

CORRIGENDUM-6 TO TENDER SPECIFICATION BHEL: PSSR: SCT: 1862

Sub: Civil Works in encasing of Cooling Water (CW) Pipeline (CS piping & GRP Piping – Inside Plant Boundary) at 2x660 MW Ennore SEZ Super Thermal Power Project, at ash dyke of North Chennai Thermal Power Station (NCTPS), Thiruvallur District, Tamil Nadu

1. **Following Query has been sought by Bidder in regard to TENDER SPECIFICATION BHEL PSSR SCT 1876 and BHEL's clarifications are furnished below for information.**

Sl. No	Clause Reference	Existing Clause	Query	BHEL Reply
1.	Item Ref. No. 101.0 in Part C of Volume II Price Bid	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.	As per the work requirement and soil conditions, in some areas we feel that excavation may have to be done beyond 6m depth and up to 8m to 10m. While we were going through the BOQ items, Item No 101 "Excavation in all type of soils.....", the depth indicated is only up to 6m. No mention of beyond 6m and it may attract additional rates. Hence, we request you to kindly review the tender BOQ.	Volume II Price Bid document provided along with tender stands deleted. Bidders to refer enclosed "Volume II Price Bid (Rev 01)" and quote accordingly.

NOTE:

1. ALL OTHER CONDITIONS REMAIN UNCHANGED.
2. BIDDERS ARE REQUESTED TO CONSIDER THIS CORRIGENDUM AS PART OF TENDER SPECIFICATION AND QUOTE ACCORDINGLY.

Encl:-

1. Volume II Price Bid (Rev 01) – 19 Pages

-sd-

T.K.Eashwar
Sr.Engineer/ SCT

TENDER SPECIFICATION

BHEL: PSSR: SCT: 1862

FOR

**Civil Works in encasing of Cooling Water (CW)
Pipeline (CS piping & GRP Piping – Inside
Plant Boundary)**

at

**2x660 MW Ennore SEZ Super Thermal Power
Project, at ash dyke of North Chennai Thermal
Power Station (NCTPS), Thiruvallur District,
Tamil Nadu.**

VOLUME-II

PRICE BID Revision 01



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

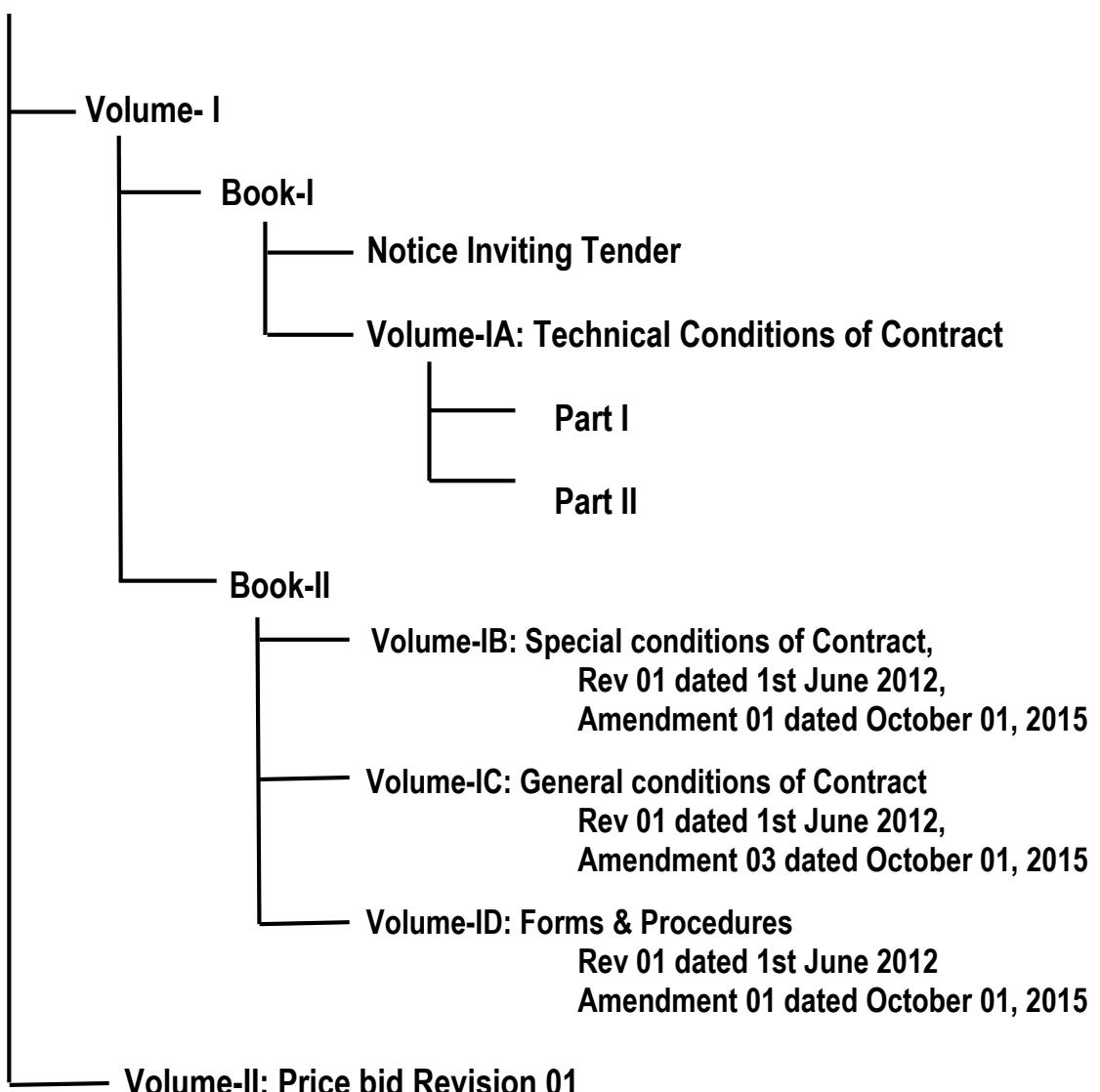
Power Sector – Southern Region

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

PRICE BID Revision 01

TENDER SPECIFICATION CONSISTS OF

Techno-Commercial Bid



PRICE BID Revision 01

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		14

PRICE BID Revision 01

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:1862 R1 for Civil Works - Foundations, Civil works for cooling water piping - CS and GRP piping encasement

at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

In Figures

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

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:1862 R1 for Civil Works - Foundations, Civil works for cooling water piping - CS and GRP piping encasement

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), 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	87,651	.018407
b	Depth exceeding 2 m but not exceeding 4 m	CUM	60,705	.0147689
c	Depth exceeding 4 m but not exceeding 6 m	CUM	49,065	.0153283
d	Depth exceeding 6 m but not exceeding 8 m	CUM	7,635	.0033044
e	Depth exceeding 8 m but not exceeding 10 m	CUM	2,000	.0012394
A101	Filling geo bags with available earth (within 500m), sewing/ stitching the bags and stacking all complete including providing labour, tools & plant, etc. as per the direction of BHEL engineer in-charge <u>Geo bags shall be supplied by BHEL.</u>	MT	15,000	.0085774
B101	Taking from stack and placing in position filled-in geo bags inside excavated area of all depths for CW pipe trench side protection including providing all required machineries, tools and plants, labour, consumable, fuels, etc. all complete as per direction of <u>Engineer In-charge</u>	MT	15,000	.0573077
102.0	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	122,051	.1047006

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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
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.	--		
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	38,457	.0114227
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	88,204	.0248466
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.	--		
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	5,000	.0011012
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	721,583	.0295682
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	.0022919
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	500	.0011383

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
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	500	.0013513
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	22,935	.0924004
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	1,395	.0198678
202.0	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40mm 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	100	.0013123

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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
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	M15 Grade	CUM	1,000	.0144013
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	24,079	.3812576
c	M35 Grade	CUM	201	.0032341
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.	--		
b	M30 grades	CUM	5	.0000801
c	M35 grades	CUM	25	.0004144
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.	--		

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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	Plain cement concrete of all grades	CUM	125	.001071
b	Reinforced cement concrete of all grades	CUM	170	.0020395
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	23,636	.0271814
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	100	.0001401
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	.0000038
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	25	.0000192
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	15	.0000229
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	10	.0000255
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	10	.0000382

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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
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 shall be supplied by BHEL free of cost.	MT	1,894	.0540358
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	1,894	.0597291
500.0	WATER PROOFING WORKS	--		
--	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.	--		

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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
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-polymer 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	500	.0008725
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	33,455	.0093247
511.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	100	.000006
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	150	.0001949
b	20 mm wide joints.	SQM	75	.0001574
c	25 mm wide joints	SQM	150	.0003881

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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
d	50 mm wide joints	SQM	100	.000496
AA60 1	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	.0000126
b	20 mm wide joints.	SQM	10	.0000137
c	25 mm wide joints	SQM	15	.0000225
d	50 mm wide joints	SQM	20	.0000516
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.	--		
a	10mm X 40mm	RM	500	.0001606
b	12mm X 25mm	RM	400	.0001258
c	20mmX25mm	RM	500	.0001665
604.0	Supplying and filling in position hot applied bitumin sealing compound (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	400	.0001285
b	12mm X 25mm	RM	250	.0000786
c	20mmX25mm	RM	100	.0000333

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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
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	100	.0005399
d	230 mm wide and 6 mm thick	RM	2,000	.0181643
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	3	.000609
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	12	.0006002
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	10	.000617
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	10	.0000342

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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
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	5	.0002099
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 CombextraGP-1 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	5	.0005129
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	200	.003014
1800.0	MISCELLANEOUS WORKS	--	--	--
--	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.	--	--	--

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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
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	1,000	.0059703
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	.0004206
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 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	1,000	.0020563
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.	--	--	--
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	1	.0002637
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	1	.0002555

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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
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.	--		
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	1	.0000362
A2211	Providing and fixing C.I. Manhole heavy duty cover of size 600mm x 600mm including frame from reputed manufacture etc. all complete	EACH	5	.0002485
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.	--		

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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	<p>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 red oxide 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 20 degree C for welding over 20 mm and upto 40 mm & 66 degree C for welding over 40 mm and upto 63 mm & 110 degree C for thickness over 63 mm & use of low hydrogen electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per specification, 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 separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL.</p> <p>Structural steel shall be supplied by BHEL free of cost.</p>	MT	11	.0009434
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	11	.0000676

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1862 R1 for Civil Works - Foundations, Civil works for cooling water piping - CS and GRP piping encasement

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
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	2	.0005748
TOTAL Weightage				1.0