

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST

Summary (Un-Priced Rate Schedule)

Sl. No.	Item Description	Quantity	Units	Quoted Currency in INR / Other Currency	BASIC TOTAL AMOUNT In Figures To be entered by the Bidder Rs. P	TOTAL AMOUNT (For taxes refer Chapter-VIII of TCC) Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	6	7	7
1	Total Price the entire scope of work as per Tender No. BHEL/CPC/KRW/C_BOP/26/100 for "CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc. for both Units at 2 x 660 MW CSPGCL KORBA WEST TPP, CHHATISGARH, INDIA.".	1.00	Total Price	INR	/	0.000	/
Total in Figures					0.000	0.000	
Quoted Rate in Words							

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1	Handling at site stores / storage yard, transporting to site, inspection, preassembly, erection, alignment, welding, NDT, fixing of hangers & supports, water flushing, hydro testing, surface finish (supply & application of primer & finish paints/ Anti corrosive coating / Wrapping and Coating as applicable) including labelling, marking of flow direction on piping, pre-commissioning for piping and its associated items etc. as directed by Engineer-in-Charge for 'CW & ACW Piping, Butterfly Valves, Air Release Valves, Drain valves, Vent Valves with associated accessories and fittings'. Tentative Pipe Sizes are CW Supply and Return Line: 150 NB, 2300 NB, 3600 NB AND OTHER SIZES AS PER APPROVED DRAWINGS. ACW Supply, Retrun and Recirculation Line: 150 NB, 700 NB. 1000 NB AND OTHER SIZES AS PER APPROVED DRAWINGS. Payment Break up: i. Pre-Assembly: 25% ii. Erection/ Alignment: 25% iii. Welding: 25% iv. NDT: 15% v. Hydro Test: 10%	MT	3980			7.50917265
100	EARTH WORK: Earth work in excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.					
A101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, removing of surface water accumulated due to rain but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	CUM	197892			1.3622566594
b	Depth exceeding 2 m but not exceeding 4 m	CUM	93264			0.8057935293
c	Depth exceeding 4 m but not exceeding 6 m	CUM	35000			0.3786111428
d	Depth exceeding 6 m but not exceeding 8 m	CUM	10000			0.1355694815
e	Depth exceeding 8 m but not exceeding 10 m	CUM	5600			0.0912600365
f	Depth exceeding 10 m but not exceeding 15 m	CUM	100			0.0018754949
A102	Extra over ST No. 101,103,104,105 & 106 for dewatering of ground water by sump pump method as per IS 9759.Ground water table shall be lowered up to 1 m below the founding level to make the site workable for foundation construction till backfilling up to ground level.Mode of measurement shall be the quantity of excavation of soil including ash below ground water table to founding level of the footing.	CUM	51000			0.7911179640
103	Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.					
b	Depth exceeding 2 m but not exceeding 4 m	CUM	2664			0.0361531355
c	Depth exceeding 4 m but not exceeding 6 m	CUM	2664			0.0433837626
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.					
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	130987			1.0397077118
108	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected earth directly from excavation within a lead upto 1Km and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following:					
b	at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	57435			0.2501341226
A108	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected earth directly from excavation within a lead upto 1Km and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following:					
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	24047			0.0979700936
109	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.					
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	1404290			1.4796285019
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	449961			0.4741008768
A111	Supplying and filling clean and well graded natural river sand (conforming to IS 383 with grading zone I to III) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	350			0.0445728573
B111	Supplying and filling clean and well graded Crushed stone sand (conforming the deleterious materials as per Table-2 of IS-383 & also confirming the grading zone I to III as per Table-9 of IS-383-2016) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	6432			0.6415625521
C111	Supplying and filling clean and well graded Crushed stone sand (conforming the deleterious materials as per Table-2 of IS-383 & also confirming the grading zone I to III as per Table-9 of IS-383-2016) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 200mm compacted thickness and compacted so as to achieve at least 85% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	380			0.0379032602
112	Extra over item no. A101 for shoring and strutting in trenches including packing cavities (wherever required as instructed by engineer) all complete as per specification and as directed by engineer in charge.					
a	upto depth of 2m	SQM	200			0.0048186873
b	Depth exceeding 2 m but not exceeding 4 m	SQM	200			0.0060268713
200	CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.					
201	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level upto depth of 10m from FGFL (Finished Ground Floor Level) . (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	8481			2.4079529598
202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level upto depth of 10m from FGFL (Finished Ground Floor Level) . (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	265			0.0752396574

PART-B

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BOQ CUM RATE SCHEDULE (PRICE BID)

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ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
203	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level upto depth of 10m from from FGFL (Finished Ground Floor Level). (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	748			0.2123745801
204	Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 10-20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete below finished floor level upto depth of 10m from from FGFL (Finished Ground Floor Level). (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224).	CUM	573			0.1598705570
A205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc for any shape, position or thickness etc complete including use of high performance PCE-based BIS approved water reducing admixture of Type-G/F as per ASTM C-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing below finished ground floor level (FGFL) upto a depth of 10m from FGFL (For depths greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224), for the following:					
a	M 20 Grade	CUM	11200			3.4041567060
b	M 25 Grade	CUM	36509			11.1504937645
c	M30 Grade	CUM	603			0.1852257729
d	M 35 Grade	CUM	61			0.0188404350
A206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in superstructure for any shape, position or thickness etc complete including use of high performance PCE-based BIS approved water reducing admixture of Type-G/F as per ASTM C-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing upto 10m level above FGFL (Finished Ground Floor Level) (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 225), for the following.					
b	M 25 Grade	CUM	4834			1.5246059603
c	M 30 Grade	CUM	706			0.2238571045
A211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Wire mesh to be paid separately)					
a	M 20	CUM	34			0.0096533900
b	M 25	CUM	40			0.0113569294
212	Screed concrete conforming to IS 456 with sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof upto 10m level above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 225) or thickness, drains etc complete as per following.					
a	01:02:04	CUM	421			0.1195316821
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete 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 adjacent precast units with M30 grade 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) and as per specification and drawing for following grades.					
b	M25	CUM	125			0.0655896391
c	M 30	CUM	398			0.2095363312
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives conforming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate upto depth of 10m from finished ground floor level (FGFL), (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224). for following grades. Watertightness is to be ensured including structural grouting if required.					
b	M 30	CUM	10500			3.5011696650
215	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.					
a	Plain cement concrete of all grades	CUM	105			0.0089170300
b	Reinforced cement concrete of all grades	CUM	75			0.0098884942
216	Chipping of concrete 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, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	350			0.0021634922
217	Extra over and above St No 216 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. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	50			0.0000280973
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	40			0.0005535168
219	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	75			0.0007638954
220	Providing & laying Plum cement concrete 1:3:6 with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm.	CUM	1500			0.4158751894
222	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	225			0.0012643786
223	Cutting of existing concrete/ RCC work inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at any level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	200			0.0421880988
224	Extra over item no. 201 to 205 and 214 for depth below FGFL (Finished Ground Floor Level) as per following:					
(a)	Depth exceeding 10m from FGFL but not exceeding 20m	CUM	20			0.0005422779
225	Extra over item no. 206 and 212 for height above FGFL (Finished Ground Floor Level) as per following:					
(a)	Height exceeding 10m from FGFL but not exceeding 20m	CUM	760			0.0257848939
(b)	Height exceeding 20m from FGFL but not exceeding 30m	CUM	75			0.0045781041
(c)	Height exceeding 30m from FGFL but not exceeding 40m	CUM	20			0.0016282386
300	FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.					
301	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams & slabs (for which scaffolding work not required for vertical support of bottom face of formwork), mass concrete, trenches, grade slab, paving etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge.					
a	Upto Depth 10m From FGL	SQM	133594			6.6063904662
b	Depth exceeding 10m From FGL	SQM	200			0.0108596072
A301	Fairface form work with good quality water proof ply wood with Filmface of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams & slabs(for which scaffolding work not required for vertical support of bottom face of formwork), mass concrete, trenches, grade slab, paving etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge.					
a	Upto Depth 10m From FGL	SQM	14969			0.7402357807
b	Depth exceeding 10m From FGL	SQM	200			0.0108596072
302	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended/intermediate floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing for all heights as per specification, drawing and instruction of engineer in charge.					

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
a	For Height Upto 20m from FGL	SQM	75			0.0044569345
b	For Height More Than 20m from FGL	SQM	75			0.0049363447
A302	Fairface form work with good quality water proof Plywood with film face of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended/intermediate floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing for all heights as per specification, drawing and instruction of engineer in charge.					
a	For Height Upto 20m from FGL	SQM	29191			1.7346983371
b	For Height More Than 20m from FGL	SQM	700			0.0460725507
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) 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.					
a	Upto 150 mm depth	Each	160			0.0028209691
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	401			0.0115486935
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	155			0.0078282595
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	95			0.0074338436
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	50			0.0056018996
f	Pockets of depths more than 1500mm and upto 2000 mm depth	Each	40			0.0059032431
305	Extra over item no.301 and 302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.					
a	Extra for Curve Shuttering for Item No. 301	SQM	200			0.0019808598
b	Extra for Curve Shuttering for Item No. 302	SQM	40			0.0004748444
A306	Fairface form work with good quality water proof plywood with filmface of minimum 12mm thickness and smooth surface below finished ground floor level for Beams, suspended/intermediate floors, lintels, cantilevers, staircases, landings, etc. where scaffolding work is required for vertical support of bottom face of formwork including material, scaffolding, chamfering of edges as per drawing, specification and instruction of engineer in charge.	SQM	200			0.0124611534
400	REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.					
401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	4			0.0238512376
A402	Transportation, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 / Fe-500D/ 500EQR/Fe 550 D or any other Grade confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores, loading, Unloading etc complete all as per specifications, drawings and as directed by Engineer.(BHEL to supply steel free of cost)	MT	6312			5.5421927949
405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.					
a	12mm Reinforcement bar	EACH	50			0.0022477842
b	16mm Reinforcement bar	EACH	60			0.0043831791
c	20mm Reinforcement bar	EACH	60			0.0063471805
d	25mm Reinforcement bar	EACH	20			0.0029347632
e	28mm Reinforcement bar	EACH	20			0.0034264660
f	32mm Reinforcement bar	EACH	20			0.0040825380
A409	Supply and Fixing of Hard Drawn Steel Wire fabric including straightening, cutting, bending, placing in position at grade slabs / plinth levels / pavings etc. binding in position of grade Fe-500 (min.) confirming to IS:1566 including cost of steel, binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	4			0.0233615016
500	Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge.					
502	Providing and laying underbed/topping grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.	SQM	5651			0.0643050304
A506	Providing and applying two component, instant setting, 100% solids spray applied hybrid polyurea polyurethane liquid applied elastomeric seamless waterproofing membrane meeting the requirements of LAM as per ASTM C836 and having excellent tensile strength of 15MPa (As per ASTM D412), elongation more than 450% (as per ASTM D 412), tear strength of 60 Kn/m (As per ASTM D1004/ASTM D624), adhesion to concrete of 2MPa (as per ASTM D 4541), abrasion resistance of 60mg loss (1 Kg.CS 10 Wheels,1000cycles - As per ASTM D4060), Shore A Hardness of 85 (As per ASTM D2240), resistance to hydrostatic pressure head of 7 Bar (As per ASTM D 5385/ DIN 16726), puncture resistance of 1000N (As per ASTM E154), water vapour permeability of 25 mg/m2/day (As per ASTM E96), Impact resistance of 17 N.m (As per ASTM D2794), Low temperature crack bridging ability up to 3.2mm (As per ASTM C 1305), dynamic crack bridging ability class B 3.2 (as per EN 1062-7 Method B- B3.2) with no crack observed in the coating after 20000 sinusoidal cycles, resistance to root (As per CENTS/14416) and fire resistance of class B (As per EN 13501-1).The coating shall be applied with a total consumption of 1.6 Kg/Sqm to achieve a total system DFT of 1.5mm, thereby satisfy the requirements of LAM as per ASTM C898 and shall be applied on the entire horizontal surface extending up to 300mm above the FFL on the vertical surface as per the methodology. The application system includes base preparation of cleaning, brushing and removal of flaky materials, grouting the porous area with cementitious grout, proper coving between slab and wall junctions and priming the surface with two component solvent free epoxy primer which is applied with a consumption of 200 grams per Sqm, followed by spray application of hybrid polyurea waterproofing coating. Protective geo textile fabric of minimum 150GSM over the entire membrane with proper overlaps shall be applied. The application of waterproofing treatment shall be carried by authorised applicator of approved Manufacturer of Waterproofing materials. Item includes surface preparation, polyscrim cloth /non woven geotextile fabric, polymerised mortar base preparation, etc. all complete as per specifications and directions of engineer in charge.	SQM	5651			0.4622035677
A507	Providing and laying wearing course consisting of 20 mm thick plain cement mortar 1:4 (1 cement : 4 sand) cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	SQM	5651			0.1965932202
B507	Screed concrete mix (1:2:4) grading having minimum 25mm thickness at the lowest point of the slope shall be laid over R.C.C. slab and shall be laid as per the slope specified elsewhere in the specification. Top surface of grading underbed shall be finished with 15mm thick cement plaster (1:4). Over the finished surface elastomeric membrane shall be laid and top of the elastomeric membrane shall be finished with 20 mm thick cement: sand (1:4) mortar with chicken wire mesh and pressed precast concrete tiles of 20 mm thickness where applicable shall be laid over mortar at green stage. Provision for thermal expansion of roofing tiles shall be kept by providing an expansion gap in both directions filled up with polysulphide joint sealant. The expansion gap shall be provided in the cement sand mortar underbed layer also.	SQM	2237			0.3703581469
A510	Providing and laying cement concrete chequered roof / floor tiles of minimum 20 mm thickness and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (polysulphide joint sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with polysulphide joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	540			0.0263980555
B510	Providing and laying cement concrete chequered and designed roof / floor tiles of 22 mm thickness and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (polysulphide joint sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with polysulphide joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	1400			0.0710220222
C510	Providing and laying pressed precast clay tiles of size 230x230x18 mm laid in water proofing compound mixed cement mortar 1:3 and sealing of joints (silicon/elastomeric sealant) etc all complete. (Water proofing paid elsewhere)	SQM	568			0.0227823834

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
511	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	34331			0.5739420401
513	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	14353			0.0594838846
A514	Providing and applying two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT followed by epoxy phenolic coating (solid by volume minimum 63%) of minimum 400 micron DFT . This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique on beams,wall, column, slab, basin floor, basin wall, fill supporting beams and columns, internal surfaces of fan stack, underside of fan deck roof slab etc on concrete surfaces as per IS 9862 and IS 3384, including surface preparation, primer etc. all complete as per specifications and direction of engineer-in-charge.	SQM	16800			0.7465291899
B514	Providing and applying Food grade epoxy coating complying to FDA Title 21, Part 175.300 of minimum 400 micron DFT over absolutely dry, clean and dust free surafe of water retaining structures storing drinking water. This coat shall be applied by airless spray technique and shall conform to as per IS 9862, including surface preparation, primer etc. all complete as per specifications and direction of engineer-in-charge.	SQM	380			0.0187315351
A517	Providing and laying Cinder / foam concrete blocks in the toilets,pantry,sunken slab etc. after water proofing and laying of plumbing pipes complete as directed by engineer in charge.	cum	130			0.0228317101
A518	Providing and laying water proofing treatment for wet areas like toilets,kitchen,pantry for sunken slab etc.material with min.two coats of Acrylic Polymer Modified Flexible Cementitious Waterproofing Coating material like penetron SF-50 or equivalent make applied @ 0.70 to 0.8 0 Kg./m2 per coat .The First layer shall be of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm.The Second layer shall be of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm.The integral waterproofing coat applied (confirming to IS 2645) , while maintaining a gap of 4 to 8 hours between the coats all complete with water ponding test as per IS Code and as directed by engineer in charge.	SQM	200			0.0086613024
A519	Providing and laying an angular fillet around parapet wall junction at roof level of min.75mm x 75mm, shall be trowel applied in cement-sand mortar in 1:3 proportion. A latex based bonding agent should be added (10% by weight of cement) and also a glass cloth must be inserted while the angle fillet is being constructed etc. all complete as per specificatio & as directed by engineer in charge	RM	780			0.0335587860
600	JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.					
601	Supplying & installation of bitumen impregnated fibre board conforming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumen etc. all complete.					
a	12 mm wide joints.	SQM	600			0.0268469719
b	20 mm wide joints.	SQM	300			0.0160786810
c	25 mm wide joints	SQM	2300			0.1790079102
d	50 mm wide joints	SQM	680			0.1100515120
602	Supplying and installation of Dura board HD100 or its equivalent as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.					
a	12 mm wide joints.	SQM	8			0.0003770658
b	20 mm wide joints.	SQM	8			0.0005906053
c	25 mm wide joints	SQM	8			0.0006097115
d	50 mm wide joints	SQM	8			0.0012368432
A603	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves.					
a	25mmX25mm groove size	RM	155			0.0069899063
b	50mmX25mm groove size	RM	85			0.0072125774
604	Supplying and filling in position hot applied bitumin sealing compund (Grade A) conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.					
a	10mm X 40mm	RM	600			0.0029080707
b	12mm X 25mm	RM	300			0.0012643786
c	20mmX25mm	RM	2110			0.0115606349
A605	Supply and installation of Polystyrene board of Type-1 conforming to IS 4671, 20 Kg/ Cum. as filler material in joints including nailing, coating of both faces with coal tar pitch /butimen etc. all complete.					
a	100 mm thick	SQM	200			0.0322636832
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)					
b	230 mm wide and 8 mm thick	RM	907			0.0315367628
d	230 mm wide and 6 mm thick	RM	2100			0.0516287922
613	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	150			0.0028027059
614	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	150			0.0063745754
A615	Providing and fixing 300 mm wide Stainless steel strip having minimum thickness 3mm over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	150			0.0068908633
700	MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. Payment Breakup: 1. On Supply & receipt of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40%	MT	343			2.4106687748
A701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including manual cleaning with primer coat of chlorinated rubber based zinc phosphate primer of Minimum 50 Micron Dry Film Thickness (DFT) welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. Payment Breakup: 1. On Supply & receipt of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40%	MT	176			1.2566098677
A702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling, all threaded & other surfaces of foundation bolts shall be coated with temporary rust preventive fluid and during execution of civil works, the dried film of coating shall be removed using organic solvents, etc. all complete. Payment Breakup: 1. On supply & receipt of fabricated materials at site - 60% 2. On completion of fixing, welding, etc. complete as per description/specification - 40%	MT	89			0.7926341580
A703	Same as above items 701 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.					
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	40			0.0754581139
B703	Fixing of Anchor / Foundation Bolts of various diameters along with nuts, lock nuts, washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates, pipe sleeves etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete. Note: Fabricated structural steel material shall be issued by BHEL free of cost.	MT	10			0.0198626851
704	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.					
a	MS pipes of all diameters	kg	150			0.0011695502
b	PVC pipes / conduits of all diameters	kg	155			0.0040937769
c	UPVC pipes / conduits of all diameters	kg	150			0.0049942954
d	Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:					

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
i	8mm Dia	EACH	20			0.0000716481
ii	10mm Dia	EACH	20			0.0000913162
iii	12mm Dia	EACH	20			0.0001137941
iv	14mm Dia	EACH	20			0.0001742033
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:					
i	HST M8	EACH	30			0.0005837214
ii	HST M10	EACH	30			0.0008092023
iii	HST M12	EACH	30			0.0014603573
iv	HST M16	EACH	30			0.0025624739
v	HST M20	EACH	30			0.0044653637
vi	HST M24	EACH	30			0.0088801523
f	Chemical Expansion fasteners (galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod, nuts, washers, chemicals all complete, etc:					
i	HAS-E5.8 M8	EACH	30			0.0011000094
ii	HAS-E5.8 M10	EACH	30			0.0013381340
iii	HAS-E5.8 M12	EACH	30			0.0017069111
iv	HAS-E5.8 M16	EACH	30			0.0029249291
v	HAS-E5.8 M20	EACH	30			0.0045854797
vi	HAS-E5.8 M24	EACH	30			0.0063282148
707	Providing, laying and fixing rails (52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	1			0.0067111108
800	GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level, drawings and as directed by engineer - in - charge.					
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	10			0.0006139260
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	4			0.0070948497
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1.2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	4			0.0069818985
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	53			0.1759848513
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	89			0.3084626462
806	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	75			0.0095355218
900	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
902	Providing and fixing teak wood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handels on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	4			0.0023205562
903	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings, godrej or equivalent make mortice lock with handels on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	145			0.0748821192
904	Providing and fixing single or double steel door shutters with 45 mm thick flush design shutter 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 centres including void filled with mineral wool (density as per specification), all fittings, air tight, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	4			0.0040314009
A904	Providing and fixing single or double steel door shutters with 35mm (min.) thick flush design shutter as per IS 4351 comprising of two outer sheets of 1.2 mm steel sheets rigidly connected and reinforced inside with continuous vertical 1.0 mm stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	182			0.1795960936
905	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	8			0.0084741462
906	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners, SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	KG	1500			0.0638511185
A906	Providing and fixing electrically operated, self openable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	5			0.0045362741

PART-B						
PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST						
BOQ CUM RATE SCHEDULE (PRICE BID)						
SCOPE OF WORK:-						
CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
907	Providing and fixing fire proof steel doors (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. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	75			0.0651997890
A907	Acoustic Wooden Fire Door : Providing of Single / Double Leaf both side laminated finish fully insulated wooden fire door of 120 min. fire rating, of min.50mm thickness, comprising of 75mm x 50mm hardwood internal timber frame work, with infill of 96 kg/m ³ , ceramic fiber blankets, coated with FR intumescent coating on both sides for insulation. The coated insulation shall be sandwiched between 12mm thick, Matrix Mineral Engineered Boards on both sides (edge to edge on internal Hardwood frame) and clad with 3mm ply on both sides, with 55mm x 14mm teak wood lipping all round the shutter the main door frame will be made out of Hardwood of section 120 x 70mm and cotaed with Fire reatrdent Primer.The rebate shall be of 20mm x 57mm in Door Frame to accommodate the shutter in frame.Both frame and shutter shall be fitted with fire & smoke intumescent seal of size 20 x 4mm on all the three sides except bottom.The pasting of the ply/veneer/laminate should be done using automatic machine and should be free from any nails or perforations. The doors shall be provided with Pyroswiss Extra" or equivalent vision panel of 300mm x400mm. Test certificate for fire rating from International testing facility shall be provided by its relevant manufacturer. Provisions/ reinforcement for fixing all fixtures shall be built in on the doors prior to the supply.The rate should be inclusive of all fire rated hardware door handle 32X1200 H shape, door closer, dead lock, etc complete as per manufacture spec. (The rate should be inclusive of door frame). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	8			0.0141018323
B907	Providing and fixing automatically closing fire proof steel flush insulated doors along with frame of minimum 44mm thk flush shutter 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 center to center of approved make conforming to IS:3614 (part 1) & CBRI tested- ISI marked for both Single leaf & Double leaf, comply IS/ISO 3008,satisfying LPA regulations and shall carry a unique label with certification/test report number,fire rating embossment, fixed at all elevations, with or without removable panels,with panic bar,panic trim,smoke seal with following fire rating using galvanised MS sheets for frames conforming to IS 277, made out of minimum 1.6mm (16 SWG) for both frame and shutter, G.I. sheet (min.zinc coating 120 gsm), and leaves, mineral wool / PUF/ any other fire retardant insulation material filled with required density, mastic caulking and grouting the frame, reinforcing and insulating the shutters with fire retardant material, with panic devices, including all fittings, fire rated vision glass, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (min.64 kg/cum density) complete and shall be fire proof as per IS:3614, NBC, LPA requirements and as per specification.Shop drawings shall be submitted by the fabricator/manufacturer for approval before exectuion. Minimum ratings shall be 2 Hrs. All hardware fittings shall be 2 Hours fire rated. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	70			0.1480692437
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)					
a	Openable type	SQM	35			0.0072772012
b	fixed type	SQM	35			0.0046613424
A908	Providing and fixing MS grills of approved design/pattern, with approved standard section for security purpose made of M.S. Flats / M.S. square bar of approved design shall be provided to suit security requirements made of M.S. Flats / M.S. square bar of approved design and fixed to the openings of windows/ventilator etc. with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	kg	200			0.0019982149
B908	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing opening window , ventilator etc. with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	kg	950			0.0385659709
C908	Extra over Item A908 for providing pre-coated (polyster painted) steel windows/ventilators	SQM	150			0.0007377072
A909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections(of minimum 2mm wall thickness) including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285,(Grade of Aluminium shall be Alloy 63400) anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preparation of fabrication/working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc. of Dorma, doorset or equivalent.), CP brass/stainless steel screws of SS304 Grade, 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 separately).Weight of aluminium section only shall be measured. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	17620			1.0050011518
B909	Providing and fixing aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections(of minimum 2mm wall thickness) including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285,(Grade of Aluminium shall be Alloy 63400) powder coated to required shade (minimum thickness of powder coating 50 micron), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preparation of fabrication/working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc. of Dorma, doorset or equivalent.), CP brass/stainless steel screws of SS304 Grade, 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 separately).Weight of aluminium section only shall be measured. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	350			0.0209612896
A910	Providing, fabricating, designing, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid,metallic colour,wooden colour,stone finish of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be minimum 8.1 kg/sqmt) material consisting of 3mm thick FR grade Class A2 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick BMT).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The top coated surface of ACP shall comply with the "specification for coated coil for the exterior building application" issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties conforming to EN 485-2 standard. The ACP product must conform to Class A2, s1,d0 as per EN-13501-1.The manufacturer must furnish the FPC and Certificate of conformity of EN13501-1 for Class A2,s1,d0 from the certifiers and Product must be supplied from the Certified Unit which has been mentioned on the FPC and COC.The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months' exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the coping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor,Alumaze or equivalent. The system shall be designed to withstand a wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS316 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.The contractor shall provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturer of ACP. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	75			0.0279111573
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :					

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
a	Over head hydraulic door closures	Each	35			0.0053718529
b	Floor mounted Hydraulic door closers	Each	35			0.0112550767
A912	Providing and fixing pressed steel frames(complying general requirements of IS 4531) fabricated from 1.6 mm thick M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	2700			0.0405865526
A913	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres 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 of 75mm wide and 3mm thick(min.) and arrangements for inside and outside locking with push and pull operation including wire springs, top/hood cover 0.9mm thick (min.) , factory galvanized, primed & field painted, partly grinded (as required) with approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).					
b	Mechanically Operated	SQM	30			0.0098474019
c	Electrically & Mechanically operated	SQM	215			0.0902513434
914	Providing and fixing PVC doors (25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	20			0.0041682347
A915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.					
d	6 mm thick wired glass	SQM	15			0.0022063406
e	Providing and fixing of 3.0mm (min.) thick fire retardant and UV resistant polycarbonate clean toughed profile sheet of approved make conforming to IS 14434 in cladding and roof as per specification all complete.	SQM	75			0.0112023943
g	6 mm thick tinted heat reflecting type float glass	SQM	20			0.0033140768
h (a)	6 mm thick clear reflective toughened safety glass of Saint Gobain(India) or Asahi (India) or equivalent make and should have solar factor 25% or less, Maximum U-value 3.3W/SQMK, VLT min 30%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28), values varies as per manufacturer specifications.	SQM	40			0.0085864572
Ah	6 mm thick clear toughened glass conforming to IS 2553.	SQM	741			0.1272512016
AhA	6 mm thick reflective toughened glass conforming to IS 5437-2553 Reflective toughened glass, with technical characteristics: Solar factor 45% or less, U-value less than 5.7 W/m2.K, VLT min 40% shall be used. The glass to be used should be from the manufacturers of glass like Saint Gobain (India) or ASAHI (India) or equivalent. The glass should be free from distortion and thermal stress.	SQM	120			0.0271751625
l(a)	composite double glazing, 25 mm thick 2 hr fire rated, with one outer 6 mm thick tinted heat-reflecting type toughened glass and one inner 11mm thick clear toughened glass hermetically sealed and separated by 8 mm thick gap for thermal insulation (only single elevation area to be measured) with suitable frame of min 1.6mm galvanized steel sheet. The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	75			0.1540452210
l(b)	composite double glazing of fire resistant glass MIN.30 mm thick Hermetically sealed double glazed unit of one Fire resistant glass of min.14mm thick (outer side) clear, toughened, interlayered glass with 120 minute fire rated for both integrity & radiation control (EW 120) with symmetrical (Bi-Directional) fire protection and 6 mm thick toughened tinted glass (Inner side) with 10 mm air gap etc all complete as per specification.	SQM	75			0.1618780291
l(c)	One outer 6mm thick tinted heat-reflecting toughened glass and one inner 6mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glazing to be used should comply to mentioned standards VLT (Visible Light Transmittance) ≤ 62 % , SHGC/ SF (Solar Heat Gain Coefficient/ Solar Factor) 0.2 ≤ 0.32 and U- Value 1.2 TO 2.0 W/MSq K.The properties of performance glass shall be as per detail design values as approved by engineer incharge.The glass to be used should be from the approved manufacturers Saint Gobain or equivalent of glass and should be free from distortion and thermal stress.	SQM	750			1.6922199905
l (d)	Fire rated glass min.14mm thick fire resistant clear, toughened, interlayered clear 120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass complying to BS476 Part22 or (EN-1634-1 :1999) with a light transmission of 86% according to EN410 standards and sound reduction of >=37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4 The glass shall provide bidirectional (Symmetrical) fire protection. as per specification and instruction of engineer in charge.	SQM	75			0.1723217728
la	11.5 mm thick laminated glass consisting of 5 mm thick heat reflective toughened glass (coolite / Azure/ equivalent) on outer face and 5 mm thick toughened glass on inner face having 1.52mm PVB layer in between.	SQM	75			0.0239659563
n	8 mm thick clear toughened safety glass	SQM	1138			0.2251287415
An	8 mm thick laminated toughened glass	SQM	40			0.0091945763
o	10 mm thick clear toughened safety glass	SQM	400			0.0884409405
p	12 mm thick toughened safety glass	SQM	75			0.0183282212
Aq	6mm thick laquered glass as per approved shade colour and design.	SQM	75			0.0151710544
Ar	Heat Strengthened Coloured tinted float glass 6mm thick substrate with reflective soft coating on outer face+12mm Airgap + 6mm Heat Strengthened clear Glass of approved make, having properties as visible Light transmittance (VLT) of 25 to 35 %, Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25- 0.28) and U value of 1.5 to 1.7W/ m2 degree K etc. The properties of performance glass may varies as per decided by technical sanctioning authority as per the site requirement.	SQM	75			0.0282568545
917	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	220			0.0264409659
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	40			0.0106825942
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	20			0.0079065807
A920	Providing and erecting Roof skylight structure with 4mm thick embossed clear translucent polycarbonate IR sheet, both side UV coated, minimum 55% light transmission, solar control, approved make, texture and shade, fixed to powder coated Aluminium section with 60mm width top & bottom with EPDM rubber gasket in approved shape like dome, pyramidal etc, sealing of joints with sealent, screws with pvc cap, self tapping screws, EPDM rubber gasket.etc as per drawing, standards, specification, instruction of engineer in charge etc all complete.(Structural Steel will be paid separately)	SQM	120			0.0232068342
A921	Providing & fixing 120 minutes Fire Rated, Fully Glazed non load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from minimum 1.6mm galvanized steel sheet pressed to form a profile of nominal size 60mm x 70 mm & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of approved shade and color. The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30minute full insulation, Non Wired Toughened Interlayered glass having a sound reduction of greater than 37dB, light transmission of 86% and compliant to class 1(B)1 category of impact resistance as per EN 12600. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass shall be held in position with minimum 1.6mm G.I Beading, clamped or bolted to the frame profile by 4mm x 35mm steel screws at every 250 mm c/c and a ceramic tape of cross section of 5mm x 20mm on both sides of the glass. The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120). Design, Shop drawings along with hardwares for the item with all construction and anchoring details, etc. along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	20			0.0401902204
A922	Providing and fixing electrically operated, self operable/closing, approved anodized aluminium framed glass door with 10 mm thk. tinted glass, all complete. Automatic Sliding operating system comprising of Advanced DC brushless motor, Automatic Reversing Safety Device, Suitable for door weight 100 kg, Opening speed : 90-110cm /sec (adjustable), Closing Speed : 40-110cm/sec (adjustable), opening time : within1-9 seconds after door stopped in opening, controller : 8 Bit micro computer, Motor (Dortexor equivalent) : DC12V, 35W brushless motor, Power Voltage : AC 110V - 240V. 50Hz - 60Hz, Power Consumption : 45W including Infra Red Sensors 2No both sides, rails & top & bottom as required, any aother accessories as required etc. all complete of best make and quality as approved by Engineer in charge. The door shall be double panel sliding door of approx. area 5 sq.m. to 7.5 sq.m. each. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	20			0.0835499504

PART-B

**PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)**

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A923	Providing and fixing Electrically operated sliding doors, self operable/closing, G.I. framed with fire resistant glass, with Fire resistant glazed door system shall be of uniform profile 50X50 mm with 14mm EI 20 glass for interior application. Fire Resistant Glazed Door System shall have 120 minutes of integrity and radiation control (EW 120) with symmetrical (Bi-Directional) fire protection. The frames shall be cold rolled profiles as per EN standard EN 10327/ Indian Standard IS 513. The door frames are cold rolled from 1.6 mm steel sheet to form a profile of 50 mm x 50 mm on all sides. The door shutter shall have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The glass must be minimum 14mm clear, 120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass with a light transmission of 86% and a sound reduction of 38 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4. The shutters shall be fixed to the frame using Weld-on hinges of dimensions 179mm X 20mm. The profiles shall have grooves to incorporate Fire Resistant gaskets. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel selftapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 6 mm Calcium Silicate setting blocks. The door shall be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV) or equivalent. The inactive leaf (in case of double leaf only)shall be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a TUV audited facility. The maximum glazing size shall be as per the test certification. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The doors shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles) all complete as per specification. The door shall have water tightness level of 8A when tested as per EN 1027. Fire Rated Door shall be of Makes- Saintgobain,Nauvair, Matrix or equivalent. all complete as per specification.(item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	20			0.1253249257
A924	Providing and fixing of fully glazed door with steel frame of 120 minutes of integrity and radiation control (EW 120) with symmetrical (Bi-Directional) fire protection. The frames shall be cold rolled profiles As per EN standard EN 10327/Indian Standard (IS 513) . The frames are cold rolled from 1.5 mm steel sheet to form a profile of 50 mm x 50 mm on all sides. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel selftapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 5 mm Calcium Silicate setting blocks. The maximum glazing size shall be as per the test certification. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The Partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. all complete as per specification and approved by Engineer incharge. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	20			0.0375974777
A926	Providing & fixing 120 minutes Fire Rated, Fully Glazed non load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a suitable profile & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and color.The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with min.30 minute full insulation, Non Wired Toughened Interlayered glasshaving a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 1(B)1 category of impact resistance as per EN 12600. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass shall be held in position with minimum 1.6mm G.I Beading, clamped or bolted to the frame profile by 4mm x 35mm steel screws at every 250 mm c/c and a ceramic tape of cross section of 5mm x 20mm on both sides of the glass. The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120).all complete as per specification. Design,Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	20			0.0410787257
A927	Providing & fixing minimum 24mm thick Hermetically sealed double glass unit (DGU) consisting of 6mm thick clear float glass on inner side and 6mm thick reflective toughened glass on outer side. The two glasses shall be separated by 12mm air-gap and hermetically sealed by beading of anodized aluminium with outer edge sealed with silicon sealant all complete as per specification, drawings and as per direction of Engineer-in-charge. Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, Maximum U-value 3.3 W/ SQMK, VLT min 30%: Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25- 0.28). The glass to be used should be from the manufacturers of glass like Saint Gobain (India) or Asahi (India) or equivalent. The glass should be free from distortion and thermal stress. The glass shall be 6 mm(minimum) (MADE IN INDIA) clear 120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass with a light transmission of 86% and a sound reduction of 37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4 The glass shall provide bi-directional (Symmetrical) fire protection. The base glass and processed glass must be made in INDIA. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on noncombustible 5 mm Calcium Silicate setting blocks. The maximum glazing size shall be as per the test certification. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The Partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The Partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049. The Partitions shall also be tested for class 4 level of Mechanical strength when tested as per EN13115. The Partitions shall have water tightness level of 8A when tested as per EN 1027. Partitionr shall be of Makes - Saint Gobain,Acodor , IGI , Matrix ,Tata Pravesh. The item includes all This item is including all (Aluminium beading shall be paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	20			0.0371518780
B927	Providing & fixing minimum 30mm thick Hermetically sealed double glass (DGU) consisting of Fire resistant glass of minimum 14mm thick, clear, toughened,interlayered borosilicate glass,120 minutes fire rated for both integrity & radiation control ,remain transparent under both fire and non fire condition and 6mm thick toughened tinted glass with min.10mm air gap filled with inert gas. The partitions shall be 120 minutes Fire Rated,Fully Glazed non load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from cold rolled profiles Min.1.5 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of nominal size 50mm x 50 mm on all sides or suitable profile to accomodate the glass & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150 mm from the edges & every 500mm c/c .The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and color.The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30minute full insulation, Non Wired Toughened Interlayered glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 1(B)1 category of impact resistance as per EN 12600. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification.The glass shall be tested for 5000 hours of UV resistance as per EN ISO 12543-4.The glass shall provide bi-directional (symmetrical) fire protection. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape or as per the test evidence with cross section of 4 x 15 mm as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non- combustible 5 mm thick calcium silicate setting blocks. The installation shall be through trained and certified by Vetrotech certified Installer.The maximum glazing size shall be as per details design and drawings. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c.The partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026.The partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049.The partitions shall have water tightness level of 8A when tested as per EN 1027.The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120) all complete as per specification.Fire Rated partition shall be of Makes- Saintgobain,Nauvair, Matrix or equivalent. all complete as per specification.(item includes the cost of glazing)Design,Shop drawings for the item with all construction and anchoring details along with fire rating test reports of complete system shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	20			0.0403824761

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A928	Providing and fixing of fully glazed steel fire door (single/ double leaf) with 120 minutes fire rating, of integrity and radiation control (EW 120) fabricated with min.1.5 mm thick galvanized steel sheet. The door frames are manufactured from cold rolled min.1.5 mm thk. galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of 50 mm x 50 mm on all sides. The door shutter would have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The overall door opening shall be as per tested evidence and tested as per EN 1634-1 in an accredited international laboratory. The frame shall be finished with approved fire resistant primer or Powder coating of min. 30 micron as per approved shade. The sections have a special insulating infill. The test is conducted in IFTS as per EN 1634-1: 1999. The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30 minute full insulation, Non Wired Toughened Interlayered glass, with a light transmission of 86% and a sound reduction of 37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass should be compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass should be held in its place with the help of 1.6 mm GI beading and a special ceramic tape with cross section of 5 x 20 mm as per the test evidence. The shutters should be fixed to the frame using weld-on hinges of dimensions 179mm X 20mm. The profiles shall have grooves to incorporate fire-resistant gaskets. The doors shall incorporate drop down seal at the bottom. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm or as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 5 mm thick calcium silicate setting blocks. The door should be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV), Concealed door closer or equivalent. The inactive leaf should be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a Intertek & TUV audited facility. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The shutters should be fixed to the frame using Dorma SS Ball Bearing Hinges of size 100 mm x 89 mm and 3 mm thickness or equivalent. Beading should be attached using 4 mm x 35 mm SS screws at a distance of 75 mm from the edges and 150 mm c/c henceforth. The door should be fitted with Dorma Mortise Sash lock 952F and door closer TS 68 of Dorma make or equivalent. The inactive leaf should be fixed to the frame using 1200mm long tower bolt. All complete as per specification and Design, Shop drawings, along with hardwares for the item with all construction and anchoring details along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	20			0.0499519397
A929	Providing and fixing of frameless toughened Glass fixed partition on patch fittings, made of 12 mm thick, including fittings, hardware etc all complete as per specification. The glass shall be firmly fixed through extruded aluminum extrusions on top, bottom and extreme sides. The glass panels shall be easily removed and refitted (during breakage) without using any special tools. The junction of glass to glass shall be properly secured using extruded PVC or sealant. Sealant shall be properly filled using molded rubber pattern /tool. Finish: anodized or powder coated as per architects drawings / specs. Safety film shall be applied on the glass to avoid shattering. The glass to be used should be from the approved manufacturers of glass Saint Gobain or equivalent make. The glass shall be distortion free and free from thermal stresses, including all fittings and fixtures of approved make Dorma or equivalent complete as per specification, drawing and instructions of engineer in charge. Fabrication drawings should be prepared and approved by engineer in charge before commencement of work as per site condition. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	20			0.0191897609
B929	Providing and fixing Frameless single/ double leaf fully glazed doors (with etching film having Project / Purchaser's Logo and other design) on stainless steel patch fitting with 12mm thick toughened glass, ss handels (both side), Floor spring, door closure, locking arrangement, including all fittings and fixtures of approved make Dorma or equivalent complete as per specification, drawing and instructions of engineer in charge.					
a	1200mmx2500mm	EACH	4			0.0067822026
b	1800X2500mm	EACH	4			0.0101733039
c	2000x2500mm	EACH	4			0.0113036710
A930	Providing and fixing motorized curtain (operated with remote control also) mechanism at all heights. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	20			0.0411415188
A931	Providing and fixing SS Logo/Signature ICON of NTPC as per Guidelines of "Client" complete in all aspects. Logo to be fabricated in Stainless steel finish as per approved Pantone Shades of Client Guidelines along with proper provision of fixing arrangement of Logo on Partition Surface/Glass Surface/Acrylic Surface etc. Shop drawings for the item with all construction and anchoring details shall be got approved before execution, all complete as per specification and approved by Engineer in charge. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	20			0.0238680602
A933	Providing, fabricating, designing, supplying and fixing of 8mm thick Suede Finish exterior grade High Pressure Laminates (HPL) made up of 1300mm x 3050mm in size and manufactured under EN438-2&3:2005 standard, including supply and fixing of all necessary supporting arrangements, etc. all complete as per drawing, specification & instructions of engineer-in-charge. Measurement of payment shall be outer finished area of HPL. HPL should Moisture resistant, Impact resistant, termite resistant, Scratch resistant, Weather and climatic shock resistant high pressure thermosetting resin treated balanced compact laminates HPL. The manufacturer shall provide 10 years warranty certification on manufacturing and moisture related defects. HPL shall have Green Guard Gold certification where the VOC emission level is less than 0.22 PPM. Anti-bacterial and Anti-Fungal property under JIS Z2801:2000. HPL will be installed on Aluminum tubes at 500 mm c/c distance with special L Brackets. Aluminum box size will be 25mmx50mmx1.8 mm. Boards will be fixed on the Aluminum Channels with colour match rivets (Manufacturer approved Rivets) through 8mm drill hole in Boards and 5mm dia drill holes in Aluminum Box. Rivets will be installed by automatic Rivet Guns Shade designed of clad should be finalized under direction of Engineer -in charge.	SQM	15			0.0003729019
A934	Providing and fixing dry wall partition up to ceiling height with 12.5 mm thick double skin fire rated Glass Reinforced Gyproc plaster board conforming to IS: 2095: Part 1:2023 (Board with BIS certification marks) Type F / EN520:2004-TYPE-F / ASTM C473/C1396-TYPE X, having thermal conductivity 0.24w/m ² k., with 100 mm overall thickness of partition, consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed roll form G.I. sheet with zinc coating of 120 gms/sqm (both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia. meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia. bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.	SQM	40			0.0033470772
1000	BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.					
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.					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making)	CUM	925			0.3860165379
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm upto 10m level above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1014), places and position above plinth including raking out joints, curing, scaffolding etc complete but excluding plastering and painting.					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making)	CUM	5006			2.7308186342
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	40			0.0233938135
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm upto 10m above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1015), places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every fourth layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. (Reinforcement payment shall be made separately as per applicable BOQ in 400 Series)					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making).	SQM	1129			0.0759738399

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
b	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm2(including cost of cement for brick making)	SQM	40			0.0025090891
1004	Providing brick soling including spreading of earth, ramming, watering including 25mm 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). Using brick on edge.					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	SQM	10			0.0005008344
1005	Breaking of existing brick work 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	55			0.0081362762
1006	Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6 upto 10m level above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1014). Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to be paid separately)					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	40			0.0174203272
b	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	40			0.0193281340
1007	Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM	131			0.0016471341
1008	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	2			0.0003405393
1009	Supply and placing in position mild steel wire fabric(Chicken Wire Mesh) 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	200			0.0029642653
A1009	Supply and placing in position GI of 0.9 mm welded wire mesh/ chicken wire mesh for encasing of steel sections in concrete/ brick/ plaster at the junction of RCC and brickworks including cutting, bending, fixing etc. complete.	SQM	40			0.0005928531
1010	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	2			0.0001437177
A1013	Providing and laying Autoclaved Aerated Concrete (AAC) block masonry with blocks having dimensions of 625 mm x 250 mm. thickness ranging from 100 mm to 300 mm conforming to IS 2185(part-III) .The jointing cement sand mortar in the composition of 1: 6 (Cement: sand) shall be used with suitable plasticizer(optional). Sand having modulus of fineness 1.1 shall be used. The horizontal and vertical joint thickness shall be approximately 10 mm. In case of partition walls (100 mm /125 mm thick) the joint reinforcement i.e. 1 number of 8 mm diameter bars shall be placed at every alternate course to be anchored properly with the main structure. All other structural requirements like stiffening of masonry, joint reinforcement etc. in the AAC masonry work strictly be carried out as per instructions laid down in IS 6041, IS 1905 etc all complete as per specification. Note: Cement for making of AAC blocks is in the scope of contractor. Payment Breakup: a) On Supply & receipt of AAC Blocks at site - 50% b) On complete execution as per item description - 50%	CUM	380			0.2265387110
1014	Extra over item no. 1002, 1006, 1012 & 1013 for height above FGFL (Finished Ground Floor Level) as per following:					
a	Height exceeding 10m from FGFL but not exceeding 20m	CUM	8			0.0004928267
b	Height exceeding 20m from FGFL but not exceeding 30m	CUM	8			0.0008873128
c	Height exceeding 30m from FGFL but not exceeding 40m	CUM	8			0.0011828964
d	Height exceeding 40m from FGFL and above	CUM	8			0.0013801395
1015	Extra over item no. 1003 for height above FGFL (Finished Ground Floor Level) as per following:					
a	Height exceeding 10m from FGFL but not exceeding 20m	SQM	100			0.0003863379
b	Height exceeding 20m from FGFL but not exceeding 30m	SQM	100			0.0006954082
A1016	Designing, providing and fixing factory made factory made composite modular light weight aerated concrete panels of minimum 75mm thick , (minimum 2 hours of fire rating) consisting of 2 fiber reinforced cement sheets (minimum 4 mm thick) on either side of light weight concrete core, having minimum compressive strength of 35 Kg / Cm2 and the density in the range of 700-900 Kg. / cu.m. of the thickness and fire rating as specified below, to provide external wall and internal partition at all levels, capable of sustaining wind pressure of 3.00 M height (H) within limiting deflection of span/250, fixed in position in tongue and groove jointing system by screwing the panels to top and bottom U channels, (channels minimum 1.25 mm thick and galvanised to grade 180 (minimum) as per IS : 277), fixing U profiled top and bottom channels to concrete / primary steel members which are placed at the maximum vertical spacing of 4.5m with the help of galvanised steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fibre glass tape (minimum 50 mm wide and minimum 0.5 mm thick) or by any other suitable material, so as to ensure that the entire construction done with the light weight aerated concrete panels are weather proof and panel surfaces are flush for painting, creating opening for doors / windows / ventilators / ducts / pipes/fans/AC etc. and finishing the opening face with the same U profiled galvanized steel channel which is used at the top and bottom.	SQM	1750			0.3084278521
1100	DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.					
1101	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg/sqm shall be applied one before & one after the DPC.					
b	50mm thick	SQM	1407			0.0406200586
1200	PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.					
1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar as applicable upto 10m above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1206) on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete					
a	Cement Mortar 1:6	SQM	25531			0.6689309397
1202	Providing 12mm thick plaster internal/external surfaces of building/boundary wall in cement mortar as applicable above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1206) on walls finished to a smooth finish as per specification all complete.					
a	Cement Mortar 1:6	SQM	26698			0.5738584506
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	9191			0.1730223420
1205	Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	355			0.0046132258
1206	Extra over Item 1201 to 1202 for plastering on exterior walls over & above 10m height from FGFL.					
a	Height exceeding 10m from FGFL but not exceeding 20m	SQM	380			0.0013079294
b	Height exceeding 20m from FGFL but not exceeding 30m	SQM	380			0.0023489344
c	Height exceeding 30m from FGFL but not exceeding 40m	SQM	40			0.0003315482
d	Height exceeding 40m and above	SQM	40			0.0003849330
A1207	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 battens, 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	40			0.0001180087
1208	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 chicken wire mesh 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 engineer in charge (chicken wire mesh to be paid separately)	SQM	20			0.0008963039
1210	Providing drip course in cement mortar(1:4) in parapet, chajjas, window/door heads, architectural facias, fins,etc all complete with all labour, T&Ps as per specification, drawing and instruction of engineer.	RM	360			0.0008850650
1300	FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
1301	Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	360			0.0010797793

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1304	Providing and applying two or more coats of Low VOC (volatile organic compound) acrylic distemper as per IS 428 of approved brand and as per manufacturers guidelines Nerolac / Berger /JK wall maxx/Asian or equivalent, to give smooth, even, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. including a priming coat with distemper primer complete. The product shall contain not more than 5 percent, by mass, volatile organic compounds, when tested according to the method prescribed in IS 101 (Part 2/Sec 1) and IS 101 (Part 2/Sec 2). All necessary documentation, certificates, manufacturer declarations, should be provided by the contractor to engineer in charge.	SQM	21948			0.1884970030
1305	Providing and applying two or more coats of acrylic emulsion paint 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.	SQM	6893			0.0814402121
A1305	Providing and applying two or more coats of low VOC (volatile organic compound) acrylic emulsion paint as per IS 15489 , relevant latest code of approved brand, shade and manufacture guidelines Nerolac / JK maxx /Sakarni / Asian or equivalent to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have VOC content limit less than 50 grams per litre . All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	11157			0.1353060259
B1305	Providing and applying two or more coats of Exterior quality acrylic emulsion paint with low VOC (volatile organic compound) as per IS 15489, relevant latest code of approved brand, shade and manufacturer guidelines Nerolac / Berger /Sakarni / Asian or equivalent to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have VOC content limit less than 50 grams per litre. All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge	SQM	200			0.0025467657
A1306	Providing and applying 2 or more coats of acid/alkali resistant paint (epoxy based & minimum 150 micron thickness) of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer 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	850			0.0230025534
B1306	Providing and applying 2 or more coats of oil resistant paint (epoxy based & minimum 150 micron thickness) of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer 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	1810			0.0367361448
1307	Providing and applying two coats of Epoxy coating with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 150 micron thickness over epoxy primer.	SQM	40			0.0007524457
1308	Providing and applying 2 or more coats of Chlorinated Rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying chlorinated rubber zinc phosphate 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, inclusive of intermediate coat of Titanium dioxide / micaeous iron oxide complete as per specifications.	SQM	40			0.0006698397
1309	Two or more coats of fire resistant transparent paint (@3.5 sqm per litre per coat) as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications. French polish payment will be made separately.	SQM	40			0.0014793229
A1311	Two or more coats of synthetic enamel paint of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete. Note: The paint should have VOC content limit less than 150 grams per litre All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	1040			0.0165282378
1312	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	75			0.0006548427
A1313	Providing and applying ready made Epoxy Paint over areas other than steel structure/flooring with suitable pigments of approved shade as per specification and direction of Engineer. Epoxy Painting shall be provided with surface preparation of concrete substrate with Captive Shot Blasting Machine OR Light Grinding to form the required anchor profile on the floor substrate followed by application of epoxy resin based moisture barrier underlay of 2 mm thickness including filling of saw cut joints with epoxy cementitious resin based moisture barrier underlay as per manufacturer specification. Application of self smoothing epoxy floor topping of epoxy based resin of 2 mm thickness over epoxy resin based moisture barrier underlay including application of solvent free epoxy resin based two component primer shall include application of PU Sealant at Expansion and Isolation Joint respectively including surface preparation of the joint, fixing of backup strip and application of sealant etc all complete as per specification. The epoxy coating shall be a two pack material and shall be resistant to water, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 4 mm thickness.	SQM	150			0.0088901779
A1314	Providing and applying resin bonded granular textured finish, shall consist of crushed stone/special quality Silica quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, acrylic modified exterior adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film nominal thickness of 2.5 mm from approved manufacturer Asian ,Luxture, Berger or equivalent. The final finished coating shall be fungus resistant, UV resistant, water resistant & repellent and extremely durable with color fastness as per the specifications/manufacturer's specifications, instructions and satisfaction of Engineer-in-charge	SQM	40			0.0047054551
B1314	Providing and applying two coats of textured cement Paint(Sandtax matt or Equivalent) of approved colour and shade as per specification/drawing/approval of engineer in charge.	SQM	889			0.1584644245
A1315	Providing and applying three coats of Solvent based (100% pure acrylic co-polymer resin based) paint (shall not contain any water sensitive ingredients) of approved brand and manufacture and required shade over one coat of primer or one coat of cement paint after necessary cleaning/ washing, removing loose & flaking materials, removing mould, algae, organic growth & grease, preparing the surface using coir brush/ wire brush, sand paper, including all required tools, material, scaffolding and other painting accessories, filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish. The final finished coating shall be fungus resistant, UV resistant, water resistant & repellent and extremely durable with color fastness as per the specifications/manufacturer's specifications, instructions and satisfaction of Engineer-in-charge	SQM	40			0.0016626440
1316	Providing and applying 2 mm thick plaster of paris punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	160			0.0016026701
1317	Providing and applying 2 thick white cement punning on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer.	SQM	682			0.0066158047
A1317	Providing and applying min.2 mm thick Acrylic wall putty (in Two Coats) over cement plastered surfaces of approved brand and manufacturer JK wall maxx, Sakarni or equivalent in interior of building including preparation of surface, removing dust, dilapidated plaster wherever necessary, staging at all heights etc. to achieve a smooth even surface all complete as per specification and as directed by engineer.	SQM	35867			0.3459619330
A1319	Providing and applying two or more coats of weather resistant paint of Premium Acrylic Smooth Paint with Silicone additives, and including Texture base coat , of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers Nerolac / Sakarni / JK maxx/Asian or equivalent guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification. Textured base coat (Two or more coats applied @ 6.5Kg/10 sqm over and including priming coat of exterior primer applied @ 2.20Kg/10 sqm) of High Quality Exterior Acrylic Modified resin and special quality Silica Quartz with Trowel Texture all complete as per specification and as directed by Engineer.	SQM	20418			0.2453962011
1321	Providing and applying french polish (minimum 2 coats) on wood surface made from best quality shalac, denatured spirit and other suitable alcohol soluble ingredients and made by a well known approved manufacturer as per IS 348 including required base preparation etc. all complete as per specification	SQM	20			0.0007487931
1400	FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2(1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges etc. all complete The ratio of approved quality metallic hardening compound and cement shall be 1:4.(Quoted item rate shall be inclusive of providing glass joint strips).	SQM	10719			0.4916681529
B1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with non- metallic hardener pigmented topping 12mm thick uniform graded hardener in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 12mm thick hardener concrete of mix 1:2(1 cement hardner mix with approved quality non-metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including as per manufacturer specification, cement slurry, rounding off edges etc. all complete. The ratio of approved quality hardening compound and cement shall be 1: 4 as per approved sample and manufacturer specification. (Quoted item rate shall be inclusive of providing glass joint strips).	SQM	150			0.0068803268

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates) with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 10mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, etc. all complete as per specification.The ratio of approved quality metallic hardening compound and cement shall be 1: 4.	SQM	40			0.0015762586
B1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates) with Non-metallic hardener pigmented topping of 10 mm thick uniform graded in skirting and dado. Under layer of 15mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 10mm thick with hardener concrete of mix 1:2 (1 cement hardner mix with approved quality hardening compound :2 stone aggregate 6mm nominal size) by volume as per manufacturer specification including,cement slurry, rounding off edges etc. all complete as per specification.The ratio of approved quality hardening compound and cement shall be 1: 4 as per approved sample and manufacturer specification.	SQM	40			0.0015762586
C1402	Providing and laying 25 mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates) with 10 mm thick uniform graded particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 10mm thick cement mortar 1:2 (1 cement :2 sand) by volume including cement slurry, rounding off edges etc. all complete as per specification.	SQM	3			0.0001128480
A1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum/quartz chips topping pigment content is 3.5 kg per 50 Kg of white Cement) of size 300X300X25mm thick of approved shade as per IS 1237, including minimum 20mm cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry@4.4 kg/sqm,labour,materials, etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grinding and polishing complete with laying as per IS 1443 etc.(inclusive of cost of cement for tiles manufacturing) all complete for following: Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	Laid in floors	SQM	20			0.0019878841
b	Laid in skirting	SQM	20			0.0026734583
A1404	Providing and laying interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 20mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing) Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	80mm	SQM	1900			0.1413364528
1406	Providing and laying polished Kota stone 18mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. 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 @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	20			0.0024430604
1408	Providing polished Kota stone 18mm thk in skirting projecting 6mm from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	20			0.0026537902
A1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring .Under bed shall average 30mm thk of 1 cement : 1.5 sand : 3 stone aggregate by volume and brought to proper level. The granite 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, moulding, cornice, granite polishing etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	140			0.0418537409
B1412	Providing and laying 20mm thick Mirror polished (6 layers of polish)/Flame finish (making top surface rough by burning / shot blasting)Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30mm thk of 1 cement : 1.5 sand : 3 stone aggregate by volume and brought to proper level. The granite 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, moulding, cornice, curing, grinding, granite polishing etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	150			0.0493276232
1416	Providing and laying Digitally Glazed vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
b	10mm thick tiles In flooring	SQM	720			0.0704511747
d	10mm thick tiles In skirting and dado upto specific height	SQM	216			0.0223643284
A1416	Providing and laying vitrified ceramic tiles of size 600x600 with Digitally Glazed (Matt/glossy/mettalic finish) in flooring, skirting approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Varmora,Orientbell or equivalent, complete including underbed of 1:3 cement mortar 40 mm average thick underbed for flooring and 12 mm thick underbed with cement mortar 1:3 for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
b	9mm thick tiles In flooring	SQM	750			0.0660479763
c	7mm thick tiles In skirting and dado upto specific height	SQM	50			0.0044358615
d	9mm thick tiles In skirting and dado upto specific height	SQM	210			0.0195687874
B1416	Providing and laying vitrified ceramic tiles of size 800x800,1000x1000mm with Digitally Glazed (Matt/glossy/mettalic finish) in flooring, skirting approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Varmora,Orientbell or equivalent, complete including underbed of 1:3 cement mortar 40 mm average thick underbed for flooring and 12 mm thick underbed with cement mortar 1:3 for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
b	9mm thick tiles In flooring	SQM	470			0.0475985749
c	7mm thick tiles In skirting and dado upto specific height	SQM	40			0.0040809926
d	9mm thick tiles In skirting and dado upto specific height	SQM	125			0.0133953009
A1417	Providing and laying vitrified ceramic tiles of matt finish of size 1000x1000mm from reputed / approved manufacturer including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc.. NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
b	9.00 mm (min.) thick tiles In flooring	SQM	200			0.0199139627
c	7mm thick tiles In skirting and dado upto specific height	SQM	20			0.0019373090
d	9.00 mm (min.) thick tiles In skirting and dado upto specific height	SQM	20			0.0020938109
1418	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in flooring and skirting over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, cement slurry 3.3kg/sqm complete as per specification laid in pattern of following sizes Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
a	400X400 mm	SQM	100			0.0091737691
b	600X600 mm	SQM	190			0.0206465999
A1418	Providing and laying heavy duty Antiskid full body vitrified tiles 18-20 mm thick of size 600x600mm in flooring, of approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Varmora,Orientbell or equivalent ,complete including underbed of 1:3 cement mortar average 30mm thick for flooring with neat cement slurry @3.3Kg/sqm etc.all complete. Full body Vitrified Tiles shall be laid on properly laid levelled floor, with spacer/groove joints 3 to 5mm wide & 8 to 10mm deep & shall be filled with approved Epoxy Grout with matching shade mix of 0.70kg of organic coated filler of desired shade (0.10kg of hardener and 0.20kg of resin per kg). Full body Vitrified Tiles shall have water absorption less than 0.5%, Modulus of Rupture more than 38N/mm ² , Breaking strength more than 7500N, Moh's scale more than 6, Abrasion resistance less than 144 mm ³ and coefficient of friction more than 0.4. Vitrified Tiles shall generally conform to IS: 15622. All complete (including cost of epoxy grouting) as per engineer incharge. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
b	600X600 mm	SQM	800			0.1727246294
1419	Providing and laying Granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners,moulding and opening etc. all complete.	SQM	38			0.0150011495
A1420	Providing and laying Heavy Duty dust pressed Designer Ceramic Tiles of 7mm thick in flooring,dado of approved shade of colour, pattern and make from reputed / approved manufacturer as Simpolo,Orientbell or equivalent ,complete including including underbed of 1:3 cement mortar average 20mm thk underbed in flooring and 12 mm thick underbed with cement mortar 1:3 for dado/skirting with neat cement slurry @3.3Kg/sqm etc.all complete.					
a	300X300 mm	SQM	325			0.0263219036
b	600X600 mm	SQM	40			0.0034082027
1421	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 600x600mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm, Under bed shall be average 43mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar with neat cement slurry @3.3kg/sqm all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	4			0.0003765038
A1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles comply to IS:4457 and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied in flooring/Dado of reputed / approved manufacturer Simpolo,orientbell,Naya Rangoli or equivalent of approved finish, shade and colour with 6mm thick Potassium Silicate bedding mortar as per IS:4441,4443 & 4832 and including preparation of surface, application of bitumen primer, curing, pointing joint of bedding 20mm deepx6mm wide with epoxy/Furane mortar etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	12mm thick	SQM	350			0.0676543693
b	20mm thick	SQM	640			0.1472748175
c	38mm thick	SQM	560			0.1379521327
1423	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles conforming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar all complete for following thicknesses. The tiles should be abrasion resistant & durable.					
b	38mm thick	SQM	180			0.0859398124
A1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (115mm thick) conforming to IS:4860 in the wall of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming 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. Pointing the joints of bricks with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	75			0.0301708828
B1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming 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. Pointing the joints of bricks with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	40			0.0132619265
A1425	Providing and laying polished Marble slabs (Approved shade/color /design) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 1.5 sand : 3 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry 3.3kg/sqm spread over the surface with fine joint finished including moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc. complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	40			0.0150067689
A1427	Providing and fixing Designer digitally glazed ceramic tiles (matt/glossy) of approved color and design as per IS: 15622 of size 300x300mm / 300x450mm, 300X600, of reputed / approved manufacturer Simpolo,varmora,orientbell or equivalent of approved finish,size in dado, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete as instructed by engineer incharge for following thicknesses., Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	5mm thick	SQM	1080			0.0857248680
b	7mm thick	SQM	200			0.0174203272
A1429	Providing and fixing Removable type flooring system (raised access floor) consisting of of fire resistant Cementitious panels of 600 x 600x 35 mm and Laminated with 1.2 mm thick fire retardant food grade antistatic laminate top finish to ensure max bonding to the steel surface. Cementitious panels shall be steel welded construction, with an enclosed bottom pan of 64 hemispherical and top plain sheet which are fuse welded at multiple location to form a panel. The panel is coated with 40-60-micron epoxy coat after cleaning, de-greasing, phosphate by several tank processes & is heated to achieve max adhesion to the panel surface & corrosion resistance. The inner empty core of the panel is injected with a light weight fire retardant, non-combustible cementitious compound at high pressure to fill in all the crevices of the panel and ensures support of not less than 90% of the top surface area of the panel. Pedestal (300mm – 800 mm) must be 25mm dia. pipe with min.2.0 mm thickness with bottom plate of 100x100x min.2.0mm thick & top plate must be 75x75x3.0 mm. All pedestal shall be tightening to Stringer of 20x30x575x1.0 mm Rectangular tube. The system shall be design and taken approval for Uniformly distributed load (UDL) of 13 KN (1300 kg/ sqm), for the same all complete as per specification. Cavity area below the false flooring shall be made dust proof by using Polyurethane paint etc complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	40			0.0195079567
A1430	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.					
a	Glass strips 40 mm wide and minimum 4 mm thick.	RM	750			0.0049521495
A1431	Providing and fixing, laying min.15mm wooden panel flooring and skirting of pergo,Robina,greenlam or equivalent multi-layered engineered wooden planks treated with VOC free lacquers and stains to provide extra strengthening, longevity and durability to planks. In all planks each layers are arranged at cross grain to each other for provide the balancing and stability to all three layers. Top layer of flooring is made up of about 3.0 mm thick thermosetting re-polish able natural veneer setting on a core of about 10 mm thick pine wood that produce natural characteristic of wood with 2.0mm thick bottom ply based veneer balancing layer. The planks are joint to each other through plankloc system with glue less technology system and laid on 2mm thick dual barrier underlay protecting sheet having anti-bacterial, Anti-termite, fire-resistant, noise reduction, high wear and abrasion resistance, water resistant properties. The system includes all accessories like beading, Quadrant, Veneered/solid wood skirting, end profile etc.as per as per manufacturer specification and approved by Engineer Incharge..	SQM	40			0.0100532173
B1431	Providing and laying minimum 50 mm thick wooden flooring, consisting of 35 mm thick hardwood planks, finished with min. 15mm thick wooden flooring of greenlam, pergo or equivalent with min. plank size 193x1195mm (material class shall be 34 as per EN13329) of approved color and shade, over 2 mm expanded polystyrene foam and polythene sheet under laying all complete as per manufacturer specification.	SQM	40			0.0185982256

PART-B						
PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST						
BOQ CUM RATE SCHEDULE (PRICE BID)						
SCOPE OF WORK:-						
CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1432	Providing and fixing Rubber flooring over cement concrete floor min. 4mm thick with sheet size of 602 mm x 602 mm. Rubber flooring shall conform to IS 809. Rubber flooring shall consist of 100% virgin elastomer reinforcing agents, resins, curing agents, anti-oxidants and pigments. It shall have excellent abrasion resistance and shall have class-I fire rating. It shall be acid & alkali resistant and shall be of anti static grade. In general, BS code shall apply for their technical characteristics. etc all complete as per specifications. (Cement concrete flooring to be paid separately).	SQM	40			0.0076362808
A1433	Providing and fixing Glass mosaic tiles at finished plain wall surface of size 24 mm x 24 mm x 3.8 mm thick (minimum) in decorative murals and pattern of approved colour, shade, design, fixing in customize design, as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the vertical wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in- Charge.	SQM	45			0.0092542385
A1434	Providing and laying Dielectric epoxy based coating as per IS: 15652. The minimum dielectric strength for insulating floor (for all switchgear rooms up to and including 11 KV switchgear) shall be 45 KV ac rms (Class B as per Table-4 of IS-15652: 2006). The minimum thickness of insulation coating shall be 2000 microns for switchgear rooms up to 11 KV or as per the lab certificate fulfilling the dielectric strength requirement, whichever is higher. Dielectric test reports as per IS-2584 from a NABL accredited laboratory shall be submitted. Further, test reports for adhesion, tensile strength, scratch hardness, shore hardness, abrasion resistance shall be submitted in line with requirement of relevant national/international standard. The coating shall be high gloss finish and top color of coating shall be decided during the detailed engineering. Arc flash boundary and golden yellow safe boundary shall be provided. The item includes preparation and submission of procedure of coating and conducting dielectric testing in a NABL accredited laboratory on a sample prepared during application at site, all complete as per specification.	SQM	350			0.0519743363
A1435	Providing and fixing Glass Reinforced Concrete (G.R.C) Wall Cladding Tiles shall be of approved design, size, texture, thickness, patten and color on walls upto any height as per the architectural drawing & approval,including necessary scaffoldings required for installation. The thickness of the tiles shall range between 12 to 18mm (depending on the texture of the tile), allowing variance of 2 mm in conform with IS: 1237-1980. The composition of tiles shall be '43' Grade Portland cement, reinforced with Alkali Resistant Glass Fiber and homogeny pigmentation shall be done with exterior grade synthetic inorganic iron oxide pigments manufactured by 'BAYFERROX / Lanxess (Germany)' or equivalent. The pigmentation shall be homogeneous and in accordance with British Standards BS EN 12878:1999. The other additives shall be fine washed graded quartz, super plasticizers and integrated water proofing agents and others. The tiles shall be produced with high vibration technology and concrete mix design compressive strength equivalent to M-40 Grade@28 days. The top surface of the tiles shall be sealed with acrylic lacquer resulting in surface water absorption of tiles, less than 1% and water absorption by 24 hrs immersion method, less than 8%. The tiles shall be applied on a rough plaster of 1:3 cement mortar 1:3 (1cement: 3 coarse sand) and the fixing of tiles shall be done by 'Unistone' tile adhesive or equivalent as per manufacturer's laying instruction etc. all complete as per specification.The colour, texture and pattern finish shall be as finalized by Architect engineer. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	75			0.0270635969
A1436	Providing, Designing & fixing Glass Reinforced Concrete (GRC) in approved design ,customized Screens,jalli, and Dome in shapes, size, texture, thickness, pattern and color fixing upto any height as per the drawing & approval,including necessary scaffoldings required for installation.GRC customized screens are from approved manufacturer Unistone or equivalent. Glass Reinforced Concrete (G.R.C) Screens shall be casted with 'Spray Mix' concrete design in approved size, pattern, thickness of 50mm on the outer Border & 25-30mm for Internal member and shade. The Screens should be made from '53 grade' White Portland Cement manufactured by 'JK Cement' or 'Birla white', White Quartz fine graded sieved Silica Sand, Alkali Resistant Glass Fibre manufactured by 'NEG Japan, Owen Corning 'Saint Gobain' or equivalent, SuperPlasticizers manufactured by 'Karochem' or equivalent, Polymers manufactured by 'Nova Polychem' or equivalent and U.V resistant Synthetic inorganic pigments shall be used for pigmentation manufactured by 'Phenochem industries or equivalent. The Screens casting shall take place with layering methodology using- Direct Power Spray machines. The GRC Screens flexural strength average L.O.P shall be above or equivalent to 6 N/mm2 & M.O.R shall be above or equivalent to 12 N/mm2 for tests done on 28 days cured samples. The fixing of Screens shall be done using 'Dry fixing' method onto structural support members i.e. R.C.C, Brick work, MS Framework. SS / MS Galvanized CLAMPS & PINS also if required fasteners to be used of Wurth, Hilti & Fischer or equivalent. All cast in socket to be epoxy primer coated. Electrodes to be used of advani, mangalam, esab or Victor brand or equivalent.GRC Customized Screens,dome shall be of Unistone make or equivalent.Installation to be done by specialized vendor in strict supervision if required as per the manufacture's specification and as directed by Engineer.The colour, texture and pattern finish shall be as finalized by Architect engineer. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	75			0.0228247203
A1433	Providing and laying Tactile, tac liner & tac button fully vitrified unglazed porcelain tile (for guiding band/s for visually impaired persons), size 300x300 15mm thick having Tile body 10mm thick plus profile 4.5mm thick. Low water absorption below 0.5%. MOR > 38N/cm2, MOH Hardness >7 & Breaking strength > 4000 N. Tile confirming RNIB (The royal national institute for the blind, UK), DETR (Department of the environment, transport and the regions, UK), & ADA (American With Disabilities Act, USA), high stain and chemical resistance. Confirming IS 4457: 2007. Tile will be laid on 20mm thick cement & sand mortar with cement slurry having 4mm spacer & pointing with 3X4mm stainless epoxy grout / polymer based SP- 100 of Laticrete or approved equivalent in approved colour. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	40			0.0042886704
1500	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
A1501	METAL DECK SHEET Type-I , Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44mm (or as per design whiever is higher) of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to the roof slab 40mm - 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minimum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system shall be of industrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16 mm dia & 65 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. Measurement of profile sheeting shall be of the plan area of roof/ floor covered by MS trough metal decking. (Shear anchor studs to be paid separately under BOQ Item No B1503). Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%					
a	Span Upto 1800mm	SQM	1050			0.1180992274
b	Span Exceeding 1800mm and upto 2500 mm	SQM	150			0.0172112898
B1501	METAL DECK SHEET Type-II , Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm (or as per design whiever is higher) of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to the floor slab 150 mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minimum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system shall be of industrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. Measurement of profile sheeting shall be of the plan area of roof/ floor covered by MS trough metal decking. (Shear anchor studs to be paid separately under BOQ Item No A1503). Payment Breakup: a) On Supply & receipt of materials at site - 60% b) On complete execution as per item description - 40%					
a	Span Upto 1800mm	SQM	380			0.0459513587
b	Span Exceeding 1800mm and upto 2500 mm	SQM	40			0.0050018570

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST

BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1503	Providing and fixing shear anchor studs for fixing metal deck sheet to floor structural beams conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19mm diameter and 100mm length manufactured from cold drawn round steel bars conforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete as per specification.	QUINTAL	3			0.0060808181
B1503	Providing and fixing shear anchor studs for fixing metal deck sheet to roof structural purlins conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16mm diameter and 65mm length manufactured from cold drawn round steel bars conforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete as per specification.	QUINTAL	1			0.0020269394
1504A	Designing, providing and fixing Wall Cladding & Roof Cladding Troughed Permanently Color coated sheet of approved shade and color made of steel with minimum 0.6mm bare metal thickness (i.e excluding the thickness of Galvanized/aluminum-zinc coating and painting) of grade G250 as per AS1397/grade SS255 as per ASTM A653M/Grade S250GD as per EN 10326 with zinc coating of class Z275/ aluminum-zinc alloy coating of class AZ150 as per NTPC Technical Specification clause No. 9.08.01.a. This includes all works which Erection, hardware etc all required to complete the work Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	4625			0.4083679415
1504B	Designing, providing and fixing polycarbonate sheet for cladding having toughed profile to match with the metal cladding profile. Minimum 3.0mm thick fire retardant and UV resistant polycarbonate clean sheet of approved make shall be used. The polycarbonate sheet shall be installed along with the metal cladding so as to have a watertight lapping arrangement. Suitable detailing shall be made to cater for the thermal expansion. IS 14434 to be referred for other details. This includes all works viz Erection, hardware, flashings etc all required to complete the work Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	375			0.0571197968
A1505	Designing, providing and fixing External/ Inner sheet of Permanent colour coated metal cladding / roofing with troughed M.S. sheets of minimum 0.5 mm bare metal thickness of min. grade YS350 as per IS15961/G350 as per AS1397/grade SS340 class 4 or as per ASTM A792M/ grade S350 GD as per EN 10326 with zinc coating to class Z275 / aluminium zinc alloy coating to class AZ150 on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, etc. all complete over columns, beams, bracings etc. at all levels. The exposed face of the sheet shall be permanently coated with silicon modified polyester (SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface over primer coat of minimum 5 micron and minimum 10 micron SMP or super polyester paint over primer coat of minimum 5 micron on other face. SMP and polyester paint system shall be of industrial finish of product type 4 of AS/NZ2728. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	580			0.0490115285
1511	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.					
a)	For insulation in Sandwich Cladding	SQM	120			0.0087242122
b)	For underdeck insulation below RCC slabs	SQM	75			0.0062744787
1512	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.					
b)	For underdeck insulation below RCC slabs	SQM	200			0.0179401272
A1512	Providing and fixing of Mineral wool/rock wool insulation(density 48 kg/cum) bound in polythene bags laying on top of false ceiling panels at all height and levels as per instruction from engineer in-charge.	SQM	75			0.0067275477
A1514	Providing and fixing underdeck insulation with resin bonded rock wool /Mineral wool 50 mm nominal thickness conforming to IS 8183 having a density of 48kg/cum with minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.6 mm dia and 25 mm mesh GI wire netting, fixed with 2mm wire ties at various elevations with rawl plugs including clips, etc complete as per specifications and instructions of the engineer incharge.	SQM	1331			0.0943352159
1517	Providing and fixing 1 mm thick corrugated/semicorrugated G.I. sheet in roofs, cladding of minimum galvanisation of 275 gsm total on both sides with minimum 150mm overlapping, 8 dia G.I. hook bolts or 'J' Bolts and nuts @305 mm c/c along with G.I. and bitumen washers including cutting of sheets for opening etc. all complete.	SQM	20			0.0020792003
A1519	Designing, providing and fixing Factory made (Continuous Line) prefabricated sandwiched Permanent colour coated metal cladding comprising top sheet as troughed(minimum depth of trough shall be 30 mm) permanently colour coated sheet & bottom sheet as plain permanently colour coated for covering of exposed metal/concrete / brick surfaces with insulation shall be of Polyurethane type of minimum 50mm thick (excluding trough). The polyurethane shall be Chlorofluorocarbon (CFC) free and self-extinguishing and shall conform to IS 12436: 1988. It shall have Modular Density 40 +/- 2 Kg/m3 and Thermal Conductivity @ 10 Deg.C 0.017 - 0.020 W/M Ok, Water absorption (% by vol) 3.1, Critical Oxygen Index 23 and Compressive Strength 1.2 Kg/sq.cm, sandwiched between the two sheets, each sheet shall be high strength tensile steel sheet 0.5mm bare metal thickness (minimum) of YS350 as per IS 15961 /grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z 275 / aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of industrial finish of product type 4 of AS/NZS 2728, troughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a protected guard film (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	2500			0.6042675985
1600	FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.					
1601	Providing and fixing glass fibre reinforced gypsum plaster board (GRG) ceiling (having gypsum core mixed with glass fibre) system consisting of metal 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 preparation 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.					
a	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat (seamless).	SQM	600			0.0475406348
b	12 mm thick GRG board in profile (dome ,curved profiled etc.) with galvanised light gauge steel load bearing supporting GI frame and finished smooth (seamless).	SQM	100			0.0118781344
A1601	Providing and fixing 12.5 mm thick tapered/square edge glass fibre reinforced gypsum board false ceiling conforming to IS : 2095 having fine texture finish, including providing and fixing of frame work at all levels, for all kind of work, consisting of light weight galvanised steel member (minimum 0.8 mm thick and galvanised as per IS: 277) having maximum grid size of 1200 mm x 600 mm for supporting panels of specified size, suspended from RCC structural steel or catwalkway grid above, with 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm width along the perimeter of ceiling, supporting grid system (minimum 0.8 mm thick and galvanised as per IS: 277), expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts, return air grills, light fixtures, etc., all complete. (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer in charge.	SQM	200			0.0261318956
A1602	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanised Tees (silhouette T -profile) of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density 48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc. The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate. (All mineral fiber board to be used should be with appropriate % of recycled content. The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)	SQM	1403			0.2131664323

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon Hunter douglas, or approved equivalent with corrosion resistant aluminium alloy panels of size 600 mm x 600 mm and 0.6 mm thk. with clip on torsion spring system ,perforation patterns in combination with built in nonwoven tissue, acoustic fleece for providing good acoustic properties and installed with silhouette T-Grid (of profile 24 mm) in same or contrasting colours or with 6 mm recess joints. The whole system shall be level adjusting arrangement and shall be suspended as per manufacturer. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 at minimum grid distance 1.2m c/c shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid separately) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	1183			0.4427449201
C1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon 150C,300C, of Hunter douglas,Newage or approved equivalent with corrosion resistant aluminium alloy (Al grade 3105,Al-Mg AA 5050) panels of of minimum thickness 0.6mm with perforation patterns in combination with built-in non-woven tissue, acoustic fleece for providing good acoustic properties with NRC 0.55. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.(Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	40			0.0149702424
A1604	Providing, fixing and laying permanently colour coated Designer metal aluminium false ceiling of approved colour with stove enamel finish of approved make of Luxalon Hunter douglas,Newage or approved equivalent in LINEAR, RECTANGULAR, SQUARE, CURVILINEAR , OPEN GRID type etc.as per detail engineering drawing , with corrosion resistance aluminium alloy (grade 3105) panels of minimum thickness 0.6mm,with perforation patterns in combination with built-in non-woven tissue, acoustic fleece for providing good acoustic properties with NRC 0.7. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc.Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	100			0.0330452952
B1604	Providing, fixing and laying permanently colour coated Designer metal Batten panel extruded aluminium false ceiling of colour with stove enamel finish,powder coating in wooden finish of approved make of Luxalon Hunter douglas,Newage or approved equivalent in combination with demountable translucent stretch ceiling members etc.as per detail engineering drawing & manufacturer specification with corrosion resistance aluminium alloy (grade 3105) panels of minimum thickness MIN. 0.6mm.The battens shall have possibility of curvilinear arrangement.Batten ceiling of 1"x1" made up of extruded aluminum with "click-on system" and meet technical requirements of ASTM E84 having superior acoustics & highest health and safety standards The ceiling shall be installed using ceiling aluminum suspension system, etc. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc.Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	75			0.0292330977
1605	Providing, fixing and laying anodised natural colour matt finished aluminium false ceiling of Jindal/Hindalco or equivalent approved make with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc. shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.The work to be complete as per specifications, drawings and direction of engineer.	SQM	40			0.0116884776
1606	Providing and Fixing 12mm thick Gypsum board plain/perforated false ceiling tiles(600x600mm) of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete.as per architectural design and detail.metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated.suspension system shall be as per manufacturer's specification supported over movment platform.The work to be complete as per specifications, drawings and direction of engineer.(Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	40			0.0037172730
1607	Providing and Fixing 12mm thick Gypsum board plain/ mineral fibre based acoustic ceiling board in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete.as per architectural design and detail.metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated.suspension system shall be as per manufacturer's specification supported over movment platform. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%.	SQM	40			0.0039954363
A1607	Providing and Fixing 12mm thick water resistant Calcium silicate board, glyroc or equivalent in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%	SQM	330			0.0517105553
1608	Providing & fixing 12.5 mm thick glass fibre reinforced gypsum plastic board in plan curve or in elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete, as per architectural design and detail, metal suspension system as per ASTM C-635 shall be hot dipped MS galvanized (grade 180 as per IS:277) nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24 mm wide exposed flange surface shall be permanently color coated.suspension system shall be as per manufacturer's specification supported over movment platform. The work to be complete as per specifications, drawings and direction of engineer.	SQM	40			0.0041471618
A1608	Providing and fixing Pre-Painted Coil coated Steel false ceiling system, at all level, for all kind of works, in approved pattern,consisting of 0.5 mm thick galvanised as per IS 277 including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to IS:8183 bound in polythene bags on top of panels. , along with galvanised supporting steel members exposed faces of galvanised member to be prepainted with regular modified polyester coating / super polyester coating minimum 20 DFT, to form panels of specified size for tile type panels and roll formed stove enamelled 0.6 mm thick steel carrier, for fixing of lineal type panels by clip on arrangement, suspended from RCC slab / structural steel or catwalk way steel channel grid above with 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm leg width along the perimeter of ceiling, including all labour, material, supporting grid system (members minimum 0.8 mm thick and galvanised as per IS 277) anchor fasteners for making suspension arrangement from RCC, providing openings for AC ducts, return air grills, insulation light fixtures, etc., all complete.(Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No D2301)	SQM	40			0.0048018289
B1608	Providing and fixing stainless Steel false ceiling system in lineal/tile shape, approved colour Luxalon hunter douglas or approved equivalent, lineal pattern (closed type) of 100 mm nominal width , bright finish at all level, for all kind of works, consisting of 0.5 mm thick stainless steel sheet, along with galvanised supporting steel members exposed faces of galvanised member to be prepainted with regular modified polyester coating / super polyester coating minimum 20 DFT and roll formed stove enamelled 0.6 mm 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 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm leg width along the perimeter of ceiling, including all labour, material, supporting grid system (members minimum 0.8 mm thick and galvanised as per IS 277) anchor fasteners for making suspension arrangement from RCC, providing openings for AC ducts, return air grills, insulation light fixtures, etc., all complete.(Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No D2301)	SQM	40			0.0148557689
A1609	Providing , Design and fixing Aluminium ceiling trap door in the false ceiling matching with false ceiling material with min. 2mm thick powder coated inner and outer aluminum frame, corner fitting plate with stainless steel of 2mm thick fixture are with self-drilling screws and sealing strip of 6mm width and 6mm thick. Hinge operated through Push-lock mechanism. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	20			0.0071982590
1700	RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.					
1704	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	1475			0.2057670781
A1705	Providing and fixing Unplasticized PVC rain water pipes of 110mm diameter conforming to IS 13592, Type A with joints with seal ring conforming to IS 5382 all completeas per specification.	RM	530			0.0363354308
B1705	Providing and fixing Unplasticized PVC rain water pipes of 150mm diameter conforming to IS 13592, Type A with joints with seal ring conforming to IS 5382 all completeas per specification.	RM	730			0.0677376778

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ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
1800	MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.					
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 230 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	838			0.1041301461
A1801	Providing and Filling in trenches, plinths, area paving, grade slab and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 200 mm in compacted thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum/non expansive soil and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	4550			0.7216721743
B1801	Providing and Filling in trenches, plinths, area paving, grade slab and other underground structures with graded stone aggregate of 40 mm size rammed,consolidated in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected fine sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	200			0.0317218538
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	277			0.0643650182
1803	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	40			0.0086652079
A1803	Providing and laying 75mm thick base layer of M5 grade PCC over the prepared sub grade in Switchyard . Adequate slope shall be provided for easy drainage of water. Over the PCC layer, 75mm thickness of stone aggregate of 40mm nominal size shall be spreaded uniformly as per customer specification Clause No. 1.01.20 Subsection B-17 and as per direction of Engineer-In-Charge .	SQM	42099			0.6839936012
1804	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	2567			0.0434557788
A1804	Providing and fixing weep holes in drains consisting of 75 mm dia LDPE pipe sleeves including sand (250sq x 150 mm thick), aggregates (250sq x 150 mm thick), 200mm dia geo-textiles (pasted on concrete surface) etc. all complete as per specifications, drawings and guided by engineer-in-charge. (item is inclusive the cost of materials like HDPE pipe, sand, aggregates, etc.).	EACH	1300			0.0220072117
1807	Anti termite chemical treatment of soil with Chlorpyrifos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment). Drilling 12mm dia hole @300 c/c using material one liter per hole.	SQM	24405			0.4765716833
1808	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	366			0.4102904292
1809	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	EACH	60			0.0517468009
1810	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	EACH	60			0.0397352043
1811	Construction of below ground earthing system earth electrodes as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items & steel shall be supplied by BHEL free of cost.)	EACH	60			0.0036962001
1812	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)	EACH	60			0.0029544313
1813	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	60			0.1502166050
1814	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	60			0.0829853811
A1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 610 g/sqm etc. all complete.	Kg	760			0.0072069579
1816	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	240			0.2053856572
1821	Sprinkling of water by water tanker fitted with perforated GI pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust supression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling).	TANK-HR	1900			0.1441391586
1822	Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	CUM	40			0.0495664502
1823	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	61			0.0077084245
1824	Disposal of scrap steel, scrap wood, broken packing crates, cable scrap, debris and other civil waste, electrical waste materials etc. from project site to a designated place within 5 KM range, with all manpower T & P etc. including loading and unloading as and when directed by BHEL.					
a)	Steel scrap / metal scrap	MT	4			0.0006616915
b)	Debris & Other waste materials.	CUM	40			0.0003174995
1,827	Anti weed chemical treatment of soil with suitable chemical pertaining to the types of weeds found in the vicinity including providing anti-weed/ soil sterilization test certificate, performance guarantee of three years etc. all complete.	SQM	2200			0.0007726758
A1827	Antiweed treatment in switchyard area (Antiweed chemical shall be customer approved & as per Technical specification) including surface dressing/preparation (surface dressing of earth to an extent of ±200mm) to the lines & grades including removing vegetation/plant , dressing, micro-leveling ,cutting and filling earth, maintain slope to nearest drain ,water spinkal on surface ,compaction /consolidating with roller(Min. 1/2 ton roller with 4-5 passes) ,shifting of excess earth/debris generated during the process to the designated point and all works complete as per instructions of the Engineer -in- Charge (The rate shall be inclusive of all materials & all activities mentioned above including any other activity required for completion but not mentioned above etc all complete as per Technical Specification & direction of Engineer-In-Charge. Note: 1. The anti-weed / soil sterilization chemical shall be procured from reputed manufacturer. The Bidder shall submit necessary details pertaining to the types of weeds found in the vicinity, anti-weed/soil sterilization such as manufacturer's name, their specification, test certificate etc. for Employer's approval. 2. The Bidder shall be required to furnish a performance guarantee of three years for the anti-weed treatment.	SQM	42099			0.0887151234
1835	Firecrete for FO tank pad	CUM	200			0.7289283025
A1837	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M or equivalent to 8% to 10% by volume including compaction. Separation layer of one tack coat @ 1Kg/sqm shall be spray after first layer of 30mm and sand shall be sprayed on the final surface of 20mm @ 0.5 cum/100 sqm. etc. all complete as per specification ans as quided by engineer-in-charge.	SQM	724			0.0341753102
A1838	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	270			0.0133821829
A1844	Providing and installation of Bio-Toilet near the modular worker's sheds etc all complete as per specification.	EACH	4			0.0154556085
2000	FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.					

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A2003	Supplying and erecting in position 2.4 m high PVC coated G.I. welded wire mesh fencing of minimum 4 mm diameter (including PVC coating) of mesh size 75mmX75mm including providing concertina of 600 mm height over chain link fencing. The diameter of the steel wire for chain link fence (excluding PVC coating) shall not be less than 2.5 mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. On every fourth post a clamping strip will be threaded through the links of chain link and bolted to the fence post with the help of security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be of high tensile serrated galvanised wire (HTSW) with wire diameter of 2.5mm stretched to 6m and attached to two strands of galvanised HTSSW of 2.5 mm diameter by means of clips at 1m intervals. These two HTSSW strands will be attached to the fence posts with 12 mm security fasteners etc. all complete. (Structural post shall be separately under ST No. 2007) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	RM	1228			0.2604150659
2006	Supplying and fixing 600mm high concertina on top of boundary wall including GI tension wires, clips, anchors, accessories etc. all complete. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. (Structural post shall be separately under ST No. 2007)	RM	70			0.0019028898
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%	MT	8			0.0618477809
A2007	Supply, fabrication and fixing of mild steel posts for fencing including painting with chlorinated rubber paint over a suitable primer etc all complete. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%	MT	19			0.1380359329
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	7			0.0612764925
2010	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	10			0.0835950925
2100	WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck/body bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	155			0.0118349348
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	155			0.0105175225
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:					
a	25mm nominal bore.	EACH	110			0.0083989860
b	50mm nominal bore.	EACH	50			0.0055140955
2104	Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:					
a	15 mm nominal bore.	RM	85			0.0030331037
b	20 mm nominal bore.	RM	90			0.0035149725
c	25 mm nominal bore.	RM	90			0.0041598055
d	50 mm nominal bore.	RM	50			0.0030907032
A2104	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, conforming to IS 15778, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings shall be concealed, complete for internal works with sockets, unions, elbows, tees, nipples etc of approved manufacturer supreme,prakash,ajay pipes or equivalent and clamps including cutting and making good the walls etc all complete for following sizes:					
a	15 mm nominal bore.	RM	540			0.0189537544
b	20 mm nominal bore.	RM	225			0.0085287623
c	25 mm nominal bore.	RM	225			0.0100758962
d	50 mm nominal bore.	RM	110			0.0089593937
e	75 mm nominal bore.	RM	100			0.0097738840
f	100 mm nominal bore.	RM	50			0.0057014323
2105	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:					
a	15 mm nominal bore.	RM	75			0.0020388105
b	20 mm nominal bore.	RM	80			0.0024444653

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
c	25 mm nominal bore.	RM	80			0.0030176502
d	50 mm nominal bore.	RM	50			0.0026657315
A2105	Providing and fixing UPVC pipes conforming to IS:13592 complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:					
a	15 mm nominal bore.	RM	230			0.0049986505
b	20 mm nominal bore.	RM	150			0.0033878322
c	25 mm nominal bore.	RM	110			0.0025781616
d	50 mm nominal bore.	RM	50			0.0013849628
e	75 mm nominal bore	RM	75			0.0023970511
f	100 mm nominal bore	RM	75			0.0037984040
2106	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	8			0.0008771978
A2106	Providing and fixing 600mm x 900mm x 6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws , edge mounting with teak beading and minimum 12 mm thick plywood backing etc all complete.	EACH	77			0.0113696717
2107	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	NOS	8			0.0005540788
2108	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) with C.P. mounting brackets all complete.	NOS	8			0.0007827908
A2108	Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) with C.P. mounting brackets all complete.	EACH	75			0.0073386640
2109	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.	NOS	8			0.0006209504
2110	Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete.	EACH	75			0.0046097136
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	85			0.0042212684
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. all complete.	EACH	85			0.0049437203
2113	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia shower arm all complete.	EACH	77			0.0042458535
A2113	Providing and fixing rotating type Emergency safety shower,conforming to IS 10592 latest code, head with water column of height 210 to 240 cm is provided from the standing level.water column provided with a minimum spray pattern diameter of 50 cm at 150 cm height from standing level and the centre of the spray pattern shall be located at least 40 cm from any obstruction or emergency. Shower head shall be so designed that it produces a straight water column. Emergency shower head shall deliver a minimum of 76 l/min of water and substantially dispersed throughout the pattern,complete with installation,with accessories etc all complete.	EACH	2			0.0065279937
A2114	Providing & fixing in position Polyethylene water storage tanks conforming to IS:12701 including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. Pipes shall be paid separately.					
a	500 litres capacity	EACH	4			0.0023264566
b	1000 litres capacity	EACH	12			0.0139587396
c	2000 litres capacity	EACH	8			0.0186116528
d	5000 litres capacity	EACH	4			0.0232645660
A2115	Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete.	EACH	75			0.0051058521
A2117	Providing and fixing electric operated hand dryer with photo voltaic control.etc all complete..	EACH	25			0.0090690927
A2118	Providing and fixing Recessed porcelain soap tray in shower area etc all complete.	EACH	25			0.0008163722
A2119	Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete.	EACH	25			0.0036272669
2200	SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
A2201	Supply and fixing coloured glazed vitreous oval shape china wash basin 450x550mm conforming to IS: 2556 mounted over 18 to 20 mm thk granite beveled edge counter. The Basin shall be fitted with approved shape bib cock, photo-voltic control system for water control with flow rate less than 5 LPM (litres per minute) at 45 psi,CP brass chain with rubber plug, 40mm CP brass waste and bottle trap as per IS: 2556 with angle valve,taps,32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required,necessary union including cutting of notch in granite counter slab etc.all complete as per specification					
b	Colored	EACH	51			0.0559464343
A2202	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, 40mm heavy duty CP brass waste bottle trap and 15mm CP brass pillar tap (hot and cold dual function) with elbow,operated level ISI marked, with necessaary union,elbow,angle valve,tees, junctions,extension pipes complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	6			0.0043134902
2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	2			0.0012954261
A2203	Providing and fixing stainless steel kitchen sink of size 610 x 510 mm, bowl depth 200 mm as per approved manufacturer with drain board of at least 450 mm length with trap, hot and cold water mixer, conforming to IS: 13983 including all fittings, necessaary union,elbow,angle valve,tees, junctions,extension pipes etc. all complete.	EACH	4			0.0025878399
B2203	Providing and fixing stainless steel Eye wash sink of size size 610 x 510 mm, bowl depth 200 mm as per approved manufacturer with drain board of at least 450 mm length with trap, water mixer, conforming to IS 10592 latest code including all fittings, necessaary union,elbow,angle valve,tees, junctions,extension pipes etc. all complete.	EACH	4			0.0023290556
A2204	Providing and fixing colour glazed vitreous china European type water closet of approved make conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC,dual flushing system) with valveless fittings,2 way angle valve, with health faucet necessary C.P connections, water faucet etc all complete.					
a	Floor mounted	EACH	4			0.0031210497
b	Wall mounted	EACH	60			0.0755878154
2205	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete.	EACH	12			0.0074370748
A2205	Providing and fixing colour glazed vitreous china Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete having flow rate of 6/3 LPF (litres per flush) or less at 45 psi.	EACH	30			0.0195223214
A2206	Providing and fixing white/coloured water efficient flat black glazed vitreous china urinals of size 610x375x390mm with photo voltaic control flushing systems of approved manufacturer simpolo, varmora or equivalent per IS: 2556(pt-6 sec-1) with flush pipes, lead pipes, gratings, traps and necessary C.P fitting etc. all complete as per specification having flow rate of 2 LPF (litres per flush) or less at 45 psi.	EACH	86			0.1539770074
2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.					
a	75mm dia pipes	RM	200			0.0063921362
b	110mm dia pipes	RM	250			0.0126613467
c	160mm dia pipes	RM	200			0.0139784077
d	200mm dia pipes	RM	75			0.0076336857
A2208	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 all complete for following.					
a	200mm dia	RM	170			0.0157387036
Aa	250mm dia	RM	500			0.0509193353
b	300mm dia	RM	620			0.0923277340
c	450mm dia	RM	155			0.0293968021

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
d	600mm dia	RM	20			0.0046641521
e	900mm dia	RM	20			0.0063078443
A2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.					
a	150mm dia	RM	8			0.0005714991
Aa	200mm dia	RM	175			0.0141684157
b	250mm dia	RM	340			0.0313579938
c	300mm dia	RM	8			0.0008316801
d	450mm dia	RM	8			0.0011654761
e	500mm dia	RM	8			0.0013717103
2210	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following:					
a	250mm dia	RM	8			0.0014337241
b	300mm dia	RM	8			0.0015112227
c	450mm dia	RM	18			0.0039233667
d	600mm dia	RM	8			0.0021078596
e	900mm dia	RM	8			0.0028462567
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	5			0.0060785000
A2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx600mm including frame from reputed manufacture confirming to IS:4111 etc all complete as per specification.	EACH	37			0.0474213042
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	25			0.0314022470
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber (Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) 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 etc all complete for following sizes:					
a	100x100mm P or S Type.	EACH	162			0.0246933138
b	150x100mm P or S Type.	EACH	162			0.0273447156
c	150x150mm P or S Type.	EACH	85			0.0165805691
2214	Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	EACH	10			0.0017167451
A2214	Providing and fixing Heavy duty CP brass floor traps size 100mm with stainless steel grating etc all complete.	EACH	100			0.0171674514
A2216	Providing and installing approved brand single tap water efficient water cooler of 50 L cooling capacity all complete.	EACH	4			0.0122519444
B2216	Providing and installing approved brand single tap water efficient water cooler of 80 L cooling capacity all complete.	EACH	4			0.0163359250
2217	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	8			0.0456558678
2218	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	48			0.0124482286
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	54			0.0814044864
2220	Providing and fixing heavy duty cast iron pipes for above and below ground sanitary works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.					
a	75mm dia pipes	RM	35			0.0036041814
b	100mm dia pipes	RM	65			0.0086613445
c	150mm dia	RM	65			0.0132728142
d	200mm dia pipes	RM	30			0.0090887747
e	250mm dia pipes	RM	20			0.0097062129
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following. (Excavation, backfilling, concrete to be paid separately)					
a	75mm dia	RM	55			0.0060848219
b	100mm dia	RM	85			0.0110875465
c	150mm dia	RM	85			0.0171179300
d	200mm dia	RM	35			0.0101782476
e	250mm dia	RM	35			0.0165630082
f	300mm dia	RM	35			0.0200196788
2222	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.					
a	Upto 75 mm dia	RM	35			0.0013054709
b	100 mm dia	RM	35			0.0015882000
c	150 mm dia	RM	95			0.0089152739
d	200 mm dia	RM	810			0.1119733674
2223	Providing and fixing vertical wall mounted water geysers/heaters (minimum 5 star rating) of required capacity including all connections & fittings (angular stop cock and brass connection pipes, etc.) all complete as per specification.					
a	15 Litres	Each	8			0.0076458378
b	25 Litres	Each	8			0.0099076706
A2224	Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 50 mm domestic water inlet pipe	Each	4			0.0031570343
A2225	Supply, laying and jointing sand cast iron pipe conforming to IS: 1729 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.					
a	75mm dia	RM	50			0.0045947016
b	100mm dia	RM	85			0.0086788808
c	150mm dia	RM	85			0.0127841567
d	200mm dia	RM	35			0.0059659398
e	250mm dia	RM	35			0.0066678150
f	300mm dia	RM	35			0.0073696903
2300	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.					

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A2301	Fabrication, erection & alignment (field connections will be bolted type) of Mild structural steel (Grade designation E250), Medium and High Tensile structural steel (Grade designation E350 or higher) with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, 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, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including loading, transportation, unloading, collection of steel from stores, machining, welding, electrodes and other consumables, alignment, true to line, level, plumb & dimension, temporary erection bolts & nuts, assembly, edge preparation, preheating (min preheat and interpass temperature of 200 C for welding over 20 mm and upto 40 mm & 660 C for welding over 40 mm and upto 63 mm & 1100 C for thickness over 63 mm & use of low hydrogen electrodes, 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, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per approved drawing, specification and approval of engineer in charge. The work shall be satisfactorily completed with required tightening of HSFG bolts. Payment shall be made for weight of structure but not for temporary erection bolts & nuts. High strength (HSFG) bolt including nuts and washer shall be paid separately. (BHEL to supply steel free of cost). Payment Breakup:- 1) On Completion of Fabrication - 60% 2) On Completion of erection-25% 3) Balance on completion of alignment, welding etc.-15%	MT	1799			4.1487937492
B2301	Fabrication, erection & alignment (field connections will be welded type) of Mild structural steel (Grade designation E250), Medium and High Tensile structural steel (Grade designation E350 or higher) with - rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, 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, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including loading, transportation, unloading, collection of steel from stores, machining, welding, electrodes and other consumables, alignment, true to line, level, plumb & dimension, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20° C for welding over 20 mm and upto 40 mm & 66° C for welding over 40 mm and upto 63 mm & 110° C for thickness over 63 mm & use of low hydrogen electrodes, 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, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per approved drawing, specification and approval of engineer in charge. (BHEL to supply steel free of cost). Payment Breakup:- 1) On Completion of Fabrication - 60% 2) On Completion of erection-25% 3) Balance on completion of alignment, welding etc.-15%	MT	150			0.3459249930
A2302	Extra over ST NO. A2301, B2301 for blast cleaning of steel structures to near white metal surface (Sa 2 1/2) & providing and applying two component moisture curing zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) of minimum 70 micron DFT . Zinc dust composition and properties shall be Type-II as per ASTM D520-00. The primer coat shall be applied over shot blast cleaned surface including touch-up painting etc all complete as per specification and direction of engineer-in-charge. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT	1924			0.6084663536
A2305	Providing and applying intermediate coat of two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT over steel sections already having primer coats, to be applied after an interval of minimum 24 hours from the application of primer coat by airless spray technique and of approved make, colour and shade including protection and cleaning, scaffolding etc. all complete as per specification and direction of engineer-in-charge	MT	1924			0.3594831967
B2305	Providing and applying Final coat of two-pack aliphatic isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT , over steel sections already having intermediate coats and of approved make, colour and shade including protection and cleaning, scaffolding etc. all complete as per specification for all structures.	MT	1924			0.3594831967
2306	Providing, laying and clamping of crane rails over the crane girder at all elevations as per IS 3443 including all fixtures, clamps, testings etc. all complete as per drawing and specification.	MT	10			0.1019201528
A2307	Supplying, fabrication, erection and alignment of factory made electroformed galvanised grating units with mild steel conforming to IS:2062 having hot dip galvanisation, surface preparation of shot blast cleaned to Sa 2 ½ finish or cleaned by acid pickling as per ISO 8501-1, in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 60% b) On complete execution as per item description - 40%	MT	70			0.6208632698
a	Minimum galvanisation of 610 g/sqm	MT	70			0.6208632698
2308	Supplying, fabrication, erection and alignment of factory made galvanised welded grating units with mild steel conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	12			0.1130270163
2309	Extra over above ST NO. 2301 for finishing the grating units/bolts/inserts with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	32			0.0798345497
2310	Extra over above ST NO. 2301 / 2308 for finishing the grating units/bolts/inserts with Cold galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of primer all complete.	MT	2			0.0034548442
2311	Providing 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 etc all complete.	KG	1160			0.0112445402
2312	Providing and fixing in position 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 etc all complete. Payment Breakup: a) On Supply & receipt of materials at site - 60% b) On complete execution as per item description - 40%	KG	23300			0.2356801681
A2312	Supply, fabrication, transportation and delivery at site of high strength structural bolts (of property class 10.9 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 etc all complete. Payment Breakup: a) On Supply & receipt of materials at site - 60% b) On complete execution as per item description - 40%	KG	24400			0.2591470347
2313	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	30			0.0231023040
2314	Addition to, alterations in and/or modification of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:					
a	In erected position	MT	30			0.0604984080
b	In fabrication yard	MT	30			0.0501052160
2315	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, re-welding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members (weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	30			0.0377880613

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A2318	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer for required vertical load and end displacement/rotation as per approved construction drawings. PTFE bearing shall be sliding against highly polished stainless steel and the coefficient of friction between them shall be less than 0.06 at 55 kg/sq.cm. In order to prevent cold flow in PTFE surface it shall be rigidly bonded by a special high temperature resistance adhesive to the stainless steel substrata. The stainless steel surface that slides against the PTFE is mirror polished. The stainless steel shall be bonded to the top plate by special high strength adhesive. The thickness of stainless steel plate shall be between 1.0 mm to 1.5 mm.					
a	20 Tons	EACH	2			0.0016604101
b	25 Tons	EACH	2			0.0019274749
c	40 Tons	EACH	3			0.0040936364
d	50 Tons	EACH	3			0.0048950417
e	60 Tons	EACH	2			0.0037977718
f	100 Tons	EACH	2			0.0041540456
g	130 Tons	EACH	1			0.0026113632
h	200 Tons	EACH	1			0.0038581810
A2319	Providing and fixing preformed flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm under un-stretched condition with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	8			0.0025888854
2320	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	5			0.1046620983
A2320	Supply, fabrication and fixing of stainless steel pipe/square (polished) hand railing conforming to SS 304 made of Hollow tubes 25NB/32NB/40NB/50NB/60NB , channels, plates,decorative posts,Newel post, midrail, kick plate,knee guard, toe guard, etc.,including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts,fastners, bolts necessary accessories & stainless steel dash fasteners, stainless steel bolts etc.,of required size, with suitable arrangement.Baluster and handrail connector should be screwed tightened and not to be welded on site. Wall thickness of all pipes shall be taken as min.2 mm. Along with all visible components developed in high grade SS and whenever required, joints to be filled with bushings for extra strength,all complete as per approval of Engineer-in-charge,including transportation, loading/unloading etc. Payment Breakup: 1. On Supply & Receipt at site - 60% 2. On completion of erection, alignment, welding, etc. complete as per description/specification - 40%	MT	2			0.0418648393
B2320	Supply, fabrication and fixing of Stainless Steel-top mounted-Laminated Glass Railing with all necessary bend & termination conforming to SS304 grade satin finish with support at a c/c distance of 1000 mm and exposed height of 1000 mm consisting of Hand rail 50NB, 2mm thick pipe, balusters of 42NB,2.0mm thick,neck pipe 19NB,2mm thick glass clamps 3mm thick cover caps 12. mm thick,base plate 6mm thick with fastners with 6mm heat strengthened glass + 1.52 mm pvb layer + 6mm heat strengthened glass as per specification, including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts,fastners, bolts necessary accessories & stainless steel dash fasteners, stainless steel bolts etc.,of required size, with suitable arrangement.Baluster and handrail connector should be screwed tightened and not to be welded on site.all complete as per approval of Engineer-in-charge,including transportation, loading/unloading etc. Payment Breakup: 1. On Supply & Receipt at site - 60% 2. On completion of erection, alignment, welding, etc. complete as per description/specification - 40%	RM	35			0.0262110120
2321	Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payment Breakup: 1. On Supply & Receipt at site - 60% 2. On completion of erection, alignment, welding, etc. complete as per description/specification - 40%	MT	7			0.0642950559
A2322	Supply, fabrication and fixing of galvanised MS pipe hand railing (Min. 1000 mm high) of 32mm/40mm/50mm dia (Medium Class) including transportation, loading/unloading, painting etc. all complete Payment Breakup: 1. On Supply & Receipt at site - 60% 2. On completion of erection, alignment, welding, etc. complete as per description/specification - 40%	MT	40			0.3962393900
2323	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	30			0.0210497961
2324	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	30			0.0027542380
2325	Conducting ultrasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	50			0.0020405665
2326	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	50			0.0031890438
2327	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	50			0.0033997735
2328	Supply, fixing lightning arrester and air terminal over roof of power house building, pump house and other structures including all materials, labour, electrodes etc complete (all materials to be supplied by the contractor).	EACH	2			0.0007823694
A2329	Design, supply, fabrication, erection of stoplog gates, Sluice gates etc. in CW / RW / CLW Pumps, etc. with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, with electrically operated hoisting arrangements, 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, shot blasting, MS structural parts shall be galvanised to minimum coating of Sealed Zinc spray (250 Micron) as per BS 5493. Over zinc coating one coat of zinc Phosphate Epoxy primer having minimum 30 micron DFT and three coats of coal tar Epoxy paint having minimum 75 micron DFT / coat shall be provided. Total DFT of epoxy paint including primer shall be minimum 250 microns, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete. 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, SS component shall be paid separately under relevant BOQ item). Payment Breakup: 1. On Supply & Receipt at site - 60% 2. On completion of erection, alignment, welding, etc. complete as per description/specification - 40%	MT	35			0.3755134152
A2330	SS component mentioned under ST No. A2329 &A2331	MT	8			0.1879585867
A2331	Design, supply, fabrication, erection in position and testing / examining bolted and / or welded structural steel work for stationary screens made out of rolled sections and / or plates including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning, shot blasting, MS structural parts shall be galvanised to minimum coating of Sealed Zinc spray (250 Micron) as per BS 5493. Over zinc coating one coat of zinc Phosphate Epoxy primer having minimum 30 micron DFT and three coats of coal tar Epoxy paint having minimum 75 micron DFT / coat shall be provided. Total DFT of epoxy paint including primer shall be minimum 250 microns, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete. etc all complete. (Stainless Steel (SS) component shall be measured separately for payment)	MT	30			0.2959362369
A2333	Touch up paintings on damaged areas (exposed metal surface) including Surface preparation by manual tools, wire brush/ emery paper etc. Minimum 6 inches peripheral area, adjoining to damaged area to be covered. For exposed metal surface , it is to be painted with Zinc rich epoxy (70 micron) or suitable primer with existing paint scheme as per description of paint specified under item no. A2302,A2305,B2305. The mode of measurement for payment in SQM shall be the actual area of touch up paint.	SQM	450			0.0118259059
B2333	Touch up paintings on damaged areas(surface exposed to prime coat) including surface preparation by manual tools, wire brush/ emery paper etc. Minimum 6 inches peripheral area, adjoining to damaged area to be covered. For damaged surface, intermediate & top coat to be provided as per description of paint specified under item no. A2305,B2305. The mode of measurement for payment in SQM shall be the actual area of touch up paint.	SQM	450			0.0073055278
2400	ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge.					

PART-B

PROJECT: 2 X 660 MW SUPER CRITICAL THERMAL POWER PROJECT, HTPS, KORBA WEST
BOQ CUM RATE SCHEDULE (PRICE BID)

SCOPE OF WORK:-

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP PACKAGE AND SWITCHYARD - AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW Pump House including Forebay, Channel & Concrete Volute Pump, ACW Pump House, Laying of CW Pipeline including erection work, Permanent Store, Gate Complex, Watch Tower, Gas Cylinder Storage Area/Shed, Hydrogen Plant Building, Fuel Oil System, Fire Detection & Protection System, Pipe/ Cable Rack, PCRI Chemical Lab, Fire Fighting Pipe Pedestals/ Trenches (Outside Main Power Block Island), Area Paving, Shed for Construction Workers and O&M Workers with cooler & Bio-toilet, Rain Water Harvesting system, Solar PV Plant on Roof Top of Building/ Facilities, Parking sheds, Roads & Drains, Plant Boundary Wall, Switchyard works including earthing works and misc. foundations, paving, sumps, pedestals etc.

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A2401	Preparation of sub grade by excavating earth to required depth for all types of soil, dressing to camber and compacting the same to achieve atleast 95% maximum dry density as per IS 2720 Part-VII including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete as per specification, drawing and as per direction of Engineer-in-charge.	CUM	4374			0.0211998357
A2402	Filling with selected good earth of approved quality in layers not exceeding 300 mm compacted thickness using excavated soil within a lead upto 1km and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, teting etc all complete.	CUM	2147			0.0755569462
A2404	Providing & laying granular sub-base using close graded material conforming to specification, mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge.	CUM	2000			0.3329530272
2405	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size (IRC 19 - grading -1), stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	889			0.1479976206
2406	Providing & Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone (IRC 19 -grading -1) screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.	CUM	840			0.1422004448
A2406	Providing & Laying water bound macadam sub base/base course with stone aggregate 53 mm to 22.4 mm size stone conforming to MORTH specification (Table 400-7) (IRC 19 -grading -3) mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications, drawings and directions of Engineer-in-Charge.	CUM	70			0.0118500371
2407	Providing & applying tack coat of low viscosity liquid bitumen of grade 80/100 conforming to IS 73, 217 or 454 as applicable @ 10 kg/ 10 sqm for untreated WBM surface including scraping, cleaning with compressed air etc all complete.	SQM	840			0.0064314724
A2410	Providing & laying 40mm bitumen mastic wearing course over concrete pavement with industrial bitumen of grade 85/25 conforming to IS : 702, prepared by using mastic cooker and laid to required level and slope, including providing antiskid surface with bitumen fine grained hard stone chipping of approved size at the rate of 0.005 precoated cum per 10 sqm and at approximate spacing of 10 cm centre to centre in both directions, pressed into surface protruding 1 mm to 4 mm over mastic surface, including cleaning the surface, removal of debris etc. all complete as per specification, drawings and as per direction of engineer-in-charge. (Considering bitumen using 10.2% as per MORTH specification).	SQM	15203			1.2441843335
A2413	Supplying and laying 450mmx250mmx500mm deep precast concrete kerb stone of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	1550			0.0999135946
B2413	Supplying and laying 300mmx250mmx150mm deep PCC block of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	3740			0.1422630246
A2415	Supply and laying 200mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	350			0.0324032134
B2415	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 all complete for following.					
a	250 mm dia	RM	25			0.0025459668
b	300mm dia	RM	15			0.0022337355
c	450mm dia	RM	10			0.0018965679
d	600mm dia	RM	10			0.0023320761
e	900mm dia	RM	10			0.0031539221
C2415	Supply and laying 100 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	50			0.0037032244
2416	Dismantling of existing road consisting of premix carpet, kerb stone/ brick on edge, bitumen macadem course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 km etc all complete.	SQM	75			0.0006509458
2418	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc. (Cement will be supplied by BHEL free of cost as per TCC)	CUM	15			0.0041187132
A2419	Providing and laying cement concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete as per specification, drawings and as directed by engineer - in - charge. (Excluding the cost of reinforcement and dowel bar) (Cement will be supplied by BHEL free of cost as per TCC)	CUM	3988			1.2250089260
A2421	Providing & laying concrete of grade M10 for dry lean concrete (DLC) with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (Cement will be supplied by BHEL free of cost as per TCC).	CUM	2464			0.6765672947
B2421	Providing and laying of plain cement concrete of grade M15 using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete.	CUM	1950			0.5536503091
A2422	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer. (Supply in bidder scope)	MT	48			0.2862148514
A2423	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500D / Fe-550D conforming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer. (Supply in bidder scope)	MT	80			0.4770247523
B2423	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of mild steel reinforcements including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer. (Supply in bidder scope)	MT	1			0.0059628094
A2424	Providing & installation of bitumen impregnated fibre board of specified thickness conforming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumen etc. all complete as per specification, drawing and as directed by engineer. Thickness of bitumen impregnated fibre board shall be 25-50mm	RM	2563			0.0380477141
A2425	Providing and filling in position hot applied bitumen sealing compound (Grade A) of specified thick conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	3353			0.0182045100
A2426	Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	2300			0.0088441670
A2427	Providing & laying 75 mm thick precast interlocking concrete pavers of grade M35 of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	3600			0.2811851534
A2428	Providing and laying 20mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	3600			0.0091692735
A2429	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15 etc all complete as per specification, drawing and as directed by Engineer.	SQM	15200			0.0175752181
A2431	Providing and installation of Variable message signs including Cantilever type MS supports etc. all complete as per drawings, specifications, manufacturer's recommendations, indian standards.	EACH	7			0.0019298340
A2433	Providing and laying 300mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	SQM	140			0.0243982921
2600	RAIN WATER HARVESTING					
2601	Making 250mm dia bore hole up to a maximum depth of 20 m below ground level in all types of rocks including all equipments, tools & plants, lowering casing pipes, bentonite slurry, removal of casing pipes etc. complete in all types of soil.	RM	150			0.0161475656
2602	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	360			0.0234484035
2603	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	110			0.0065065451
2604	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	CUM	47			0.0058402349
2605	Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.	CUM	130			0.0302074092
2606	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting.	CUM	50			0.0108315099
2607	Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.	CUM	110			0.0109719964
2608	Supply & fixing Netlon jali/ PVT net in the well dug for rain water.	SQM	230			0.0057946635
	Total				₹	100.0000000000

PREAMBLE FOR BOQ CUM RATE SCHEDULE

1	Preamble for the Schedule of Quantities/BOQ Cum Rate Schedule:
1.1	Details of the items in the BOQ Cum Rate Schedule shall be read in conjunction with the Corresponding Consultants/ Customer specifications, drawings and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
1.2	The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions, Drawings enclosed with these documents are only indicative giving some idea of the type of work involved. The layout, sizes and details of the building, structures and foundations shown in tender drawings may vary at a large extent during actual construction. Final drawings will be issued progressively during the execution of the work.
1.3	Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
1.4	Unless specifically mentioned otherwise in the contract, the contractor shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant , temporary works, labour materials, levies , transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
1.5	The rate shall also be inclusive of carrying out topography survey of site to establish levels and coordinates at suitable intervals, form existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references, pillars and other identification marks etc. No separate payment will be made towards the same.
1.6	The quantities of the various items mentioned in the BOQ cum Rate Schedule are approximate and may vary up to any extent or be deleted altogether. The overall variation in contract value on execution shall be dealt as per GCC. Contractor has to obtain prior approval of BHEL/ Customer before procurement of bought out items/ building materials.
1.7	BHEL Engineer's decision shall be final and binding on the contractors regarding clarification of items in BOQ cum Rate schedule with respect to the other sections of the contract.
1.8	In case of any discrepancy between item description, relevant specification, clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the contractor has quoted for the more stringent requirement.