This will be required to be done for only half the width of the river".	LS	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.
<b>6</b>	<b>Unit Rate' as well as 'Amount' against each item to be quoted in US Dollars (USD) only.</b>