

**Corrigendum 05 Dated 17/10/2025**  
**CPC Tender No.: BHEL/CPC/KOD/BOP/26/043**

**Work Description:** CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPB FOREBAY, CW DUCT/ PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, FOPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

**A) Time Extension: Clause No. 1.0 Salient Features of NIT in NOTICE INVITING TENDER (NIT) is revised as below:**

Sl. No.	Clause No.	Existing in NIT	Revised vide Corrigendum 03 Dated 03/10/2025	Revised vide Corrigendum 04 Dated 10/10/2025	Revised As
1	Sl. No. v) DUE DATE & TIME OF OFFER SUBMISSION	Date: 03/10/2025, Time: 10:00 Hrs	Date: 10/10/2025, Time: 10:00 Hrs	Date: 17/10/2025, Time: 10:00 Hrs	Date: 24/10/2025, Time: 10:00 Hrs
2	Sl. No. vi) OPENING OF TENDER	Date: 03/10/2025, Time: 16:30 Hrs	Date: 10/10/2025, Time: 16:30 Hrs	Date: 17/10/2025, Time: 16:30 Hrs	Date: 24/10/2025, Time: 16:30 Hrs

**B) Some of the Bidders sought clarifications in regard to the published tender specification. The clarifications issued by BHEL are as below: -**

Sl. No.	Reference clause of tender document	Existing Provision	Bidder Query	BHEL's Clarification
1.	BOQ CUM RATE SCHEDULE	BOQ CUM RATE SCHEDULE	a) Re-check and revalidate the BOQ quantities. b) While going through the items, we have observed that the quantities provided in the tender seem to be on the higher side in comparison to the quantities which are usually executed in similar area for projects of the same rating at different locations. In view of the same in order to avoid any imbalance in cash flow during the execution of the work. We kindly request you to review the same.	Please refer <b>Revised BOQ CUM RATE SCHEDULE</b> attached as <b>Annexure-A</b> of this Corrigendum.

			c) However, we have observed that certain BOQ items (specifically "Item No. 406, B, C", "Item No.A1009", and "Item No1827") show a "0% value" in the BOQ. We kindly request that the BOQ be revised accordingly to include the correct percentage details.	
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**C) PRE-QUALIFYING REQUIREMENTS (PQR): ANNEXURE – 1 in NOTICE INVITING TENDER (NIT) is revised as below:**

Sl. No.	Existing in NIT		Revised as	
1	B.1	<p><b>Technical:</b></p> <p>Bidder who wish to participate should have experience as follows:</p> <p>Bidder should have executed "Piling or Civil or 'Civil and Structural Works' or RCC Chimney or RCC Cooling Tower or RCC Silo or Mill Bunker or any combination of these works for any one of the following in the last ten years from latest date of bid submission:</p> <p>B-1.1: Executed One (1) work of value not less than <b>Rs. 7360 Lakhs</b> against Single Work Order</p> <p style="text-align: center;">OR</p> <p>B-1.2: Executed Two (2) works each of value not less than <b>Rs. 4600 Lakhs</b> against two work orders</p> <p style="text-align: center;">OR</p> <p>B-1.3: Executed Three (3) works each of value not less than <b>Rs. 3680 Lakhs</b> against three work orders.</p>	B.1	<p><b>Technical:</b></p> <p>Bidder who wish to participate should have experience as follows:</p> <p>Bidder should have executed "Piling or Civil or 'Civil and Structural Works' or RCC Chimney or RCC Cooling Tower or RCC Silo or Mill Bunker or any combination of these works for any one of the following in the last <b>ten</b> years from latest date of bid submission:</p> <p>B-1.1: Executed One (1) work of value not less than <b>Rs. 6400 Lakhs</b> against Single Work Order</p> <p style="text-align: center;">OR</p> <p>B-1.2: Executed Two (2) works each of value not less than <b>Rs. 4000 Lakhs</b> against two work orders</p> <p style="text-align: center;">OR</p> <p>B-1.3: Executed Three (3) works each of value not less than <b>Rs. 3200 Lakhs</b> against three work orders.</p>
	B.2	<p><b>Technical:</b></p> <p><b>B-2.1 For Civil Works:</b></p> <p>B-2.1.1: Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least <b>11230 Cum</b> within a common period of "twelve consecutive months" in cumulative of two running/completed contracts.</p> <p style="text-align: center;">OR</p>	B.2	<p><b>Technical:</b></p> <p><b>B-2.1 For Civil Works:</b></p> <p>B-2.1.1: Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least <b>9600 Cum</b> within a common period of "twelve consecutive months" in cumulative of two running/completed contracts.</p> <p style="text-align: center;">OR</p>

		B-2.1.2: Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least <b>7490 Cum</b> within a period of "twelve consecutive months" in one running/completed contract.		B-2.1.2: Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least <b>6400 Cum</b> within a period of "twelve consecutive months" in one running/completed contract.
	C-1	TURNOVER: Bidders must have achieved an average annual financial turnover (Audited) of <b>Rs. 2760 Lakhs</b> or more over last three Financial Years (FY) (i.e., "FY 2021-22, 2022-23, 2023-24" OR "FY 2022-23, 2023-24, 2024-25").	C-1	TURNOVER: Bidders must have achieved an average annual financial turnover (Audited) of <b>Rs. 2400 Lakhs</b> or more over last three Financial Years (FY) (i.e., "FY 2021-22, 2022-23, 2023-24" OR "FY 2022-23, 2023-24, 2024-25").
	C-5	<p>a) The bidder shall submit a 'Certificate of Solvency' (Annexure -12) for a value of <b>Rs 1840 Lakhs</b> from any Scheduled Commercial (i.e. Indian or Foreign Banks included in the Second Schedule of Reserve Bank of India Act, 1934 excluding Co-operative banks or Regional Rural Banks) as on date, not earlier than the date of NIT.</p> <p style="text-align: center;">OR</p> <p>b) The bidder should furnish a 'Letter for Unutilized Line Of Credit' (Annexure -13) from any Scheduled Commercial (i.e. Indian or Foreign Banks included in the Second Schedule of Reserve Bank of India Act, 1934 excluding Co-operative banks or Regional Rural Banks), confirming the availability of the both funds based and non-fund-based line of credit for a value of <b>Rs 1840 Lakhs</b> as on date, not earlier than the date of NIT.</p> <p style="text-align: center;">OR</p> <p>c) The bidder shall submit a 'Certificate for Insurance Surety Bond' (Annexure -14) from any Insurance Company (IRDA approved) for a value of <b>Rs 1840 Lakhs</b> as on date not earlier than the date of NIT.</p>	C-5	<p>a) The bidder shall submit a 'Certificate of Solvency' (Annexure -12) for a value of <b>Rs 1600 Lakhs</b> from any Scheduled Commercial (i.e. Indian or Foreign Banks included in the Second Schedule of Reserve Bank of India Act, 1934 excluding Co-operative banks or Regional Rural Banks) as on date, not earlier than the date of NIT.</p> <p style="text-align: center;">OR</p> <p>b) The bidder should furnish a 'Letter for Unutilized Line Of Credit' (Annexure -13) from any Scheduled Commercial (i.e. Indian or Foreign Banks included in the Second Schedule of Reserve Bank of India Act, 1934 excluding Co-operative banks or Regional Rural Banks), confirming the availability of the both funds based and non-fund-based line of credit for a value of <b>Rs 1600 Lakhs</b> as on date, not earlier than the date of NIT.</p> <p style="text-align: center;">OR</p> <p>c) The bidder shall submit a 'Certificate for Insurance Surety Bond' (Annexure -14) from any Insurance Company (IRDA approved) for a value of <b>Rs 1600 Lakhs</b> as on date not earlier than the date of NIT.</p>

**Note:**

- 1) All other terms and conditions against this NIT shall remain unchanged.
- 2) This corrigendum is to be submitted duly signed and stamped along with the Techno-commercial bid (Part- I).

for BHARAT HEAVY ELECTRICALS LTD  
 Manager/ SCT- CPC

**ANNEXURE-A**  
**REVISED BOQ CUM RATE SCHEDULE**

<b>PREAMBLE FOR BOQ CUM RATE SCHEDULE</b>	
<b>1</b>	<b>Preamble for the Schedule of Quantities/BOQ Cum Rate Schedule:</b>
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, taxes, 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.

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL &amp; ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM

INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&amp;M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&amp;M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE

ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT,

OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE &amp; CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER

HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING &amp; GRADING IN BOP AREA, ROAD &amp; DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM

REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
100	<b>EARTH WORK:</b> 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.					
101	Earth work in <b>excavation in all types of soil including ash</b> which can be excavated by any means including setting out, levelling, removing of surface water accumulated due to rain or any other reason (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	93,514	-	-	0.0266431157551%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	59,494	-	-	0.0181011135485%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	29,400	-	-	0.0534386991557%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	3,151	-	-	0.0677814730875%
A102	Extra over ST No. 101,103,104,105 & 106 for <b>dewatering of ground water by sump pump method</b> 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	92,021	-	-	2.2450219633527%
103	Earth work in excavation in <b>soft rock</b> 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, removing of surface water accumulated due to rain or any other reason (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 1 Km, 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	920	-	-	0.0149973400216%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	1,570	-	-	0.0307114265775%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	912	-	-	0.0256904567644%
105	Earth work in excavation in <b>hard rock requiring controlled blasting</b> including wedging, line drilling, pre shearing etc as required, setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, necessary licences/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1Km, 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	612	-	-	0.031445052486%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	294	-	-	0.0191042754843%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	759	-	-	0.0591371080319%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	4,082	-	-	0.3657407896096%
f	Depth exceeding 10 m but not exceeding 15 m	CUM	12,169	-	-	1.1987242315337%
g	Depth exceeding 15 m but not exceeding 20 m	CUM	6,912	-	-	0.7833641655033%
106	Earth work in excavation in <b>hard rock</b> requiring chiselling including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.			-	-	
c	Depth exceeding 4 m but not exceeding 6 m	CUM	122	-	-	0.0098977099608%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	207	-	-	0.0200498274294%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	454	-	-	0.0505720130319%
f	Depth exceeding 10 m but not exceeding 15 m	CUM	1,352	-	-	0.1658531406093%
A107	Earthwork in <b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300mm <b>compacted</b> thickness using/with selected materials from <b>compulsorily excavated earth</b> 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	96,112	-	-	1.0445124945754%
A108	Earthwork in <b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm <b>compacted</b> thickness using/with selected earth <b>directly from excavation</b> within a lead upto 1Km and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following:			-	-	

REVISED BOQ CUM RATE SCHEDULE							PART-B
2x800MW DVC KODERMA TPS PHASE-II - EPC							
CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE							
ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND							
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total	
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	39,301	-	-	0.2222706858409%	
A109	Extra over ST No. 101, 103 to 106, A107and A108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.			-	-		
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	80,466	-	-	0.1160015005607%	
A111	Supplying and filling clean and well graded <b>natural river</b> 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	50	-	-	0.0150039936774%	
B111	Supplying and filling clean and well graded <b>Crushed stone</b> 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	153	-	-	0.0243304229180%	
D111	Supplying and filling clean and well graded <b>Crushed stone</b> 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	30	-	-	0.0048072662669%	
112	Extra over item no. 101 for <b>shoring and strutting in trenches</b> 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	90	-	-	0.0033135205549%	
b	Depth exceeding 2 m but not exceeding 4 m	SQM	90	-	-	0.0041419006936%	
200	<b>CONCRETE WORK:</b> 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.			-	-		
A201	Concrete of grade <b>M7.5</b> (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 FGL. (For depth greater than 10m from FGL, extra over for additional depth to be paid in Item No A224)	CUM	2,999	-	-	1.6377299924848%	
A202	Concrete of grade <b>M10</b> (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 FGL. (For depth greater than 10m from FGL, extra over for additional depth to be paid in Item No A224)	CUM	1,006	-	-	0.5495892999047%	
A203	Concrete of grade <b>M15</b> (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,plinth protection etc. complete below finished floor level upto depth of 10m from FGL. (For depth greater than 10m from FGL, extra over for additional depth to be paid in Item No A224)	CUM	140	-	-	0.0764460685989%	
A204	Concrete of grade <b>M20</b> (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 FGL. (For depth greater than 10m from FGL, extra over for additional depth to be paid in Item No A224).	CUM	183	-	-	0.0933189528021%	
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, trenches, under floors, <b>duct banks</b> etc for any shape, position or thickness etc complete all including with addition of high performance PCE-based BIS approved water reducing admixture of Type-G as per ASTMC-494 of approved make FOSROC/STP/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete complete as per specification & drawing below finished ground level upto a depth of 10m from FGL (For depths greater than 10m from FGL, extra over for additional depth to be paid in Item No A224), for the following.			-	-		

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
b	M 25 Grade	CUM	19,079	-	-	10.5239034472441%
c	M 30 Grade	CUM	2,291	-	-	1.2700397148917%
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 <b>superstructure</b> for any shape, position or thickness etc complete including with addition of high performance PCE-based BIS approved water reducing admixture of Type-G as per ASTM C-494 of approved make FOSROC/STP/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 finished ground level (For height greater than 10m from FGL, extra over for additional height to be paid in Item No A225), for the following.			-	-	
b	M 25 Grade	CUM	3,329	-	-	1.8829576631762%
c	M 30 Grade	CUM	694	-	-	0.3944944433031%
A210	Extra over ST Nos. A205,A206,A207 for conducting <b>UPV test</b> for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	258	-	-	0.0197323394414%
211	Providing and <b>encasing of structural steel</b> 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			-	-	
b	M 25	CUM	50	-	-	0.0274694750383%
212	<b>Screeed concrete</b> 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 level (For height greater than 10m from FGL, extra over for additional height to be paid in Item No A225) or thickness, drains etc complete as per following.			-	-	
a	01:02:04	CUM	147	-	-	0.0804623266258%
213	Providing and laying <b>Design Mix cement concrete</b> as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for <b>Concrete in precast works</b> like roof slabs/trench covers, fins, lintels, chajias, 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.			-	-	
c	M30	CUM	232	-	-	0.2119077498496%
A214	Providing and laying <b>Design Mix cement concrete</b> as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for <b>Concrete in water retaining/conveying</b> structures including addition of suitable plasticizer conforming to IS 9103 and crystalline waterproofing cement additives to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and crystalline waterproofing conforms to limits of permeability as per ACI212-3R10(chapter-15,PRAH), BS8102 Type-B and IS 2645 and specification with 20 mm nominal size graded aggregate upto depth of 10m from FGL, (For depth greater than 10m from FGL, extra over for additional depth to be paid in Item No A224), for following grades.Crystalline waterproofing additive reduces permeability by more than 90%,tested as per DIN 1048-V, ensuring waterproof concrete with self-healing capabilities for cracks up to 0.5 mm with valid test results. The recommended dosage rate should be 0.8% by weight of total cementitious content or such lower dosages, allowing the concrete to withstand 16 bars of hydrostatic pressure and reduces chloride diffusion coefficient more than 45%, tested as per ASTM C 1556, resistant to sulphate attack and resistance to Alkali-Silica Reaction (ASR).The product should certified under NSF 61, and accredited from IRC & MoRTH.Watertightness is to be ensured including structural grouting if required.			-	-	
b	M30	CUM	12,184	-	-	7.2596520666655%
215	<b>Dismantling concrete work</b> 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	67	-	-	0.008984765705%
b	Reinforced cement concrete of all grades	CUM	593	-	-	0.1221169623496%
216	<b>Chipping of concrete</b> in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	729	-	-	0.0069511700445%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
217	Extra over and above St No 216 for <b>cutting of reinforcement</b> , 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	117	-	-	0.0001034592751%
218	<b>Cutting Reinforced concrete</b> 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	73	-	-	0.0016973787318%
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	3,109	-	-	1.5798696676951%
A222	<b>Cutting of groove</b> of 8mm X 65mm size with groove cutting machine in concrete paving all complete.	RM	100	-	-	0.0008649752453%
223	<b>Cutting of existing concrete/ RCC work</b> inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILT/ 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	10	-	-	0.0031981905222%
A224	Extra over item no. A201 to A205 , A214 for depth below FGL (Finished Ground Level) as per following:			-	-	
	(a) Depth exceeding 10m from FGL but not exceeding 20m	CUM	500	-	-	0.0191847073628%
A225	Extra over item no. A206, and 212 for height above FGL (Finished Ground Level) as per following:			-	-	
	(a) Height exceeding 10m from FGL but not exceeding 20m	CUM	53	-	-	0.0025368581644%
	(b) Height exceeding 20m from FGL but not exceeding 30m	CUM	23	-	-	0.0020193491707%
	(c) Height exceeding 30m from FGL but not exceeding 40m	CUM	13	-	-	0.0015395405356%
A226	Rebate over item no. 211,212,213-A201 to A207,A214,A2419,B2419,A2421,B2421 replacement of Natural Sand with Crushed Stone Sand in Concrete in the following %:- (Mode of measurement here "CUM" means the volume of concrete supplied)			-	-	
a	With Agency Supplied Crushed Stone Sand			-	-	
	(i) Replacement of Natural Sand by 25% with Crushed Stone Sand	CUM	4,806	-	-	-0.0234495227605%
	(ii) Replacement of Natural Sand by 50% with Crushed Stone Sand	CUM	9,612	-	-	-0.0927322036439%
	(iii) Replacement of Natural Sand by 75% with Crushed Stone Sand	CUM	4,806	-	-	-0.0698156245625%
	(iv) Replacement of Natural Sand by 100% with Crushed Stone Sand	CUM	4,806	-	-	-0.0932651473430%
300	<b>FORMWORK:</b> Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffolding and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.			-	-	
A301	Fairface form work with <b>good quality water proof ply wood with Filmface</b> 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	91,603	-	-	6.8974552609836%
b	Depth exceeding 10m From FGL	SQM	4,833	-	-	0.4009250015779%
A302	<b>Fairface form work with good quality water proof ply wood with Film face</b> 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	23,986	-	-	2.1705282471823%
b	For Height More Than 20m from FGL	SQM	200	-	-	0.0200718614605%
304	Providing, fixing and removing formwork in <b>block-outs/pockets</b> 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	90	-	-	0.0024551989654%
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	90	-	-	0.0040321153741%
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	90	-	-	0.0070861433554%
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	90	-	-	0.0110084734099%
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	45	-	-	0.0078945625269%
f	Pockets of depths more than 1500mm and upto 2000 mm depth	Each	45	-	-	0.0104046541521%
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. A301	SQM	450	-	-	0.0067867288474%
b	Extra for Curve Shuttering for item No. A302	SQM	450	-	-	0.0081340941333%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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.			-	-	
A403	Transportation, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of <b>TMT steel of grade Fe-500 / Fe-500D/ 500EQR/Fe 550 D</b> 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	3,633	-		4.4573618508727%
405	Providing & fixing of <b>Rebar</b> 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. A403, 405 as applicable.			-		
a	12mm Reinforcement bar	Nos.	8	-	-	0.0005597942356%
b	16mm Reinforcement bar	Nos.	8	-	-	0.0009102201042%
c	20mm Reinforcement bar	Nos.	8	-	-	0.0013200852974%
Ad	25mm Reinforcement bar	Nos.	8	-	-	0.0016501066217%
406	Supply and fixing reinforcement bar <b>couplers</b> (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR or any other Grade confirming to IS:1786 including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).			-		
b	16mm dia	Nos.	8	-	-	0.0000523420918%
c	20mm dia	Nos.	8	-	-	0.0000550035541%
d	25mm dia	Nos.	8	-	-	0.0000691980196%
e	28mm dia	Nos.	8	-	-	0.0001029098753%
f	32mm dia	Nos.	8	-	-	0.0001268630360%
g	36mm dia	Nos.	8	-	-	0.0001605748917%
h	40mm dia	Nos.	8	-	-	0.0002120288294%
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 <b>underbed/topping</b> grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of <b>15 mm</b> including preparation of surface, batching, mixing, leveling etc all complete.	SQM	5,599	-	-	0.1055618663693%
A506	Providing and applying PU based 100% solid content of approved make water proofing treatment with epoxy based or equivalent material based primer with an application rate of minimum 200gm persqm and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate.The coating shall be applied with a total consumption of 1.6kg/sqm to achieve total system DFT of min.1.5mm .The elastomeric membrane shall be of two component, instant setting, spray applied hybrid polyurea polyurethane liquid elastomeric seamless waterproofing membrane.Item includes surface preparation.The coating shall have high viscosity, more than 450% elongation and forming a perfectly smooth permanently flexible seamless membrane which should have good adhesion to roof substrates.The cured film should have a very low water absorption rate (0.5% maximum at ambient temperature after 7 days), reinforcing layer of polycrim cloth (non woven polycrim cloth of 100% polyester with min. weight of 40gsm/sqm) or geo-textile non woven polyester (150 gsm), polymerised mastic base preparation, primer, making of fillets, cleaning & preparation of surface, vacuum removal of loose sand, expansion joints & sealing at suitable intervals, application by using a pneumatic machine as per manufacturers recommendations,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 etc. all complete as per specifications, drawings and direction of engineer in charge. The application of waterproofing treatment shall be carried by authorised applicator of approved Manufacturer of Waterproofing materials.	SQM	5,599	-		0.719635477768%
A507	Providing and laying <b>wearing course</b> consisting of <b>20 mm thick plain cement mortar 1:4</b> (1 cement : 4 sand) cast in panels of maximum size 1.2m x1.2m 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	5,599	-	-	0.3365560680717%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL &amp; ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM

INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&amp;M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&amp;M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE

ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT,

OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE &amp; CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER

HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING &amp; GRADING IN BOP AREA, ROAD &amp; DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM

REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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	450	-	-	0.0117769706470%
A510	Providing and laying <b>cement concrete chequered roof / floor tiles of minimum 20 mm thickness</b> 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 (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	589	-	-	0.0428427276399%
A513	Providing and mixing Integral waterproofing Compounds conforming to IS:2645 along with crystalline admix in concrete or cement mortar all complete.the crystalline admixture conforming to ASTM C-494 / IS9103 used for for underground structures, concrete roof where water proofing is required, sustain 16 bar hydrostatic pressure and NSF certification with CE approval as per EN 934-2.	KG	180	-	-	0.0012954667712%
A514	Providing and applying <b>two component transparent polyamide cured epoxy sealer coating</b> (having solid by volume minimum 40% ±2% of minimum 50 micron DFT followed by <b>epoxy phenolic coating</b> (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 complete all as per specifications & drawings.	SQM	12,225	-	-	0.8576119609880%
B514	Providing and applying <b>Food grade epoxy coating</b> complying to FDA Title 21, Part 175.300 of minimum <b>400 micron DFT</b> over absolutely dry, clean and dust free surface of water retaining structures storing drinking water. This coat shall be applied by airless spray technique and shall conform to as per IS 9862 ,complete as per specifications & drawings.	SQM	90	-	-	0.0070038483487%
A 517	Providing and laying <b>Cinder / foam concrete blocks</b> in the toilets,pantry,sunken slab etc. after water proofing and laying of plumbing pipes complete as directed by engineer in charge.	CUM	90	-	-	0.0249541079195%
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 Danocrete I-protect flex, penetron SF-50 or equivalent make applied @ 0.70 to 0.80 Kg/m <sup>2</sup> 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	225	-	-	0.0153829693323%
A519	Providing and laying <b>roof insulation with 40 mm thick</b> impervious sprayed, closed cell free Rigid Polyurethane foam over deck insulation conforming to IS:12432 Part-III (density of foam being 40-50 Kg/Cum), over a coat of polyurethane primer applied @ 6-8 sqm per litre, laid over 400 G Polythene sheet over PUF spray and provided with a wearing course of 40mm cement screed 1:2:4 (1 cement, 2 coarse sand, 4 stone aggregate 20mm nominal size) in chequered rough finish, in panels of 2.5mX2.5m and embedded with 24G wire netting and sealing the joints with polymerized mastic, all complete and as directed by engineer in charge.	SQM	250	-	-	0.0319522410070%
A521	Providing and laying an angular fillet around parapet wall junction at roof level of min.50mm x 50mm, 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.	RM	900	-	-	0.0611305915660%
600	<b>JOINTS AND FILLERS:</b> 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 <b>bitumen impregnated fibre board</b> conforming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.			-	-	
a	12 mm wide joints.	SQM	50	-	-	0.0034692160991%
b	20 mm wide joints.	SQM	513	-	-	0.0431216774385%
c	25 mm wide joints	SQM	229	-	-	0.0280149502520%
d	50 mm wide joints	SQM	23	-	-	0.0057362829486%
A601	Supplying & installation of engineering grade <b>polystyrene foam backer rod</b> (circular cross section) at 12 mm depth with minimum density of 22 kg/cum and compressive strength of 0.40 kg/sqm having dia. 25% more than the expansion joint width as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.			-	-	
a	12 mm wide joints.	RM	32	-	-	0.0007019523627%
b	20 mm wide joints.	RM	32	-	-	0.0010149752601%
c	25 mm wide joints	RM	164	-	-	0.0058127472039%
d	50 mm wide joints	RM	140	-	-	0.0084355721617%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL &amp; ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM

INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&amp;M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&amp;M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE

ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT,

OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE &amp; CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER

HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING &amp; GRADING IN BOP AREA, ROAD &amp; DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM

REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A602	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	12mm X 25mm	RM	17	-	-	0.0012186170475%
b	20mmX25mm	RM	59	-	-	0.0067857307991%
c	25mmX25mm	RM	69	-	-	0.0082997701610%
d	50mmX25mm	RM	48	-	-	0.0116160852514%
604	Supplying and filling in position hot applied <b>bitumin sealing compund (Grade A)</b> 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	90	-	-	0.0006786728847%
b	12mm X 25mm	RM	927	-	-	0.0060644856071%
c	20mmX25mm	RM	2,995	-	-	0.0255708188137%
A605	Supply and installation of Polystyrene flexible board conforming to IS 4671 ( type-1), 20 Kg/ Cum. as joint filler at joint of concrete including nailing, coating of both faces with coal tar pitch /butimen etc. all complete.			-	-	
a)	100 mm thick	SQM	150	-	-	0.0382014332605%
b)	50mm thick	SQM	60	-	-	0.0116041685540%
A610	Providing and fixing ribbed PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following. (Bulb or Kicker type)			-	-	
b	230 mm wide & 8 mm thick	RM	50	-	-	0.0027390882767%
bb	230 mm wide and 10 mm thick	RM	50	-	-	0.0031499515182%
d	230 mm wide & 6 mm thick	RM	3,267	-	-	0.1264550089393%
B610	Providing and fixing FPO( Flexible polyolefin Tap ) based waterproofing membrane in construction joints and expansion joint with specifically formulated single-ply of width 2000mm, thickness 1mm membrane fixed at both ends of the external face of the expansion joint on the walls, roof using epoxy bonding adhesive and laid loosely at middle in the expansion joint. Waterproofing tape to be anchored using epoxy adhesive for a width of 75mm on either side of the joint and leaving 50mm in the centre for allowing necessary movements. The waterproofing system shall be overlapped and covered with protection medium before back filling. The waterproofing tape shall have a Tensile Strength- 12.5.0 N/sqmm, Elongation at break- 400%. Water tightness, 60 kPa/24 Std (As per DIN EN1928-A) and Water tightness, 400 kPa/72 Std (As per DIN EN 1928-B) above joint followed by another layer of epoxy adhesives complete as per specification.	RM	950	-	-	0.0944985455445%
A615	Providing and fixing 300 mm wide Stainless steel strips (316 GRADE) over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete	Kg	95	-	-	0.0068793255564%
700	<b>MS EMBEDMENTS:</b> 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.			-	-	
A701	Supply, fabricating and fixing of <b>mild steel embedments</b> , inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting, including preparation of surface by manual cleaning and provided with <b>Primer Coat of Chlorinated Rubber based zinc phosphate primer of minimum 50 micron dry film thickness (DFT)</b> etc. all complete as per specification. 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	81	-	-	0.9636356524644%
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of <b>mild steel foundation bolt assembly</b> 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 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	20	-	-	0.2986826058437%
A702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of <b>mild steel foundation bolt assembly</b> 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 etc. all complete. All threaded and 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. 1. On Supply & receipt of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40%	MT	11	-	-	0.1642754332140%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL &amp; ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM

INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, FOPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&amp;M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&amp;M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE

ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT,

OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE &amp; CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER

HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING &amp; GRADING IN BOP AREA, ROAD &amp; DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM

REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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	657	-	-	0.0080871858604%
b	PVC pipes / conduits of all diameters	kg	162	-	-	0.0067368264294%
c	UPVC pipes / conduits of all diameters	kg	282	-	-	0.0147604698776%
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:			-	-	
i	8mm Dia	Nos	51	-	-	0.0002771247613%
ii	10mm Dia	Nos	51	-	-	0.0003619588719%
iii	12mm Dia	Nos	51	-	-	0.0004467929825%
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	Nos	8	-	-	0.0002430802228%
ii	HST M10	Nos	8	-	-	0.0003362314030%
iii	HST M12	Nos	8	-	-	0.0006050390946%
iv	HST M16	Nos	8	-	-	0.0010654720713%
v	HST M20	Nos	8	-	-	0.0018479419855%
vi	HST M24	Nos	8	-	-	0.0037065298202%
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	Nos	8	-	-	0.0004737402882%
ii	HAS-E5.8 M10	Nos	8	-	-	0.0005793116258%
iii	HAS-E5.8 M12	Nos	8	-	-	0.0007398865175%
iv	HAS-E5.8 M16	Nos	8	-	-	0.0012544358942%
v	HAS-E5.8 M20	Nos	8	-	-	0.0019632720182%
vi	HAS-E5.8 M24	Nos	8	-	-	0.0027067071521%
800	<b>GROUTING:</b> 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	4	-	-	0.0003783712227%
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	-	-	0.0110543836344%
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	3	-	-	0.0081943097177%
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 <b>Conbextra GP-1 or equivalent</b> 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	41	-	-	0.2123337905234%
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 <b>Conbextra GP-2 or equivalent</b> 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	2	-	-	0.0108168481248%
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	45	-	-	0.0088077767762%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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.			-	-	
A903	Providing, fitting and <b>fixing solid core flush door shutter</b> 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 handles on both sides.approved IS1 mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long alldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish flat oil paint conforming to IS: 137 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) (Note: All particle board shall have recycled content. The bidder is required to provide material cutsheet sample/ declaration from manufacturer mentioning the percentage of recycledIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAI	SQM	49	-	-	0.0419183664606%
904	Providing and fixing <b>single or double steel door shutters with 45mm thk flush</b> 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, Godrej or equivalent make mortice lock with handle on both sides, side, top & bottom edges of shutter shall be reinforced by continuous pressed steel channel with min 18G, shop and final painting etc all complete.	SQM	118	-	-	0.1869301107569%
A904	Providing and fixing <b>single or double steel door shutters with 35mm (min) thk flush design shutter</b> comprising of two outer sheets of 16 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 18 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, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	50	-	-	0.0774068476547%
A905	Providing and fixing <b>electrically operated, self operable/closing anodized extruded aluminium doors (single or double shutter)</b> 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 (Grade of Aluminium shall be Alloy 63400) 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,Dorma, 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. Weight of aluminium section only shall be measured. (Glazing IPES, ENCASING OF PIPING.	SQM	13	-	-	0.0229161634931%
A906	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 2 mm wall thickness as per IS:1285, IS:733.(Grade of Aluminium shall be Alloy 63400) and anodized (15 micron coating thickness) and electro color dyed 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 toughened glass of 8/10 mm thickness including snap fit type beading, concealed screws, fixtures, Dorma,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)	KG	1,777	-	-	0.1433986209589%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE						
ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
B907	Providing and fixing automatically closing <b>fire proof steel flush insulated doors</b> along with frame of minimum 44mm thick 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 specifying 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 execution. 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	113	-	-	0.3756849436018%
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)	SQM	50	-	-	0.0163014565453%
a	Openable type	SQM	50	-	-	0.0163014565453%
b	fixed type	SQM	50	-	-	0.0104462395004%
A908	Providing and fixing M.S. grills in windows/ventilator as per approved design for security purpose made of M.S. Flats / M.S. square bar of approved design shall be provided to suit security requirements.	kg	30	-	-	0.0004714115087%
B908	Providing and fixing anodised aluminium Grills in windows/ventilator of approved design.	kg	30	-	-	0.0019914391608%
C908	Extra over item 908 for providing pre-coated (polyester painted) steel windows/ventilators	SQM	80	-	-	0.0003978886128%
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 electric 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-metallic 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 paneling 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	11,190	-	-	0.9281854464133%
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-metallic 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 paneling 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	11,190	-	-	0.9745947187339%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL &amp; ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM

INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&amp;M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&amp;M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE

ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT,

OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, DUCT BANKS, PEDESTALS, HUME PIPE &amp; CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER

HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING &amp; GRADING IN BOP AREA, ROAD &amp; DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM

REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A910	Providing, fabricating, designing, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour, wooden colour, stone finish of approved shades made out of 4mm thick aluminium composite panel ( <b>weight of panel should be minimum 8.1 kg/sqmt</b> ) 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 shall 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 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.	SQM	213	-	-	0.1235577961128%
	All shade shall be as per Architect's Approval as per approved sample from Alucobond Plus, Aludecor, Alubond, Virgo or equivalent. The system shall be designed to withstand a wind pressure of 200kg/Sqmt 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 an anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other fastening 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 (fastening 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 manufacturer of ACP. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
911	Providing and fixing of door closers as per IS 3564 of approved make & quality all complete of following type :			-	-	
a	Over head hydraulic door closers	Each	6	-	-	0.0014238823268%
b	Floor mounted Hydraulic door closers	Each	6	-	-	0.0030161021437%
A912	Providing and fixing <b>pressed steel frames</b> (complying general requirements of IS 4351) 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	2,704	-	-	0.0575719262661%
A913	Providing and fixing in position <b>rolling shutter of hot rolled double dipped galvanised steel</b> 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 grilled (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 riveted with stiffening angles (partly coiled and lath/full lath).			-	-	
b	Mechanically Operated	SQM	20	-	-	0.0102909875333%
c	Electrically & Mechanically operated	SQM	101	-	-	0.0667535319378%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A914	Providing and fixing Solid core PVC doors (25 thk double skin) with PVC frame of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	15	-	-	0.0049103979308%
915	Providing, fixing and fitting of <b>glazing</b> of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.	SQM	41	-	-	0.007840611021%
b	4 mm thick clear float glass	SQM	56	-	-	0.0108274731661%
Ab	4 mm thick plain or tinted float glass	SQM	9	-	-	0.0023132679628%
Ae	3mm thick Polycarbonate sheet with profile matching with metal sheeting shall be provided. The Polycarbonate sheets shall be fire and u/v resistant, and suitable for continuous use up to a temperature of 1000C. Suitable aluminium beading shall be used. The open ends of the sheet shall be sealed as per manufacturer's recommendations .	SQM	300	-	-	0.0766833823201%
Ag	6 mm thick tinted heat reflecting toughened type float glass	SQM	20	-	-	0.0053916790288%
h	6 mm thick clear toughened safety glass	SQM	1,567	-	-	0.5309725007678%
h (a)	6 mm thick <b>clear reflective toughened safety glass</b> of Saint Gobain(India) or Asahi (India) or equivalent make and should have solar factor 25% or less, Maximum U-vlaue 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	452	-	-	0.1217937159169%
Ah	8 mm thick clear toughened fire resistant glass	SQM	4	-	-	0.0065950875935%
i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	361	-	-	0.1663764359059%
I(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 galvanised steel sheet. The glass to be used should be from the manufacturers of glass like Glavelbel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	15	-	-	0.0486387802206%
I(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	50	-	-	0.1703731287056%
I (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 in all exterior walls shall be of Saint Gobain or equivalent.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 2.5 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 of glass and should be free from distortion and thermal stress.	SQM	22	-	-	0.0769402793158%
n	8 mm thick clear toughened safety glass	SQM	29	-	-	0.0101633149693%
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	20	-	-	0.0120015315280%
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	100	-	-	0.0034266327024%
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	25	-	-	0.0110173449508%
919	Providing and fixing <b>1 mm thk. MS sheet sliding shutters</b> 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	-	-	0.0126729962857%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE						
ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO Item Description Unit Total Qty Rate (INR) Amount (INR) % Weightage w.r.t Total						
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 glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class (B1) 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	23	-	-	0.0729581704158%
A927	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 10mm gap. 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 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a 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 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 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% of waterproofing treatment shall be carried by authorised applicator of approved Manufacturer of Waterproofing materials.te shall be exclusive of surface preparation and primer. Payment	SQM	25	-	-	0.0796906569151%
A928	Providing and fixing of fully glazed steel door with 120 minutes fire rating, of integrity and radiation control (EW 120) fabricated with 1.6 mm thick galvanized steel sheet. The door frames are manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of 35 mm x 60 mm on the vertical sides and 50 x 60 mm on the horizontal side. The door shutter would have a top rail and side rail 60 mm x 60 mm and a bottom rail of 110 mm x 60 mm. The frame shall be finished with approved fire resistant primer or Power coating of min. 30 micron as per approved shade.The sections have a specific 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 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	32	-	-	0.1242045097371%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FFS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A931	Provide & Install SS Logo/Signature ICON of DVC as per Guidelines of "Client" complete in all aspects. Logo to be fabricated in Stainless steel finish as per approved pattern and 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.	SQM	10	-	-	0.1242045097371%
1000	<b>BRICKWORK:</b> 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.			-	-	
A1001	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 table moulded/machine made fly ash lime bricks conforming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> and minimum percentage of fly ash 25% (including cost of cement for brick making)	CUM	190	-	-	0.1326350823195%
b	Using table moulded/machine made burnt clay fly ash bricks conforming to IS 13757 with crushing strength of 75 kg/cm <sup>2</sup> and minimum percentage of fly ash 25% (including cost of cement for brick making)	CUM	90	-	-	0.0628271442566%
A1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm upto 10m level above finished grade level (For height greater than 10m from FGL, 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 table moulded/machine made fly ash lime bricks conforming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> and minimum percentage of fly ash 25% (including cost of cement for brick making)	CUM	2,826	-	-	2.5189629887305%
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	450	-	-	0.5688376627331%
B1002	Providing and laying Autoclaved Aerated concrete blocks in cement mortar 1:6 (1 part cement 6 parts coarse sand) with suitable plasticizer, conforming to (IS: 2185 Pt- 3) in walls, chambers etc. in thickness 100mm to 300mm having oven dry density of 550kg/m <sup>3</sup> to 650kg/m <sup>3</sup> , of minimum 30kg/sqm of compressive strength (other parameters as per specification), at all depths, places and positions below/above plinth including raking out joints in line with specification and as per approval of engineer in-charge, curing, scaffolding etc complete excluding plastering and painting all complete as per specification and drawing. AAC masonry work shall conform to I.S 6041.I.S - 1905. All other structural requirements like stiffening of masonry, joint reinforcement etc. Note: Cement for making of AAC blocks is in the scope of contractor.(For height greater than 10m from FGL, extra over for additional height to be paid in item no 1014). Payment Breakup: a) On Supply & receipt of AAC Blocks at site - 50% b) On complete execution as per item description - 50%	CUM	264	-	-	0.2463007584863%
A1003	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 level (For height greater than 10m from FGL, 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 third 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 table moulded/machine made fly ash lime bricks conforming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> and minimum percentage of fly ash 25% (including cost of cement for brick making)	SQM	450	-	-	0.0493534913978%
B1003	Providing factory made composite modular light weight aerated concrete panels of minimum 75mm thick and minimum 2 hours of fire rating, consisting of two fiber reinforced cement sheets( min. 4 mm thick) on either side of light weight concrete core, having min. compressive strength of 35 Kg/Cm <sup>2</sup> and density in the range of 700-900 Kg/Cu.M. to provide external wall and internal partition at all levels. The panels shall be fixed in position through tongue and groove jointing system by screwing the panels to top & bottom U channels(channels min. 1.25 mm thick and galvanized to min. grade 180 as per IS:277), fixing U profiled top & bottom channels to concrete/primary steel members which are placed at max vertical spacing of 4.5 M with the help of galvanized steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fiber glass tape(min. 50 mm wide & min. 0.5 mm thick) or by any other suitable material, so as to ensure that entire construction done is weather proof and panel surfaces are flush for painting, creating opening for doors/windows/ventilators/ducts/pipes/fans/AC etc. and finishing the opening with same U profiled galvanized steel channel which is used at top & bottom. The wall must be capable of sustaining wind pressure of 4.5 M height within limiting deflection of span/250. Payment Breakup: a) On Supply & receipt of panels at site - 50% b) On complete execution as per item description - 50%	SQM	1,480	-	-	0.4117956037409%
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	33	-	-	0.0073629354339%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A1006	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. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)	CUM	10	-	-	0.0073556164126%
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	2	-	-	0.0000656494032%
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	-	-	0.0005180979931%
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	2	-	-	0.0000463538016%
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	-	-	0.0003058463752%
A1012	Providing Autoclaved Aerated Concrete (AAC ) block masonry with blocks having dimensions of 625 mm x 250 mm / 600 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 6-8 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.	CUM	500	-	-	0.4673638680954%
1014	Extra over item no. 1002,A1002,B1002, 1006, A1006,1012 & 1013 for height above FGL (Finished Grade Level) as per following:			-	-	
a	Height exceeding 10m from FGL but not exceeding 20m	CUM	100	-	-	0.0092929391734%
b	Height exceeding 20m from FGL but not exceeding 30m	CUM	10	-	-	0.0016722854742%
c	Height exceeding 30m from FGL but not exceeding 40m	CUM	10	-	-	0.0022300836131%
1015	Extra over item no. A1003 for height above FGL (Finished Ground Level) as per following:			-	-	
a	Height exceeding 10m from FGL but not exceeding 20m	SQM	10	-	-	0.000609918442%
b	Height exceeding 20m from FGL but not exceeding 30m	SQM	10	-	-	0.0001097853196%
c	Height exceeding 30m from FGL but not exceeding 40m	SQM	10	-	-	0.0001463804261%
1100	<b>DAMP PROOF COURSE:</b> Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shunting, 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	687	-	-	0.0336734862979%
1200	<b>PLASTERING:</b> 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.			-	-	
A1201	Providing 18mm thick plaster in two layers outside the building/boundary wall/rough surface of internal wall in cement mortar as applicable upto 10m above finished ground level (FGL) (For height greater than 10m from FGL- extra over for additional height to be paid in Item No A1206) 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	13,119	-	-	0.5484690594494%
1202	Providing 12mm thick plaster internal/external surfaces of building/boundary wall in cement mortar as applicable above finished Ground level (For height greater than 10m from FGL, 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	16,226	-	-	0.5506181377896%
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	8,632	-	-	0.2527231122976%
A1206	Extra over item A1201, 1202 for plastering on exterior/interior walls over & above 10m height from FGL/FFL as applicable:			-	-	
a	Height exceeding 10m from FGL/FFL as applicable but not exceeding 20m	SQM	145	-	-	0.0007709085220%
b	Height exceeding 20m from FGL/FFL as applicable but not exceeding 30m	SQM	145	-	-	0.0013812111019%
c	Height exceeding 30m from FGL/FFL as applicable but not exceeding 40m	SQM	51	-	-	0.0006464389169%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

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ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
1207	Forming <b>groove</b> of uniform size from 12x12 mm upto 25X15 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	500	-	-	0.0022178852443%
1208	Providing and laying <b>encasement to box type steel beams</b> at all levels with lath plaster 50 mm nominal thickness with cement plaster (14) 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	30	-	-	0.0022056868754%
1209	<b>Ruled pointing</b> in masonry in Cement Mortar 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	270	-	-	0.0060781145119%
A1210	Providing moldings and cornices on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	500	-	-	0.0028383965468%
1300	<b>FINISHES TO CONCRETE / PLASTERED SURFACES:</b> 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 <b>white wash/ colour wash</b> as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	90	-	-	0.0004111959243%
A1304	Two or more coats of Low VOC (volatile organic compound, less than 50g/L) <b>acrylic distemper</b> of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete. All necessary documentation (certificates, manufacturer declarations ) should be provided by the contractor to engineer in charge	SQM	16,594	-	-	0.2235824478717%
A1305	Providing and applying <b>two or more coats of low VOC (volatile organic compound) acrylic emulsion paint</b> as per IS 15489,relevant latest code 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. Note: The paint should have VOC content <del>is</del> less than 50 grams per litre. All necessary documentation (certificates, manufacturer declarations ) should be provided by the contractor to engineer in charge.	SQM	7,389	-	-	0.1405840639877%
A1306	Providing and applying <b>2 or more coats of oil resistant paint</b> (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	539	-	-	0.0172007454916%
B1306	Providing and applying <b>2 or more coats of acid/alkali resistant paint</b> (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	539	-	-	0.0229343273221%
1307	Providing and applying <b>two coats of Epoxy coating</b> 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	200	-	-	0.0058640885858%
1308	Providing and applying <b>2 or more coats of Chlorinated Rubber paint</b> 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 confirming 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	200	-	-	0.0052142482092%
1309	Two or more coats of <b>fire resistant transparent paint</b> (@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	100	-	-	0.0057886804875%
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	100	-	-	0.0025089826826%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FFS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A1313	Providing and applying <b>ready made Epoxy Paint</b> 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	165	-	-	0.0154385882852%
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	500	-	-	0.0927796844803%
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	665	-	-	0.0101767664433%
A1317	Providing and applying <b>2 mm thick Acrylic wall putty punning</b> 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	20,024	-	-	0.3035497761319%
A1319	Providing and applying <b>two or more coats of weather coat paint of Premium Acrylic Smooth Paint</b> with Silicone additives, over 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 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 (Asian / Dulux / Nerolac / Berger / Equivalent as per selection).	SQM	13,816	-	-	0.2621423256000%
1400	<b>FLOORING AND SKIRTING:</b> 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.			-	-	
1401	Providing and laying <b>50 mm thick heavy duty cement concrete</b> in flooring with <b>metallic hardener</b> pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm 20 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, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	2,260	-	-	0.1681405205375%
A1401	Providing and laying <b>50 mm thick heavy duty cement concrete</b> in flooring with <b>metallic hardener</b> 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	4,701	-	-	0.3497689043681%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
1402	Providing and laying <b>25 mm thick heavy duty cement concrete mix 1:2:4</b> (1 cement: 2 sand : 4 stone aggregates ) flooring 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 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm 20 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, aluminum strips etc. all complete as per specification.	SQM	92	-	-	0.0056918900646%
A1402	Providing and laying <b>25 mm thick heavy duty cement concrete mix 1:1.5:3</b> (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 <b>15mm thick cement concrete mix 1:1.5:3</b> (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	25	-	-	0.0015414302448%
B1402	Providing and laying <b>25 mm thick heavy duty cement concrete mix 1:1.5:3</b> (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	120	-	-	0.0073988651748%
C1402	Providing and laying <b>25 mm thick cement concrete mix 1:1.5:3</b> (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	120	-	-	0.0070289219161%
A1403	Providing and laying <b>precast polished heavy duty cement concrete tiles</b> (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:	SQM		-	-	
a	Laid in floors	SQM	125	-	-	0.0195173901494%
A1404	Providing and laying <b>interlocking M35 Grade concrete blocks</b> 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%	SQM		-	-	
b	80mm	SQM	1,470	-	-	0.1768708035161%
1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 1 cement : 2 sand : 4 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@3.3kg/sqm spread over the surface with fine joint finished including pigments, 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	79	-	-	0.0375861499213%
A1412	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	11	-	-	0.0056174952328%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
B1416	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 or equivalent ,complete including underbed of cement mortar 1:3 minimum 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 joints 3 to 5mm wide & 8 to 10mm deep & shall be filled with approved Epoxy Grout mix of 0.70kg of organic coated filler of desired shade (0.10kg of hardener & 0.20kg of resin per kg). Full body Vitrified Tiles shall have water absorption less than 0.5%, Modulus of Rupture more than 38N/mm2, Breaking strength more than 7500N, Moh's scale more than 6, Abrasion resistance less than 144 mm3 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%	SQM	203	-	-	0.0692070499172%
D1416	Providing and laying matt finish vitrified ceramic tiles of polished variety of size 600x600 / 800x800 of approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo, Varmora or equivalent ,complete including 40mm average thick underbed of cement mortar 1:4 for flooring with neat cement slurry and 12mm thick underbed for dado/skirting with cement mortar 1:3 with neat cement slurry @3.3Kg/sqm etc,3mm groove joints as per approved pattern pointed neatly with 3X4mm stainless epoxy grout SP- 100 of Laticrete, Luxture or approved equivalent in approved colour to match colour of tile 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%	SQM		-	-	
a	9.0 mm (min.) thick tiles In flooring	SQM	441	-	-	0.0724757488307%
b	9.0 mm (min.) thick tiles In dado	SQM	7	-	-	0.0011844742123%
1417	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm 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%	SQM		-	-	
b	10mm thick tiles In flooring	SQM	1,358	-	-	0.2481532679847%
d	10mm thick tiles In skirting and dado upto specific height	SQM	250	-	-	0.0476013620548%
A1417	Providing and laying Digitally vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer Simpolo, varmora or equivalent complete including minimum 40 mm thick underbed of cement mortar 1:4 for flooring and 12mm thick underbed of 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%	SQM		-	-	
b	9.00 mm (min.) thick tiles In flooring	SQM	1,435	-	-	0.2623349585289%
d	9.00 mm (min.) thick tiles In skirting and dado upto specific height	SQM	250	-	-	0.0476013620548%
C 1417	Providing and laying vitrified ceramic tiles of matt finish polished variety of size 1000X1000 from reputed / approved manufacturer Simpolo, varmora or equivalent, complete including 40mm average thick underbed of cement mortar 1:4 for flooring and 12mm thick underbed for dado/skirting with cement mortar 1:3 with neat cement slurry @3.3Kg/sqm etc. with 3mm groove joints as per approved pattern pointed neatly with 3X4 mm stainless epoxy grout SP- 100 of Laticrete, Luxture or approved equivalent in approved colour to match colour of tile 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%	SQM		-	-	
a	10 mm thick tiles In flooring	SQM	69	-	-	0.0169709478560%
A1418	Providing and laying 10 mm thk non-skid fully vitrified tiles of approved manufacturer simpolo, varmora 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 Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM		-	-	
b	600X600 mm	SQM	500	-	-	0.0935947573075%
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	20	-	-	0.0123048273351%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick Designer glazed/matt finish of reputed manufacturer Simpolo, varmora or equivalent of approved finish shade and colour on walls, skirting etc.including 20 mm underbed of cement mortar 1:4 in flooring and cement mortar of 1: 3 for skirting/dado with neat cement slurry etc. all complete.			-	-	
a	300X300 mm	SQM	54	-	-	0.0076015355285%
A1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles comply to IS:4457 and shall be laid over bituminous 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, varmora, 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	20mm thick	SQM	619	-	-	0.2229926196474%
b	38mm thick	SQM	450	-	-	0.1736105122071%
1424	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. End sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing 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	100	-	-	0.0518652464369%
B1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) tiles (75mm thick) conforming to IS:4457 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 min.12mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR tiles. The joints between AR tiles shall be filled with resin type mortar of reputed / approved manufacturer Naya Rangoli,Berger or equivalent 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. End sealing shall be done with bituminastic AR tiles shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing 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	500	-	-	0.2593262321844%
C1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (115 mm thick) conforming to IS:4860 in the walls 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 mortar of reputed / approved manufacturer Naya Rangoli,Berger or equivalent 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. End sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing 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	500	-	-	0.3241577902305%
A1425	Providing and laying polished Marble slabs (rajnagar plain white or equivalent approved shade/color /design) 20 mm thick in staircase/landing/skirting and corridors over minimum 30 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 spread over the surface with fine joint finished including moulded marble 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	173	-	-	0.1020404643176%
A1427	Providing and fixing Designer digitally glazed ceramic tiles of approved color and design as per IS: 15622 of size 300x300mm / 300x450mm, 300X600 of reputed / approved manufacturer Simpolo, varmora 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.			-	-	

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, FOPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FFS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
a	5mm thick	SQM	361	-	-	0.0450256357854%
b	7mm thick	SQM	338	-	-	0.0462290251554%
A1428	Providing and laying 2mm thick heavy duty antistatic PVC(Virgin) tile in flooring / skirting of approved shade,from reputed / approved manufacturer Naya Rangoli,robina or equivalent as per IS:3462 and laying as per IS:5318 all complete as per specifications.	SQM	435	-	-	0.0319355035142%
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.	SQM	150	-	-	0.1153910245454%
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	50	-	-	0.0198389888205%
A1432	Providing and laying Decorative/designer pre-polished, plain and pigmented, high wearing resistance concrete tiles of 20mm thickness (minimum) in various non-standard interlocking patterns of approved color,shade all complete as per specification.	SQM	50	-	-	0.0045881318664%
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 5%. MOR > 38NCM2, MOH Hardness >7 & Breaking strength > 4000 N. Tile confirming RNIB (The royal national institut 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.	SQM	50	-	-	0.0084632493661%
A1434	Providing and fixing carpet flooring over cement concrete floor. The carpet shall be of tile/roll form, machine/hand made tupled un-cut loop pile and lay with under lay of 10mm thick and shall be laid as per manufacturer's recommendations, in matching grains, treated with anti fungus and anti-termite before laying etc all complete as per specification.(Cement concrete flooring to be paid separately)	SQM	25	-	-	0.0029264904816%
A1435	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	25	-	-	0.0081165717841%
A1436	Providing and fixing Rubber flooring over cement concrete floor min. 4mm thick conform to IS 809, consist of 100% virgin elastomer reinforcing agents, resins, curing agents, anti-oxidants and pigments.The rubber flooring shall be of tile/roll form, machine/hand made tupled un-cut loop pile and lay with suitable under lay and shall be laid as per manufacturer's recommendations, in matching grains, treated with anti fungus and anti-termite before laying etc all complete as per specifications. Rubber flooring shall have excellent abrasion resistance,comply to class-I fire rating,acid & alkali resistant and shall be of anti static grade.(Cement concrete flooring to be paid separately)	SQM	25	-	-	0.0075347067682%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL &amp; ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM

INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&amp;M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&amp;M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE

ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT,

OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE &amp; CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER

HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING &amp; GRADING IN BOP AREA, ROAD &amp; DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM

REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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.			-	-	
A1502	<b>METAL DECK SHEET Type-I</b> , 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 whichever 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 polyester(SMP silicon content 30%-50%) paint or super polyester 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 minimum 5 micron (nominal) on other face. SMP and polyester paint system shall be of idutrial 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 conforming 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. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%			-	-	
a	Span Upto 1800mm	SQM	442	-	-	0.0782283611812%
B1502	<b>METAL DECK SHEET Type-II</b> , 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 whichever 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 polyester(SMP silicon content 30%-50%) paint or super polyester 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 minimum 5 micron (nominal) on other face. SMP and polyester paint system shall be of idutrial 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 conforming 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.			-	-	
a	Span Upto 1800mm	SQM	40	-	-	0.0077040461844%
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	-	-	0.0153752676673%
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	4	-	-	0.0205003568897%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	
A1504	Designing, providing and fixing External sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness having minimum yield strength 250 MPa complying AS1397 and zinc-aluminium alloy coating not less than 275 gm/sqm total 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. The exposed face of the sheet shall be permanently colour coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint or Super Polyester paint of minimum dry film thickness (DFT) 20 microns(nominal) over suitable primer coat of 5mm DFT(nominal). Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 10 microns(nominal) over suitable primer of 5mm DFT(nominal). The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 of durability. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	1,163	-	-	0.1795443073292%
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 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 at site - 50% b) On complete execution as per item description - 50%	SQM	915	-	-	0.1209184292796%
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 in charge.	SQM	1,743	-	-	0.1924810836268%
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	100	-	-	0.0163236353977%
A1519	Designing, providing and fixing Factory made (Continous 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 0k, 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 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 part 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 at site - 50% b) On complete execution as per item description - 50%	SQM	3,044	-	-	0.9734882581233%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE						
ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO Item Description Unit Total Qty Rate (INR) Amount (INR) % Weightage w.r.t Total						
1600	<b>FALSE CEILING:</b> 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.			-	-	
aa	12.5mm thick GRG board conforming to IS: 2095 with galvanised light gauge steel load bearing supporting GI frame (minimum 0.8mm thk and grid size of 600x1200mm) and finished flat (seamless).	SQM	50	-	-	0.0065264045669%
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	50	-	-	0.0093262074521%
A1601	Providing and fixing 12.5 mm thick tapered/square edge glass fibre reinforced gypsum board 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 slab/ 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.	SQM	50	-	-	0.0102588281973%
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 galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification. 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 M.S. 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.	SQM	490	-	-	0.1171806822810%
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon Hunter douglas, Newage or approved equivalent with corrosion resistant aluminium alloy panels of size 600 mm x 600 mm and min.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 with NRC 0.7 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 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 D2301)	SQM	1,743	-	-	1.0277253039431%
B1603	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 (grade 3105) 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 0.65. 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 D2301)	SQM	75	-	-	0.0398071588352%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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)	SQM	50	-	-	0.0260845944809%
B1604	Providing, fixing and laying permanently colour coated Designer metal Batten panel aluminium false ceiling of colour with stove enamel 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. 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)	SQM	50	-	-	0.0307672038064%
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 movement 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 D2301)	SQM	50	-	-	0.0072968424536%
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 movement 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	21	-	-	0.0032599652799%
A1607	Providing and Fixing 12mm thick Calcium silicate board of HILUX 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	50	-	-	0.0125232890317%
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 movement platform. The work to be complete as per specifications, drawings and direction of engineer.	SQM	25	-	-	0.0040698194232%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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.			-	-	
A1704	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I)with welded joints and provided with roof drain heads and complete with shoes bends, junctions, sockets, adapters, brackets and finished with anti corrosive painting over acoat or primer all complete.Galvanising shall be as per IS: 4736. The minimum mass of zinc coating shall not be less than 360 gms/sq.m. as per IS:6745. The zinc coating shall be smooth and shall be subjected to testing as per IS: 2633, for uniformity of coating. The zinc coating shall be free from all defects as per IS: 2629. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	RM	1,711	-	-	0.3735386969419%
B1704	Providing and fixing galvanised MS down take pipes of 200 mm dia- Medium quality as per IS:1239(part-I)with welded joints and provided with roof drain heads and complete with shoes bends, junctions, sockets, adapters, brackets and finished with anti corrosive painting over acoat or primer all complete.Galvanising shall be as per IS: 4736. The minimum mass of zinc coating shall not be less than 360 gms/sq.m. as per IS:6745. The zinc coating shall be smooth and shall be subjected to testing as per IS: 2633, for uniformity of coating. The zinc coating shall be free from all defects as per IS: 2629. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	RM	180	-	-	0.0597650907318%
C1704	Providing and fixing galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239 (part-I)with welded joints and provided with roof drain heads and complete with shoes bends, junctions, sockets, adapters, brackets and finished with anti corrosive painting over a coat or primer all complete.Galvanising shall be as per IS: 4736. The minimum mass of zinc coating shall not be less than 360 gms/sq.m. as per IS:6745. The zinc coating shall be smooth and shall be subjected to testing as per IS: 2633, for uniformity of coating. The zinc coating shall be free from all defects as per IS: 2629. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	RM	10	-	-	0.0016068578595%
1705	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	100	-	-	0.0106347597462%
1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	250	-	-	0.0361515294813%
A1711	Providing and fixing GI grills in catch pits including frame etc. all complete as per specification.	Each	30	-	-	0.0081507282726%
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.			-	-	
A1801	Providing and Filling in trenches, plinths, area paving, grade slab and other underground structures with <b>graded stone aggregate of size range 63 mm to 45 mm</b> in layers not exceeding <b>200 mm</b> in compacted thickness including breaking of stone boulders to required sizes, filling the interstices with selected morum/non expansive soil and compacting to <b>85 %</b> 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	2,232	-	-	0.7785853472671%
B1801	Providing and Filling in trenches, plinths, area paving, grade slab and other underground structures with <b>graded stone aggregate of 40 mm size rammed,consolidated</b> in layers not exceeding <b>200 mm</b> in thickness including breaking of stone boulders to required sizes, filling the interstices with selected fine sand and compacting to <b>85 %</b> 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	94	-	-	0.0328861434883%
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	94	-	-	0.0404358400220%
1803	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	100	-	-	0.0491150687340%
A1804	Providing and fixing <b>weep holes</b> in drains consisting of 75 mm dia HDPE 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	1,670	-	-	0.0446316137127%
1807	Anti termite chemical treatment of soil with Chlorpyriphos/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	454	-	-	0.0138832519058%
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	115	-	-	0.1977358801012%
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)	NO	32	-	-	0.0460978576477%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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)	NO	32	-	-	0.0348662206246%
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.)	NO	32	-	-	0.003010912292%
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.)	NO	32	-	-	0.0024719661778%
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.	NO	32	-	-	0.1372228666626%
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.	NO	32	-	-	0.0799077438882%
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	27	-	-	0.0004042095858%
A1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 610 g/sqm etc. all complete.	Kg	405	-	-	0.0054568294078%
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.	NO	177	-	-	0.2365191371318%
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 suppression 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	3,360	-	-	0.4050213317647%
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	1	-	-	0.0019429783682%
1823	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	32	-	-	0.0060082511267%
1827	Anti weed chemical treatment of soil with suitable chemical etc all complete.	SQM	80	-	-	0.0000354861639%
1849	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 including compaction etc. all complete.	SQM	50	-	-	0.0039145674561%
1850	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 Celsius or A65 grade bitumen for softening point above 45 degree celsius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	50	-	-	0.0041102958289%
1851	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	18	-	-	0.0005289656308%
1852	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	18	-	-	0.0012036463221%
1853	Providing, laying and fixing rails and guide rails in concrete for transformer, rail track(52 kg/m) including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	18	-	-	0.2100512539243%
A1860	providing and installation of Bio-Toilet near all the modular worker's sheds/accommodation etc all complete as per specification.	Nos	10	-	-	0.0610001029194%
A1862	Supplying and installation of PVC pipes in concrete / Duct bank for all kind of works, including setting material in	RM	70	-	-	0.0152767935624%
a	200 mm dia HDPE Pipes	RM	2,124	-	-	0.3071433944735%
b	200 mm dia PVC pipe ISI mark 6 Kg/cm2					

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL &amp; ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM

INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&amp;M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&amp;M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE

ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT,

OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE &amp; CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER

HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING &amp; GRADING IN BOP AREA, ROAD &amp; DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM

REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A1866	Providing, fixing and installing modular Rest room cubicles as per drawings and manufacturer's std specifications (of following standard dimension which includes 600mm door size width) self-supporting min. 12mm thick compact laminates made out of, urea free, thermosetting phenolic resins treated Kraft papers as core material and Amino plastic resin treated decor papers on the finish surface, conforming to latest and applicable IS: 2046-1995, EN 438-2016 and NEMA LD3-2005 quality standards with Antivirus, Antibacterial and Antifungal properties (conforming to ISO 21702:2019, JIS Z2801:2010 and ASTM G21-2015 standards respectively) to fulfil the applicable requirements of indoor air quality certifications for Greenguard-Gold standards, from approved manufacturer greenlam, merino or equivalent. This also includes providing and fixing in position necessary hardware made out of Stainless steel (Grade 316), Aluminium 6063 -T6 and Anodised Zinc Diecasted as per manufacturer's specifications like Door knob, SS Spring Loaded Hinges, Zn Slide Bolt with Occupancy indicators, Zn Coat hooks, Aluminium anodised U- F Channels , SS Shoe Box , SS grade 316 RAB, Rubber noise deafening tape, Screws & wall Plugs,adjustable foot (Mid panel mounted or divider setback leg), Top rail with T and L-Corner connectors. The top fittings should consist of brushed finish round top rail which will get fixed with pilasters with panel tube holder "L" corner bed (connected with top rail) will be used on the corner cubicles in absence of brick wall T-Connectors in T-junction,wall bracket fixing is used only on the wall which will hold the top rail. All screws will of 316 Grade in stainless steel . All pilasters are supported by adjustable SS legs and stainless steel shoe box. The base of the stainless steel shoe box will be anchored to the floor with a clearance height upto 150mm. The Cubicles shall have approximate dimension (W x D x H)- 1000 mm x 1500 mm x 2025 mm, ( Height is including 150 mm gap from bottom).The colour, texture and pattern finish shall be as finalized by Architect engineer. Shop drawings shall be submitted by the fabricator/manufacturer for approval before execution. Installation to be done by specialized vendor in strict supervision if required as per the manufacturer's specification.	EACH	20	-	-	0.0343772212859%
2000	<b>FENCING AND GATES:</b> 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.			-	-	
A2003	Supplying and erecting in position 2.4 m high PVC coated galvanized chain linked fencing of minimum 8 gauge (including PVC coating ) of mesh size 75mm x 75mm. The diameter of the hot dip galvanized steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanized 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. Concertina of height of 600 mm at top of chain link fencing shall be provided and fixed with all accessories. Concertina 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 galvanized 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 Loaded Hinges, Zn Slide Bolt with Occupancy indicators, Zn Coat hooks, Aluminium anodised U- F Channels , SS Shoe Box , SS grade 316 RAB, Rubber noise deafening tape, Screws & wall Plugs,adjustable foot (Mid panel mounted or divider-setback	RM	213	-	-	0.0702159757186%
A2008	Supply, fabrication and fixing of mild steel posts for fencing including painting with chlorinated rubber paint over a suitable primer etc all complete.	MT	3	-	-	0.0392592302856%
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.	MT	9	-	-	0.1322903120583%
2100	<b>WATER SUPPLY:</b> 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.			-	-	
A2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks with flow rate less than 5 LPM (litres per minute) at 45 psi, including sockets, union, nuts etc all complete -15mm nominal bore. (Note: Flow rate of all faucets at 45 psi should be less than 5 lpm. The contractor should submit the cutsheets/ declaration from the manufacturers mentioning the same to Engineer in charge.)	NOS	8	-	-	0.0009643365042%
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	8	-	-	0.0008569908584%
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.	NOS	13	-	-	0.0015670468193%
b	50mm nominal bore.	NOS	13	-	-	0.0022633518918%
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	55	-	-	0.0030312946576%
b	20 mm nominal bore.	RM	55	-	-	0.0033301546942%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE						
ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
c	25 mm nominal bore.	RM	55	-	-	0.0039461723208%
d	50 mm nominal bore.	RM	10	-	-	0.0009636711386%
B2104	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	58	-	-	0.0031741819144%
b	20 mm nominal bore.	RM	58	-	-	0.0034279634335%
Ac	32mm nominal bore	RM	58	-	-	0.0047140873631%
d	50 mm nominal bore.	RM	65	-	-	0.0083265130055%
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	93	-	-	0.0039081910360%
b	20 mm nominal bore.	RM	58	-	-	0.0027418606332%
c	25 mm nominal bore.	RM	58	-	-	0.0033922554811%
d	50 mm nominal bore.	RM	33	-	-	0.0027138598320%
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	8	-	-	0.0018648831945%
2110	Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete.	NOS	13	-	-	0.0012397978515%
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.	NOS	13	-	-	0.0010105794115%
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. all complete.	NOS	13	-	-	0.0011778079590%
A2113	Providing and fixing rotating type chromium plated brass shower rose with 15 or 20 mm inlet all complete.	NOS	13	-	-	0.0011316759459%
B2113	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 /min of water and substantially dispersed throughout the pattern,complete with installation,with accessories etc all complete.	NOS.	5	-	-	0.0257646464590%
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.			-	-	
a	500 litres capacity	NOS	4	-	-	0.0036728179645%
b	1000 litres capacity	NOS	9	-	-	0.0165276808402%
2200	<b>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.</b>			-	-	
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 bevelled 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	EACH	23	-	-	0.0390644999611%
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 necessary 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	4	-	-	0.0045209372819%
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, necessary union,elbow,angle valve,tees, junctions,extension pipes etc. all complete.	EACH	5	-	-	0.0050856108651%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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, necessary union, elbow, angle valve, tees, junctions, extension pipes etc. all complete.	EACH	5	-	-	0.0045770497786%
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	-	-	0.0049046314291%
b	Wall mounted	EACH	9	-	-	0.0178211515146%
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	40	-	-	0.0385690243976%
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	130	-	-	0.1316167957567%
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	15	-	-	0.0421342749277%
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	125	-	-	0.0062516640322%
b	110mm dia pipes	RM	125	-	-	0.0099250364680%
c	160mm dia pipes	RM	125	-	-	0.0136815796005%
d	200mm dia pipes	RM	125	-	-	0.0199748289811%
2208	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	125	-	-	0.0181727972201%
b	300mm dia	RM	375	-	-	0.0876619142791%
c	450mm dia	RM	125	-	-	0.0372466103207%
d	600mm dia	RM	125	-	-	0.0458547774249%
e	900mm dia	RM	75	-	-	0.0372022526158%
2209	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	175	-	-	0.0196005608461%
b	250mm dia	RM	75	-	-	0.0108288247051%
c	300mm dia	RM	75	-	-	0.0122177753393%
d	450mm dia	RM	75	-	-	0.0171497976512%
e	500mm dia	RM	75	-	-	0.0201938451489%
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	450mm dia	RM	95	-	-	0.0325424757176%
b	600mm dia	RM	25	-	-	0.0103658411603%
c	900mm dia	RM	25	-	-	0.0139948558912%
A2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx600mm including frame from reputed manufacturer confirming to IS:4111 etc all complete as per specification.	EACH	90	-	-	0.1810858944228%
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	90	-	-	0.1782015346627%
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	65	-	-	0.0186474246624%
b	150x100mm P or S Type.	EACH	30	-	-	0.0093816545832%
c	150x150mm P or S Type.	EACH	30	-	-	0.0106258882052%
A2214	Providing and fixing Heavy duty CP brass floor traps size 100mm with stainless steel grating etc all complete.	EACH	65	-	-	0.0172922967781%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FFS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A2216	Providing and installing approved brand single tap water efficient water cooler of 50 L cooling capacity all complete.	EACH	2	-	-	0.0096833978707%
B2216	Providing and installing approved brand single tap water efficient water cooler of 80 L cooling capacity all complete.	EACH	2	-	-	0.0129111971609%
A2217	Providing and installing approved brand single tap water efficient water cooler of 150 L cooling capacity all complete.	EACH	2	-	-	0.0180123332227%
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	5	-	-	0.0118002584421%
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation,backfilling,concrete to be paid separately)			-	-	
b	100mm dia	RM	90	-	-	0.0183042069208%
c	150mm dia	RM	115	-	-	0.0362053131985%
d	200mm dia	RM	240	-	-	0.1093861002466%
e	250mm dia	RM	15	-	-	0.0111482001802%
f	300mm dia	RM	15	-	-	0.0134803065146%
2222	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.			-	-	
c	150 mm dia	RM	20	-	-	0.0029608768011%
d	200 mm dia	RM	10	-	-	0.0021823990803%
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	-	-	0.0119907747845%
b	25 Litres	Each	9	-	-	0.0175067662813%
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	110mm dia pipes	RM	10	-	-	0.0016119413949%
b	160mm dia pipes	RM	50	-	-	0.0118721018077%
2300	<b>STRUCTURAL WORKS:</b> 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.			-	-	
C2301	Fabrication(Site Welded as per specification), transportation from fabrication yard and erection of 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, bunkers, silos, hoppers, 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 collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, 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/ radiogenic 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.(Rate shall be exclusive of surface preparation and primer). Payment Breakup: a) On Fabrication of Material - 60% b) On completion of erection, welding/bolting all complete as per item description - 40%	MT	203	-	-	0.7456428279355%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND					
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)
D2301	<p><b>Fabrication(Site Welded as per specification), transportation from fabrication yard and erection of Mild structural steel (Grade designation E250) 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, bunkers, silos, hoppers, 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 collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts &amp; 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 &amp; 66° C for welding over 40 mm and upto 63 mm &amp; 110° C for thickness over 63 mm &amp; use of low hydrogen/ radiogenic 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.(Rate shall be exclusive of surface preparation and primer).</b></p> <p>Payment Breakup: a) On Fabrication of Material - 60% b) On completion of erection, welding/bolting all complete as per item description - 40%</p>	MT	1,357	-	4.9850948936815%
A2302	Extra over ST NO. D2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2 ) and applying coat of two component moisture curing zinc (ethyl) Silicate primer (solid by volume Minimum 60+/2% & zinc dust % on dry film minimum 80 %). Zinc dust composition and properties shall be Type-II as perASTM D520-00. Primer of minimum 70 micron DFT shall be applied over shot blast cleaned surface including touch-up painting etc all complete. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT	1,560	-	0.7788620588534%
A2305	Providing and applying (with airless spray technique) 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 to be applied after an interval of minimum 24 hours (from the application of primer coat by airless spray technique.) and of approved make including protection and cleaning, scaffolding etc. all complete as per specification for all structures .	MT	1,560	-	0.4601533364510%
B2305	Providing and applying Finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec N 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 shall be applied after an interval of minimum 10 hours (from the application of sealer coat). Colour and shade of the coat shall be as approved by the Employer) over steel sections already having intermediate coats including protection and cleaning, scaffolding etc. all complete as per specification for all structures .	MT	1,560	-	0.4601533364510%
A2307	Supplying, fabrication, erection and alignment of factory made <b>electroforged galvanised grating</b> units with mild steel conforming to IS:2062 having hot dip galvanisation, surface preparation of shot blast cleaned to Sa 2 1/2 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 treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.			-	
	Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%			-	
a	Minimum galvanisation of 610 g/sqm	MT	90	-	1.2570319288284%
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	181	-	0.0027492042232%
2312	Providing and fixing in positling 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.	KG	7,798	-	0.1442874884958%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
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	11	-	-	0.0131278845493%
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 utilised 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	8	-	-	0.0239497138286%
b	In fabrication yard	MT	8	-	-	0.0198779453084%
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	8	-	-	0.0155988304999%
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.			-	-	
b	25 Tons	EACH	5	-	-	0.0075080960231%
c	40 Tons	EACH	5	-	-	0.0106713548527%
d	50 Tons	EACH	5	-	-	0.0127805637200%
e	60 Tons	EACH	5	-	-	0.0148897725873%
f	100 Tons	EACH	5	-	-	0.0162953573608%
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	25	-	-	0.0123841167326%
A2320	Supply, fabrication and fixing of stainless steel pipe (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,fasteners, bolts necessary accessories & stainless steel dash fasteners, stainless steel bolts etc,of required size, with suitable arrangement as per approval of Engineer-in-charge,including transportation, loading/unloading etc. all complete Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	MT	1	-	-	0.0330380621755%
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: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	MT	2	-	-	0.0289844333145%
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: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	MT	25	-	-	0.3972631452271%
2323	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	11	-	-	0.0124692799080%
2324	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	11	-	-	0.0015752611008%
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	22	-	-	0.0014043311297%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
2326	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	11	-	-	0.0010882951399%
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	11	-	-	0.0011596184372%
A2329	<b>Design, supply, fabrication, erection of stoplog gates, Sluice gates etc. in CW / RW / CLW Pumps, etc. with embedments required, lifting beams, special tools &amp; 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 fasteners 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 l/it/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). ( supply of structural steel is in the scope of contractor only) Payment Breakup: a) On Supply &amp; receipt of material at site - 50% b) On complete execution as per item description - 50%</b>	MT	95	-	-	1.7028174369111%
2330	SS component mentioned under ST No. 2329 Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	MT	78	-	-	2.8931519008374%
2331	Supplying, fabricating, erecting 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, sand blasting, hot double dip galvanised with minimum coating of zinc as 750 gms./sqm. followed by application of an etching primer and dipping in black bitumen as per BS 3416 etc all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	MT	52	-	-	0.8547679624891%
A2333	Touch up paintings on damaged areas ( <b>exposed metal surface</b> ) 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	83	-	-	0.0034092001244%
B2333	Touch up paintings on damaged areas( <b>surface exposed to prime coat</b> ) 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	83	-	-	0.0021060483808%
2400	<b>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.</b>			-	-	
2401	Preparation of sub grade by <b>excavating</b> earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	3,150	-	-	0.0241028678919%
A2402	Supplying and <b>filling with selected good earth</b> of approved quality in layers not exceeding <b>300 mm loose thickness</b> using <b>excavated</b> soil within a lead upto1km soil and compacted so as to achieve at least <b>95 %</b> maximum dry density as per IS-2720 (Part-VII) including royalty/seigniorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing etc all complete.	CUM	1,995	-	-	0.0241145117895%
A2404	Providing & laying <b>granular sub-base</b> using close graded material conforming to specification, mixing in a mechanical mix plant at OMC, carriage of 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	2,363	-	-	0.7766958717279%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POFH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FPS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
A2406	Providing & laying water bound macadam sub base/base course with stone aggregate 53 mm to 224 mm size stone conforming to MORTH specification (Table 400-9) (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	428	-	-	0.1438595777521%
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	7,875	-	-	1.0174438362154%
A2413	Supplying and laying 450mmx250mmx500mm deep precast concrete kerb stone of grade M25 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	600	-	-	0.0683034746845%
B2413	Supplying and laying 300mmx250mmx150mm 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	3,000	-	-	0.1835555882147%
A2415	Supply and laying 200mm dia R.C.C NP3 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	158	-	-	0.0229704156862%
A2419	Providing and laying cement concrete of grade M35 using 20 mm nominal size stone aggregate with including addition of high performance PCE-based BIS approved water reducing admixture of Type-G as per ASTM-C-494 of approved make FOSROC/STP/SIKA/BASF or Equivalent, provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing formwork etc. all complete. (Excluding the cost of reinforcement and dowel bar).	CUM	1,969	-	-	1.0915356606817%
A2421	Providing & laying dry lean cement concrete of grade M10 with 20 mm nominal size graded stone aggregate over a prepared sub-base including compaction, finishing, curing etc all complete	CUM	1,181	-	-	0.6448771929668%
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	402	-	-	0.2195094255484%
A2423	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing epoxy, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer.	MT	21	-	-	0.1958224111398%
<b>MISCELLANEOUS</b>						
A2427	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	2,269	-	-	0.0137742526476%
A2428	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	1,350	-	-	0.1461891335184%
A2429	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	1,350	-	-	0.0081021565858%
A2430	Providing and laying impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15-2002 etc all complete as per specification, drawing and as directed by Engineer.	SQM	7,875	-	-	0.0143751421142%
A2431	Supplying, fixing and removing formwork for concrete road pavement complete as per specification and as directed by the engineer-in-charge.	SQM	908	-	-	0.0546958890164%
A2432	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	100	-	-	0.0435237551859%
2600	<b>LEVELING &amp; GRADING:</b> Levelling & grading 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.			-	-	
A2601	Removing and disposal of roots of trees of all girths more than 300 mm measured etc at specified area within the plant boundary and disposal of unserviceable parts/materials within a lead upto 1km etc all complete.			-	-	
a)	300mm upto 600mm girth	Nos	25	-	-	0.0013030075810%
2602	Earth work in stripping of top soil upto a maximum depth of 0.30 m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	Sq.m	65,580	-	-	0.1890835886136%

## REVISED BOQ CUM RATE SCHEDULE

2x800MW DVC KODERMA TPS PHASE-II - EPC

PART-B

CIVIL STRUCTURAL & ARCHITECTURAL WORKS OF BOP AREAS/BUILDINGS/FACILITIES WHICH INCLUDES CW PUMP HOUSE PH, FOREBAY AND TRANSITION ZONE, CW CHANNEL FROM COOLING TOWERS UP TO CWPH FOREBAY, CW DUCT/PIPELINE (OUTSIDE BTG AREA), RAW WATER PUMP HOUSE (RWPH) AND SWITCHGEAR/MCC AND CONTROL ROOM INCLUDING CONNECTION WITH RESERVOIR OUTLET PIPES, POPH AND SWITCHGEAR/MCC AND CONTROL ROOM, MAINTENANCE BUILDING, O&M STORE BUILDING, SHED FOR CONSTRUCTION WORKERS AND O&M WORKER IN BOP AREA, PCRI LAB, PIPE AND CABLE SUPPORTING STRUCTURES AND FOUNDATIONS IN BOP AREA AND IN WATER PACAKAGE ISLAND AREA, SWITCHGEAR/MCC AND CONTROL ROOMS FOR COOLING TOWER, MISCELLANEOUS SWITCHGEAR/MCC AND CONTROL ROOMS IN BOP AREA, RAIN WATER HARVESTING POND, ROOFTOP SOLAR SYSTEM FOUNDATION FOR BUILDINGS IN BOP AREA, CIVIL WORKS FOR OUTDOOR TRANSFORMER FOUNDATIONS, FIRE BARRIER WALL, SUMP, PIT, OIL RETENTION PIT, FENCING, GATES, ETC, IN BOP AREA, SEWAGE NETWORK OF BOP AREA, TRENCHES, CULVERTS, DUCT BANKS, PEDESTALS, HUME PIPE & CULVERTS, BURIED PIPES, ENCASING OF PIPING, CULVERTS ACROSS RAIL/ROAD TRACKS FOR PIPES/ DRAINS/ CABLES AND ANY OTHER FACILITY AND THRUST BLOCKS, RAIN WATER HARVESTING FACILITIES ETC. AS WELL AS ANY OTHER BUILDINGS/FACILITIES INSIDE BOP AREA, AREA PAVING, SITE LEVELLING & GRADING IN BOP AREA, ROAD & DRAIN IN BOP AREA, REPAIR OF ROAD AFTER COMPLETION OF CONSTRUCTION AT THE TIME OF HANDOVER, ANY OTHER BUILDINGS/STRUCTURES (IF REQUIRED AS PER THE SYSTEM REQUIREMENT), FFS WORKS OF DELUGE VALVE SHEDS, PIPE SLEEPERS, HOSE HOUSES, FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND						
ST NO	Item Description	Unit	Total Qty	Rate (INR)	Amount (INR)	% Weightage w.r.t Total
2603	Earth work in excavation upto any depth below ground level in all types of soil including moorum, ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	51,362	-	-	0.5809666117684%
2604	Earth work in excavation upto any depth below ground level in soft rock (rock without any recovery of excavated materials in the form of hard stone/ boulder) 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) for grading 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 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	1,000	-	-	0.0210699098204%
2606	Earth work in excavation upto any depth below ground level in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	500	-	-	0.0224006409670%
A2609	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm compacted thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil/soft rock from compulsorily excavated earth available within a lead upto 1km and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesiing etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	51,862	-	-	0.6901437872250%
B2609	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm compacted thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with surplus stacked soil/soft rock and compacted as specified including re-excavation of stacked earth, all lifts, dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesiing etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	1,30,000	-	-	1.7299504905180%
A2610	Extra over ST No. 2604 to C2609 A2601, 2602, 2603, 2604 & B2609 for carriage of unserviceable material/earth for every 500m or part thereof beyond an initial lead of 1km.	CUM	19,724	-	-	0.0218727842788%
2611	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300 mm loose thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty/lease/royalty fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesiing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	13,037	-	-	0.5826285840762%
A2612	Providing and laying 300mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fillcut 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.	CUM	1,990	-	-	0.5592020602895%
2700	<b>RAIN WATER HARVESTING</b>			-	-	
2701	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	313	-	-	0.0529869183896%
2702	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	1,077	-	-	0.1107775836404%
2703	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	218	-	-	0.0203217457039%
2704	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	CUM	146	-	-	0.0398403938456%
2705	Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.	CUM	361	-	-	0.1549184437326%
2706	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting.	CUM	86	-	-	0.0424354193862%
2707	Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.	CUM	289	-	-	0.0868551185996%
2708	Supply & fixing Netlon jali/ PVT net in the well dug for rain water.	SQM	719	-	-	0.0286090109650%
				<b>Grand Total</b>	<b>0</b>	<b>100.000000000000%</b>