

TENDER SPECIFICATION

BHEL: PSSR: SCT: 1861

FOR

Civil & architectural works of

SEA WATER INTAKE SYSTEM

at

**Units 1 & 2 of 2 X 660 MW Ennore SEZ STPP
(on the ash dyke of NCTPS),
Thiruvallur District, Tamilnadu.**

VOLUME-II

PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

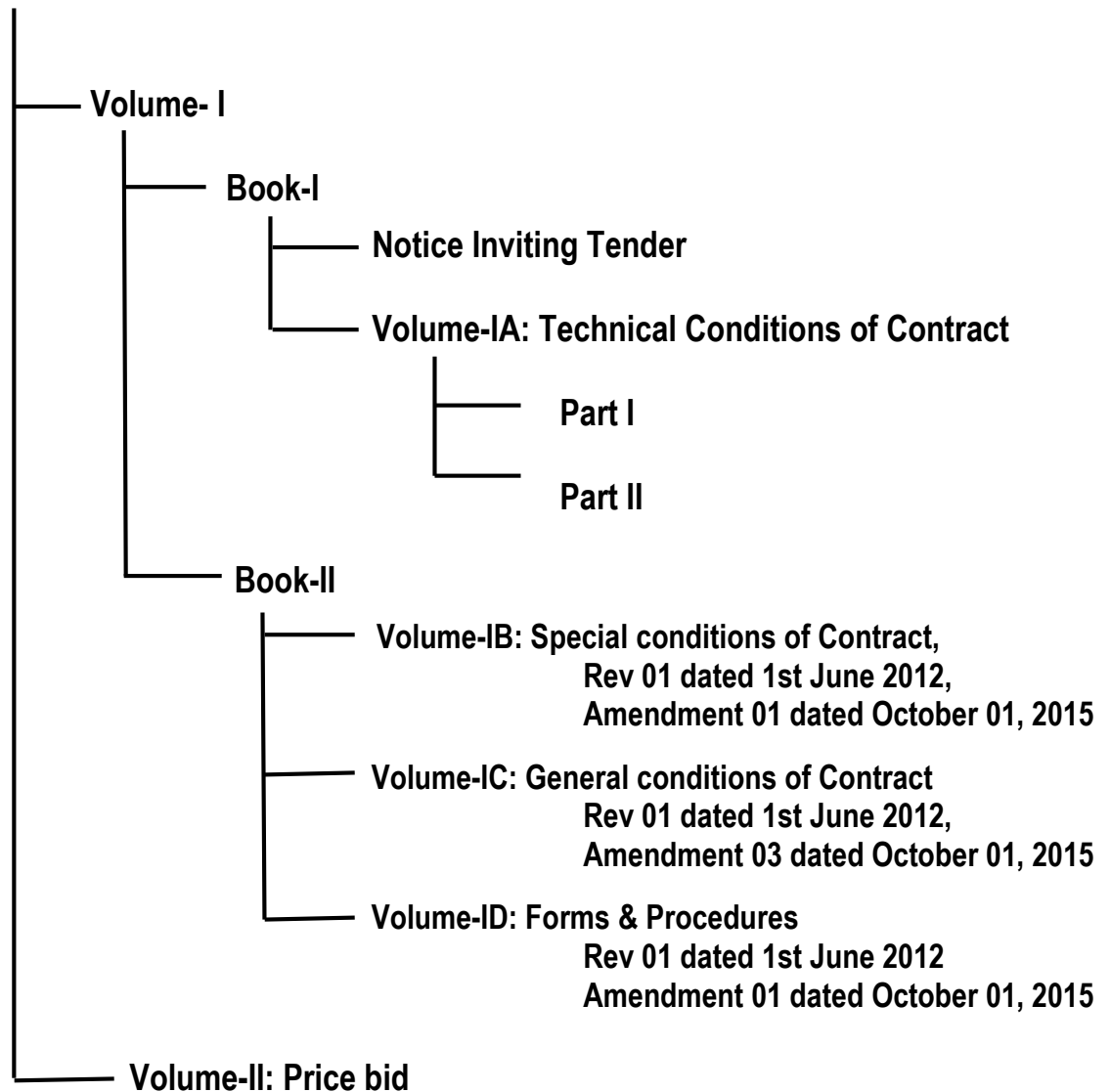
Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

PRICE BID

TENDER SPECIFICATION CONSISTS OF

Techno-Commercial Bid



PRICE BID

CONTENTS	
Description	No. of pages
Part A: Instructions to the Bidders	1
Part B: Format to quote total amount	1
Part C: Bill of quantities with weightage for amount of each items w.r.t. the total quoted price	36

PRICE BID

PART-A-INSTRUCTIONS TO BIDDERS:

1. The 'Total amount' mentioned in Part-B of the Price Bid corresponds to the entire Bill of Quantities (BOQ) given in Part -C of the Price Bid.
2. Bidders shall quote 'Total Amount' in the format for Price Bid available in the e procurement portal.
Bidders may also quote 'Total Amount' in the format given in Part -B of this document (Optional).
Any other entry elsewhere in the price bid shall be treated as Null and Void.
3. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C.
4. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
5. Based on the quantities of individual item and the amount arrived in SI No: 4 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
6. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per SI No.5 above.

Part B: Format to quote Total Amount

Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

Total Amount for the entire Bill of Quantities(BOQ) given in Part C	In Figures
	In words

Note :

Bidders to quote Total Amount in this format given above, which shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.

Date

SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following.	--		
101.0	Earth work in excavation in all types of soil/ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, 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	7,628	.0033969
b	Depth exceeding 2 m but not exceeding 4 m	CUM	7,628	.0039355
c	Depth exceeding 4 m but not exceeding 6 m	CUM	7,628	.0050539
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1,797	.0016493
e	Depth exceeding 8 m but not exceeding 10 m	CUM	803	.0010553
102.0	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	22,936	.0417258
107.0	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated soil/ash available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.	--		
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	500	.0002987

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
108.0	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with soil/ash directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.	--		
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	8,643	.0043182
109.0	Extra over ST No. 101 and 103 to 107 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	25,984	.0022583
110.0	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty (if any), watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.	--		
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	1,000	.0048604
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	500	.0024139
111.0	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm 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	250	.0014328

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A113	Providing and laying rubble soling with specified sizes of approved quality hard rock rubble or hand broken hard metal of sizes ranging from 100mm to 230mm, at all position and depths below or above finished ground floor level, below foundations, below flooring, and for providing hard standing etc in one or more layers each of approximately 230mm thickness, hand packing, filling in interstices with quarry spalls, grits and providing a layer of 50mm. thickness (consolidated) of moorum/equivalent locally available approved material over each layer of soling including watering, thoroughly compacting each layer with 10 tonne power roller with minimum 6 passes (or with vibrating plate of approved capacity at places not approachable by power roller) all as per the direction of the Engineer and as per specification.	CUM	265	.0022641
200.0	CONCRETE WORKS	--		
--	Providing and placing concrete work including cost of labour, materials and equipment for handling, transportation, batching, mixing, placing, vibrating and curing, (excluding cost of centering, shuttering and reinforcement) 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 M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as filling course at any depth below finished floor level, under and around foundations/floors, mass fill etc.	CUM	435.372	.0131496
203.0	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	150	.0045279
204.0	Concrete under floors, paving, plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades.	--		
a	M15Grade	CUM	150	.0045811

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.	--		
b	M30 Grade	CUM	6,027	.202376
c	M35 grade	CUM	100	.0034122
206.0	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.	--		
b	M30 Grade	CUM	1,484	.0503701
207.0	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	200	.006934

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-35 Grade in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	100	.0035213
208.0	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system) at all levels including addition of suitable plasticizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.	--		
a	M30 grade (with 20mm nominal size graded stone aggregate)	CUM	500	.0180653
b	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	500	.018337
A209	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 25 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	8,811	.0476098

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A212	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.	--		
a	M 20 grade	CUM	200	.0066617
A213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position / pockets with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture, 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.(Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). Payment shall be made for the measurement of the volume of the precast works.	--		
a	M 25 grade	CUM	75	.0040288
b	M 30 grade	CUM	75	.0040799
A214	Providing and laying design Mix cement concrete as per IS:456,IS 3370 & IS 10262-2009 for reinforced concrete works graded aggregate for concrete in water retaining /conveying structures including addition of suitable plastisizer cum water proofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as manufactureres recommendation and conforming to limits of permeability as per IS 2545 and specification with 20mm nominal size aggregate for following grades.	--		
c	M35 grades	CUM	20	.000703

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
215.0	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.	--		
a	Plain cement concrete of all grades	CUM	100	.0018171
b	Reinforced cement concrete of all grades	CUM	100	.0025442
216.0	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	50	.0014538
218.0	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	25	.0002726
219.0	Providing and applying curing compound of approved make where ever required as per manufacturer's specification.	SQM	8,811	.0026797
300.0	FORM WORKS	--		
--	Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.	--		
301.0	Fairface form work with good quality water proof ply wood of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	13,308	.0324553
302.0	Fairface form work with good quality water proof ply wood of required thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights.	SQM	1,000	.002971

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
304.0	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.	--		
a	Upto 150 mm depth	Each	10	.0000081
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	25	.0000407
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	25	.000081
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	10	.0000541
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	10	.000081
400.0	REINFORCEMENT	--		
402.0	Transportation from BHEL store, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. Reinforcement steel will be supplied by BHEL free of cost for incorporation in permanent works.	MT	721.474	.0436516
404.0	Extra over ST No. 401, 402 & 403 for providing fusion bonded epoxy coating by mechanised & qualified process including blast cleaning to white metal as per Swedish code, heating in induction heater, electrostatically spraying the epoxy powder, complete fusion to give minimum coating thickness of 200-300 microns, gradual cooling without affecting the properties of steel, testing as per ASTM 775 and IS:13620, flexibility & holiday test, proper packing, safe transportation, touchup at site, etc. complete to ensure proper resistance of FBE against corrosive environment including transport of the steel from BHEL site store to vendor plant and bringing back to site and special handling during straightening, cutting, bending, placing and providing PVC coated binding wire.	MT	721.474	.0482509
500.0	WATER PROOFING WORKS	--		

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
502.0	Providing and laying in-situ light weight foam concrete insulation as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:4 (1 cement: 4 coarse sand) after the curing period of laid foam concrete and providing of expansion joint at intervals as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.125 Kcal/sqm-hr deg C. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following.	--		
a	Average 50 mm thickness of foam concrete	SQM	2,000	.0055366
506.0	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre 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. Item includes surface preparation by applying polymerized mortar, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	2,000	.0074009
A507	Providing and laying wearing course consisting of 40mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	SQM	400	.0010432
509.0	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	13,291	.0078559

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
511.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	750	.0000957
600.0	JOINTS AND FILLERS	--		
--	Joints & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
A601	Supplying and installation of Dura board HD100 or its equivalent as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.	--		
a	12 mm wide joints.	SQM	40	.0001102
b	20 mm wide joints.	SQM	50	.0002225
c	25 mm wide joints	SQM	100	.0005487
d	50 mm wide joints	SQM	200	.0021037
AA601	Supplying and installation of commercial quality of expanded polystyrene products from reliable manufacturers as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.	--		
a	12 mm wide joints.	SQM	10	.0000267
b	20 mm wide joints.	SQM	10	.000029
c	25 mm wide joints	SQM	25	.0000794
d	50 mm wide joints	SQM	50	.0002738
603.0	Supplying and filling in position hot applied bitumin sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	10mm X 40mm	RM	300	.0002044
b	12mm X 25mm	RM	250	.0001668
c	20mmX25mm	RM	500	.0003531
604.0	Supplying and filling in position hot applied bitumin sealing compund (Grade B) confirming 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	200	.0001362
b	12mm X 25mm	RM	200	.0001334
c	20mmX25mm	RM	300	.0002119
606.0	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following:	--		
c	150 mm wide and 6 mm thick	RM	400	.0045798
d	230 mm wide and 6 mm thick	RM	300	.0057781
700.0	MS EMBEDMENTS	--		
--	Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
701.0	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	6.64	.0028587
702.0	Same as above with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.	MT	100	.0106069

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
703.0	Fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.	MT	100	.013084
705.0	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.	--		
b	PVC pipes / conduits of all diameters	Quintal	10	.000584
c	UPVC pipes / conduits of all diameters	Quintal	50	.00292
d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:	--		
i	Upto 250 kg	Each	10	.0000296
ii	Beyond 250 Kg and upto 500 kg	Each	15	.0000642
iii	Beyond 500 Kg and upto 750 kg	Each	25	.0001565
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	Upto 250 kg	Each	8	.0000501
ii	Beyond 250 Kg and upto 500 kg	Each	15	.0001187
iii	Beyond 500 Kg and upto 750 kg	Each	20	.000237
706.0	Placing, locking and releasing of Vibration Isolation spring modules over the foundation at all elevations including providing all assistance under the supervision of the supplier, transportation from BHEL store, necessary staging, platforms, leveling, alignment etc. all complete.	Each	15	.0009268

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
800.0	GROUTING	--		
--	Grouting including all labour, material, equipment, roughening surface, cleaning, ramming, curing etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.	--		
A801	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 minimum 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. (Measurement is to be done in Kg of dry grout consumed.)	KG	750	.0054461
803.0	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. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	15	.0013356
804.0	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	10	.0021754
900.0	DOORS, WINDOWS, VENTILATORS, LOUVERS	--		
--	Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material, equipments, master key system, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
904.0	Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	159	.0053142
905.0	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	75	.0031892
906.0	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	250	.0127546
907.0	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.(Panic devices to be provided at hand over.)	SQM	100	.007572

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
908.0	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision.including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)	--		
a	openable type	SQM	30	.0007608
909.0	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing, grills etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, 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-mettalic protection etc.including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like Godrej or equivalent make Mortice lock with handle on both sides, tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measured.	Kg	750	.002108
912.0	Providing and fixing pressed steel frames fabricated from 16 gauge 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	1,500	.0016296

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A913	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking (with push and pull operation for hand operated only) including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).	--		
c	Electrically operated	SQM	30	.0016331
914.0	Providing and fixing PVC doors(25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	200	.0043831
915.0	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.	--		
b	4 mm thick clear float glass	SQM	30	.0000995
d	6 mm thick wired glass	SQM	150	.0007283
Ag	6 mm thick clear float glass	SQM	200	.0009559
h	6 mm thick clear toughened safety glass	SQM	100	.0007579
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	150	.0029471
917.0	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	750	.0208671

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A924	Providing and fixing polished teakwood handrail on stainless steel/MS posts all complete as per specification and directions of engineer in charge (stainless steel/MS posts to be paid elsewhere)	CUDM	50	.0006315
1000.0	BRICKWORK	--		
--	Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.	--		
A1002	Providing brick work in cement mortar 1:5 (1 cement 5 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.	--		
a	Using fly ash lime/cement bricks confirming to IS 12894 with crushing strength of 75 kg/cm ²	CUM	488.116	.0155997
1100.0	DAMP PROOF COURSE	--		
--	Damp proof course including all labour, material, equipment, transportation, handling, shuttering, centering, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
A1101	Providing Damp Proof Course 50mm thick 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.	SQM	1,500	.0035962
1200.0	CEMENT MORTAR PLASTER	--		
--	Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure & architecture works at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA1201	Providing 20 mm thick in 2 coats, 1st coat of 12 mm thick in Cement Mortar 1:3 & 2nd coat of 8 mm thick in Cement Mortar 1:2 sand faced outside/inside the building/boundary wall finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	4,517	.0076075
A1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:3 on walls finished to a smooth finish as per specification all complete.	SQM	1,000	.0010193
A1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	1,500	.0013143
1300.0	FINISHES TO CONCRETE / PLASTERED SURFACES	--		
--	Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
A1304	Two or more coats of acrylic washable distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	3,000	.002662
1305.0	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	1,500	.0012433
1307.0	Two or more coats of fire resistant transparent paint 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.	SQM	350	.001083
1310.0	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	1,323	.000576

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1311	Providing and applying resin bonded granular textured finish of vineratex or equivalent, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	1,000	.0024987
1312.0	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	750	.0002883
1400.0	FLOORING AND SKIRTING	--		
--	Flooring and skirting at any level including base layer, labour, material, equipments, transportation, handling, curing, polishing etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
AA1401	Providing and laying 50 mm thick granolithic heavy duty cement concrete in flooring of cement concrete mix 1:1:2(1 cement: 1 sand : 2 stone aggregates 12.5mm well graded) 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	250	.0006866
1405.0	Providing and laying 50 mm thick floor finish with 20mm thk Terrazo Tiles including cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry etc. all complete.	SQM	300	.0017197
A1405	Providing and laying 25 mm thick wall finish with cast in situ Terrazo including provision of base and etc. all complete.	SQM	200	.0011909

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1406.0	Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	350	.0023529
1408.0	Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	250	.0018812
1412.0	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 30mm thk 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 spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	200	.0042397
1414.0	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	200	.0044569
A1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following	--		
a	8 mm thick tiles In flooring	SQM	346	.0018056
b	8 mm thick tiles in skirting and dado upto specific height	SQM	150	.0008318
A1417	Providing and laying heavy duty anti skid ceramic tiles of matt finish of size 300x300mm from reputed / approved manufacturer including underbed of 43mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) etc. all complete for following.	--		

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c	7mm thick tiles In skirting and dado upto specific height	SQM	55	.0004738
A1419	Providing and laying granite stone slab of 12 mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete.	SQM	100	.0021337
1420.0	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.	--		
a	300X300 mm	SQM	300	.0012417
b	600X600 mm	SQM	300	.0014414
1427.0	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 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 including pigments, curing etc all complete for following thicknesses:	--		
a	5mm thick	SQM	250	.0012992
1430.0	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.	--		
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	400	.0000917
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	400	.000395
1500.0	ROOFING / SIDE CLADDING	--		

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
1503.0	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 and zinc-aluminium alloy coating not less than 150 gm/sqm total on both sides including fixing to supports / rails by concealed/exposed 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 Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	200	.0008888
A1503	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 and zinc-aluminium alloy coating not less than 150 gm/sqm total on both sides including fixing to supports / rails by concealed/exposed 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 Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with same paint of minimum DFT 12 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	100	.0004482

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1504.0	Designing, providing and fixing External sheet of Permanent colour coated metal cladding with high strength tensile steel sheet 0.5mm bare metal thickness having minimum yield strength 350 MPa and zinc-aluminium alloy coating not less than 150 gm/sqm total on both sides including fixing to supports / rails by concealed/exposed 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 Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	100	.0003809
A1504	Designing, providing and fixing External sheet of Permanent colour coated metal cladding with high strength tensile steel sheet 0.5mm bare metal thickness having minimum yield strength 350 MPa and zinc-aluminium alloy coating not less than 150 gm/sqm total on both sides including fixing to supports / rails by concealed/exposed 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 Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with same paint of minimum DFT 12 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	100	.0003852

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1505.0	Designing, providing and fixing Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 180 gm/sqm total on both sides of both sheets including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, Z spacers etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting.	SQM	200	.0008715
1600.0	FALSE CEILING	--		
--	False ceiling including all labour, material, equipment, transportation, handling, suspension system etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour (closed type plain panels) or approved equivalent with corrosion resistant aluminium alloy AA5050 panels of minimum thickness 0.5mm fixed on roll formed carriers. 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 ISMC175 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	500	.0102486

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1606.0	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 one coat of primer, 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 2301)	SQM	500	.0032859
1700.0	RAIN WATER DOWN TAKE PIPES	--		
--	Rain water down take pipes including all labour, material, transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
1705.0	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	250	.0004251
1706.0	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	200	.0005998
1708.0	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.	--		
c	150 mm Dia	RM	78	.0004619
1800.0	MISCELLANEOUS WORKS	--		

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.	--		
1801.0	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 230 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	750	.0094958
1803.0	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)	SQM	1,500	.0007132
1815.0	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	1,000	.0008919
A1819	Design, supply, fabrication, erection and epoxy painting of stoplog gates in CW Pumps with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as groove of Stainless Steel 316L , stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, , erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose). (Stainless Steel component shall be measured seperately for payment)	MT	44	.0317769
A1820	Stainless steel component mentioned under ST No. 1819/A1819/A1821/B1821	MT	7	.0208001

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1821	Supplying, fabricating, erecting in position and testing / examining bolted and / or welded structural steel work for stationary screens made out of stainless steel SS 316L mesh over MS frame including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning, sand blasting, 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.(Stainless Steel mesh shall be paid seperately).	MT	9	.0068913
A1831	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 including using hose for sprinkling water wherever required, for dust supression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling).	TANK-HR	500	.0021804
2000. 0	FENCING AND GATES	--		
--	Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
2003. 0	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	50	.0008311

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2005	Supplying and fixing 1000mm high G.I. barbed wire fencing on top of boundary wall consisting of 8 string barbed wire of 6 guage with 8 strands and with anti climbing arrangement of 50x50x8 Y shaped angles including GI clips, anchors, accessories etc. all complete. (Structural post shall be separately under ST No. 2301)	RM	75	.0004828
2009.0	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	5	.0027959
2010.0	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete as per specification.	MT	4	.0021673
2100.0	WATER SUPPLY	--		
--	Water supply work including men, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
2101.0	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	50	.000306
2102.0	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	25	.0001461
2103.0	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:	--		
a	25mm nominal bore.	EACH	50	.000393
b	50mm nominal bore.	EACH	25	.0003066

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2104.0	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	250	.0003401
b	20 mm nominal bore.	RM	500	.0008692
c	25 mm nominal bore.	RM	1,000	.0020581
2105.0	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	250	.0003577
b	20 mm nominal bore.	RM	500	.000633
c	25 mm nominal bore.	RM	1,000	.001792
2106.0	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	15	.0001888
A2106	Providing and fixing 1200mmx900mmx5.5mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	15	.0002764
2108.0	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) all complete.	EACH	25	.0001874
2110.0	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EACH	10	.0000631

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2111	Providing and fixing stainless steel liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	10	.0000776
2112.0	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	EACH	10	.0001003
A2114	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	1000 litres capacity	EACH	2	.0001895
b	2000 litres capacity	EACH	3	.0005686
c	5000 litres capacity	EACH	2	.0009477
2200.0	SANITARY WORKS	--		
--	Sanitary work including all labour, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
2201.0	Supply and fixing glazed vitreous china Wash Basin conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.	--		
b	Colored	EACH	10	.0002194

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2202.0	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, CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	5	.0002334
2203.0	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	5	.0002991
A2203	Providing and fixing stainless steel kitchen sink of size 600x400x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	5	.0002818
2204.0	Providing and fixing colour glazed vitreous china European type water closet 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) with valveless fittings, necessary C.P connections etc all complete.	--		
a	Floor mounted	EACH	5	.0002645
b	Wall mounted	EACH	5	.000312
2206.0	Providing and fixing white flat back glazed vitreous china urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	20	.0009127
2207.0	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	350	.0006669
b	110mm dia pipes	RM	500	.0011679
c	160mm dia pipes	RM	1,000	.0038899
d	200mm dia pipes	RM	600	.0028883

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2207	Supply, laying and jointing Supreme B class stoneware pipe including bends, branches and all other necessary fittings, socket and spigot joint, M.S holder bats/clamps, cutting and making good the walls and floors, lead jointing, testing etc all complete for following.	--		
a	110mm dia pipes	RM	500	.0024206
2208.0	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	150	.0012265
Aa	250 mm dia	RM	200	.002127
b	300mm dia	RM	350	.0047694
c	450mm dia	RM	100	.0022467
d	600mm dia	RM	75	.0018574
e	900mm dia	RM	100	.0032502
2209.0	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	150	.0007831
Aa	200mm dia	RM	200	.0014825
b	250mm dia	RM	350	.0029931
c	300mm dia	RM	100	.0010089
d	500mm dia	RM	75	.001849

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	25	.0019182
2215.0	Providing and fixing C.I. floor traps with C.P jalli all complete.	EACH	25	.0001367
2217.0	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	3	.0012337
A2221	Supply, laying and jointing HDPE pipes 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.	--		
c	160mm dia pipes	RM	500	.0035803
d	200mm dia pipes	RM	500	.0053191
2300.0	STRUCTURAL STEEL	--		
--	Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2301.0	Transportation from BHEL store, fabrication and erection of structural steel with mild steel 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 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs, 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 200 C for welding over 20 mm and upto 40 mm & 660 C for welding over 40 mm and upto 63 mm & 1100 C for thickness over 63 mm & use of low hydrogen/ 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, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, 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. Including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. Structural steel will be supplied by BHEL free of cost for incorporation in permanent works.	MT	18	.003274
A2302	Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface (Sa 2 1/2) as per SIS 05-5900 and applying 100 micron total DFT zinc silicate primer (two coats of 50 micron DFT each), instead of two coats of primer of red oxide zinc-chromate, including touch-up painting etc all complete.	MT	18	.0002348

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2305	Providing and applying two coats of high built epoxy based colour Finish paint of approved brand with minimum 90 micron Dry film thickness of each finish coat including protection and cleaning, scaffolding etc. all complete.	MT	18	.0002842
2307.0	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	3	.0014357
2309.0	Extra over above ST NO. 2301 for finishing the grating units with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	3	.0002904
2310.0	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.	Quintal	25	.0014869
2311.0	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade C as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class 8 as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	Quintal	25	.0019879
2317.0	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of (plus or minus)50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
a	20 Tons	EACH	5	.0008795
A2320	Supply, fabrication and fixing of GI pipe hand railing (1000 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete..	MT	5	.0030473

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1861 for Civil Works - Foundations, Civil works-Super structure& architecture works
at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2500.0	PILING	--		
B2509	Providing and laying Design Mix cement concrete (M-30) conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in pile built-up at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing	cum	500	.0239897
TOTAL Weightage				0.9999997