

TENDER SPECIFICATION

BHEL/PSSR/USTPP/SCT&P/SCT/078A

for

**Balance works of Civil and Architectural works of the
Permanent store (Non Plant Structures/Buildings of Package-2) of
2x660MW Udangudi Super Critical Thermal Power Project,
Tuticorin Dt, Tamilnadu**

VOLUME –II PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED

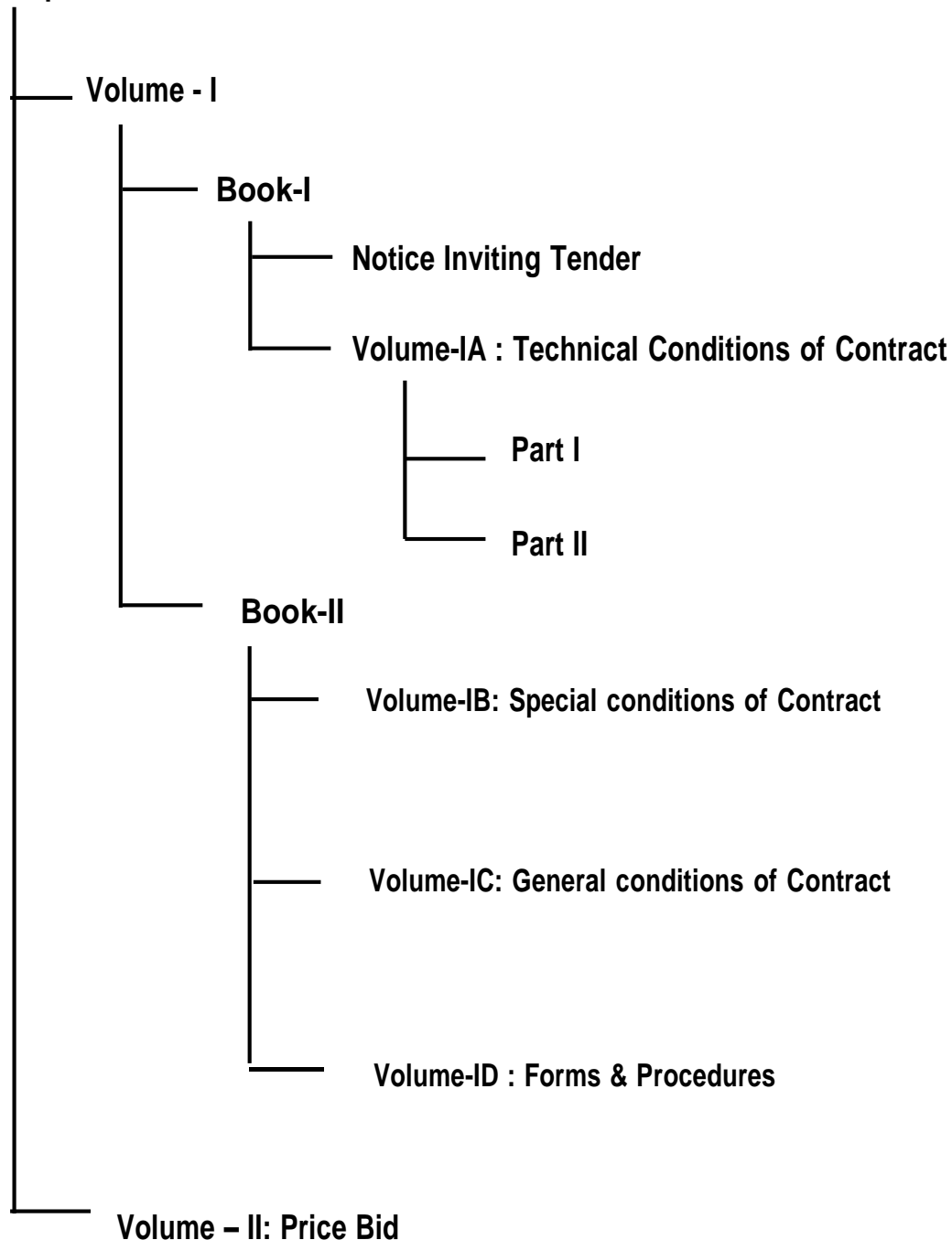
(A Government of India Undertaking)

Power Sector – Southern Region

BHEL site office, 2X660 MW Udangudi STPP,
Kallamozhi, Tiruchendur-628206

TENDER SPECIFICATION CONSISTS OF

Tender Specification



PRICE BID

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PART A

Instruction to Bidders:

1. The quantity indicated in the BOQ in Part C of Price Bid is approximate only and is liable for variation. Payment will be as per actual quantity executed and as certified by BHEL Engineer.
2. Tenderers are requested to affix their company seal and authorized signature in all pages.
3. Bidders shall quote 'Total Amount' in the format enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender and upload the same under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid)' and same shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope of work defined in specification and in accordance with terms & conditions of the tender. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/formats will not be entertained.
4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid.
5. 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 of Price Bid.
6. 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.
7. Based on the quantities of individual item and the amount arrived in Sl. No: 6 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
8. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed as certified by BHEL Engineer.

Part C : Bill of Quantities

Tender Specification BHEL/PSSR/USTPP/SCT&P/SCT/078A for Balance works of Civil and Architectural works of the Permanent store (Non Plant Structures/Buildings of Package-2) of 2x660MW Udangudi Super Critical Thermal Power Project, Tuticorin Dt, Tamilnadu

Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
100.0	EARTH WORK: Earth work In excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.	--		
101.0	Earth work in excavation in all types of soil including 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 500m, 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	6,500	0.0065656
b	Depth exceeding 2 m but not exceeding 4 m	CUM	6,500	0.0082452
c	Depth exceeding 4 m but not exceeding 6 m	CUM	5,500	0.0087209
102.0	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	12,000	0.0080173
103.0	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), 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.			
c	Depth exceeding 4 m but not exceeding 6 m	CUM	3,000	0.0064947
d	Depth exceeding 6 m but not exceeding 8 m	CUM	3,000	0.0077931
e	Depth exceeding 8 m but not exceeding 10 m	CUM	100	0.0003025

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using with selected materials from compulsorily excavated earth 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.			
Aa	Each layer compacted so as to achieve at least 98% maximum dry density as per IS- 2720 (Part-VII)	CUM	15,000	0.0147991
108.0	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials directly from excavation within a lead upto 500m and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.	--		
Aa	Each layer compacted so as to achieve at least 98% maximum dry density as per IS- 2720 (Part-VII)	CUM	8,000	0.0028511
109.0	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 500m.	--		
a	Carriage for stacking/ backfilling of serviceable material/ earth (TO BE STACKED & USED FOR GRADING & LEVELING OF THIS PKG FROM NGL TO FGL)	CUM	100	0.0000094
b	Carriage for disposal of serviceable/unserviceable material/ earth (TO BE STACKED & USED FOR GRADING & LEVELING OF GREEN BELT AREA FROM NGL TO FGL)	CUM	100	0.0000094

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A110	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness so as to achieve compaction at least 95% maximum dry density as per IS- 2720 (Part-VIII) with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:	CUM	31,000	0.2569309
B110	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness so as to achieve compaction at least 98% maximum dry density as per IS- 2720 (Part-VII) with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:	CUM	1,000	0.0082222
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	100	0.0017641
200.0	Concrete work: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. Cement Shall be supplied by BHEL as a free issue.	--		

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
201.0	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc.	CUM	1,090	0.0319636
202.0	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	5	0.0001465
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	5	0.0001465
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.	--		
b	M20 Grade	CUM	1,899	0.0544644
205.0	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 foundations/substructure, grade slab, paving, drains, under floors etc at all 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.	--		
a	M 25 Grade	CUM	50	0.0016485
b	M 30 Grade	CUM	1,543	0.0508764
206.0	Providing and laying Design Mix cement concrete of grade 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 all 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.	--		

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
b	M 30 Grade	CUM	17	0.0005515
211.0	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (cost to include welded wire mesh, chicken wire mesh also).	--		
a	M 20	CUM	5	0.0001465
A211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. all complete as per specification for the following grades.	--		
a	M 20	CUM	10	0.0003139
212.0	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at all level or thickness, drains etc complete as per following.	--		
a	1:2:4	CUM	60	0.0017589
213.0	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.	--		
a	M25	CUM	25	0.0014104

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
b	M30	CUM	10	0.0005641
214.0	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262- 2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives conforming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required.	--		
b	M30	CUM	10	0.0004655
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	1	0.0000085
b	Reinforced cement concrete of all grades	CUM	1	0.0000118
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	1	0.0000009
217.0	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	1	0.0000001

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Ref.No	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
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	1	0.0000024
220.0	Providing & laying Plum cement concrete 1:3:6 with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm.	CUM	10	0.0003051
222.0	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	10	0.0000097
223.0	Cutting of existing concrete/ RCC slab (total thickness upto 250mm including floor finish & deck sheet if any) inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make or equivalent) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at all level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	1	0.0000233
300.0	FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.			
301.0	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge..	SQM	5,175	0.0284441
302.0	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge.	SQM	238	0.0015748

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to 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	3	0.0000072
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	3	0.0000124
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	3	0.0000227
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	3	0.000036
A306	Fairface plywood with filmface/laminated formwork 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 where ever specifically mentioned in the drawing.	SQM	10	0.0000764
400.0	REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.			
401.0	Providing, straightening, cutting, bending, placing in position at all level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	1	0.0006089

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
405.0	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.	--		
a	12mm Reinforcement bar	Nos.	1	0.0000042
b	16mm Reinforcement bar	Nos.	1	0.0000065
c	20mm Reinforcement bar	Nos.	1	0.0000092
A405	Collection of material from BHEL stores, transportation, straightening, cutting, bending, placing in position at any level, binding in position of corrosion resistant steel -HCRM re-bars of approved make with steel of grade Fe-500 conforming to IS:1786 norms including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	277	0.033703
500.0	Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
501.0	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	25	0.0000293
502.0	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.	SQM	25	0.000024
A503	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	SQM	10	0.000012
A506	Providing and applying PU based high solid content (minimum 90%) cold liquid applied water proofing treatment with one coat of polyurethane or equivalent material based primer as recommended by manufacturer 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. min. The coating shall have high viscosity, min.450% elongation and forming a perfectly smooth permanently flexible seamless membrane which should have good adhesion to roof substrates. The cured film should have a very low water absorption rate (0.5% maximum at ambient temperature after 7 days).Item includes surface preparation, polyscrim cloth /fabric(non-woven polyscrim cloth of 100% polyester with min. weight of 40gsm/sqm), polymerised mortar base preparation, etc all complete as per manufacturer specifications and directions of engineer in charge.	SQM	10	0.0000857

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A508	Providing and laying wearing course consisting of 40mm thick plain cement concrete of grade M20 (1:1.5:3) with graded aggregate of 12.5mm size cast in panels of maximum size 1.5mx1.5m 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	10	0.0000395
510.0	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making)	SQM	10	0.000052
511.0	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	6,474	0.0108342
513.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	10	0.0000094
514.0	Providing and applying concrete structures two coats of ERPB (Epoxy resin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with 300 to 325 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation	SQM	10	0.000017
517.0	Providing and laying foam concrete blocks in the toilets/sunken slab etc. complete as directed by engineer in charge.	cum	2	0.0000454

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A518	Providing and laying water proofing treatment for wet areasl like toilets,kitchen,pantry of sunken slab etc. with polymer based water proofing material like tapecrete ,cico or equivalent all complete with water ponding test as per IS Code and as directed by engineer in charge.	SQM	10	0.0000243
600.0	JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			
601.0	Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.	--		
c	25 mm wide joints	SQM	10	0.0000785
A601	Supplying & installation of Preformed Duraboard HD 100 or equivalent as joint filler at joints in concrete including nailing, coating of both faces etc. all complete.	--		
a	12 mm wide joints.	SQM	3	0.0000177
b	20 mm wide joints.	SQM	5	0.000046
A603	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:	--		
c	25mmX25mm	RM	5	0.0000328
d	50mmX25mm	RM	5	0.0000627
604.0	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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a	10mm X 40mm	RM	5	0.0000024
b	12mm X 25mm	RM	5	0.0000021
c	20mmX25mm	RM	5	0.0000027
606.0	Providing and installing PVC joint sealing strips of minimum 3mm thickness and minimum width 100 mm at the construction, expansion and isolation joints from reputed manufacturers as a continuous diaphragm to contain the filler material and/ or to exclude passage of water or any other material into or out of the structure, without any longitudinal joint; and shall be procured and installed in largest practicable lengths having a minimum number of transverse joints with jointing procedure as per the manufacturers recommendations including the material and tools required for jointing, testing, protection, etc all complete. The joints in rubber seals shall be vulcanished as needed.	RM	10	0.0000105
608.0	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	3	0.000002
b	12mm X 25mm	RM	5	0.0000025
c	20mmX25mm	RM	3	0.0000024
610.0	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)	--		
b	230 mm wide and 8 mm thick	RM	10	0.0000378
d	230 mm wide and 6 mm thick	RM	10	0.0000265

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
612.0	Providing and applying approved fire retardant sealant in joints/openings including cleaning of joints/openings, raking out groove, application of primer, scaffolding etc. all complete.	--		
a	25mmX25mm	RM	10	0.0000388
b	50mmX25mm	RM	10	0.0000711
700.0	MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
701.0	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	1	0.0007132
702.0	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	2	0.0017371
703.0	Same as above items 701 with BHEL supplied material (scrap) free of cost including Fabrication,loading, transportation, unloading and Erection etc. all complete from BHEL store to plant site.	--		
a	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	1	0.0002312
A703	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	1	0.0001991

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Balance works of Civil and Architectural works of the Permanent store (Non Plant Structures/Buildings of Package-2) of
2x660MW Udangudi Super Critical Thermal Power Project,
Tuticorin Dt, Tamilnadu**

Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
704.0	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.	--		
a	MS pipes of all diameters	kg	10	0.0000072
b	PVC pipes / conduits of all diameters	kg	10	0.0000384
c	UPVC pipes / conduits of all diameters	kg	10	0.0000397
d	Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:	--		
i	8mm Dia	Nos	1	0.0000006
ii	10mm Dia	Nos	1	0.0000007
iii	12mm Dia	Nos	1	0.0000008
iv	14mm Dia	Nos	1	0.000001
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:	--		
i	HST M8	Nos	1	0.0000013
ii	HST M10	Nos	1	0.0000021
iii	HST M12	Nos	1	0.000003
iv	HST M16	Nos	1	0.0000057

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
v	HST M20	Nos	1	0.0000113
vi	HST M24	Nos	1	0.0000156
f	Chemical Expansion fasteners (galvanised)of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc:	--		
i	HAS-E5.8 M8	Nos	1	0.0000032
ii	HAS-E5.8 M10	Nos	1	0.0000038
iii	HAS-E5.8 M12	Nos	1	0.0000048
iv	HAS-E5.8 M16	Nos	1	0.0000075
v	HAS-E5.8 M20	Nos	1	0.0000124
vi	HAS-E5.8 M24	Nos	1	0.0000168
707.0	Providing, laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	1	0.0006405
800.0	GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge. (OPC Cement will be supplied by BHEL free of cost.)	--		

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
801.0	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	25	0.0001368
802.0	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	1	0.000851
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 as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	1	0.000851
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 as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	1	0.0004905
805.0	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 Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	1	0.0008106

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
806.0	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	1	0.0000198
900.0	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		
901.0	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned CP teakwood free from large or loose knots, cracks or other defects including sand paper smoothening, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (Finish painting / polishing paid separately)	CUM	10	0.014732
902.0	Providing and fixing teak wood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldraps, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)	SQM	10	0.0003701

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A903	Providing, fitting and fixing solid core flush door shutter with minimum thickness of 44mm consisting of fully glued laminated board / block board of reverse straight grain timber strips with 150mm 1st class hardwood rails for the full thickness and width of core as well as around all openings to cover the end grains of the lamin boards including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,heavy door lock with profile cylinder for master key system,125mm long stainless handles on both sides, door stop sealed with PVC or rubber strips to reduce impact sound, butt hinges, sliding bolt, knobs, (all fittings shall be heavy duty of non-corroding materials stainless steel / anodized aluminium / oxidised copper / brass), finish paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. The plywood facing on both sides shall be well matched teak or commercial 3 ply veneering with vertical grains or cross bands having minimum thickness of 6 mm as per requirement. Hardwood lipping of the same timber as the face veneer shall be provided at all edges of the door. (Finish painting paid separately)	SQM	5	0.0001832
A904	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) including preparation of working drawings, three steel butt hinges of 100 mm length, door closer with rubber cushions, sign plates of anodised aluminium or galvanised steel screwed to the door under the horizontal bar having printed the sign, PUSH BAR TO OPEN etc. all fittings, Godrej or equivalent make mortice lock with handle on both sides, epoxy based shop paint (minimum DFT 250 micron) and epoxy based final painting etc all complete.	SQM	30	0.0017019

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
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)	KG	3,426	0.0174736
A906	Providing and fixing powder coated/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)	KG	5	0.0000241
A907	Providing and fixing Fire Proof steel doors (single or double shutter) with Vision panel, 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, accessories, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (min.64 kg/cum density) complete and shall be fire proof as per IS:3614, NBC 2016 and TAC requirements.vision panel shall be provided with 11mm thk inter-layered fire rated glass. All hardware and fittings such as	SQM	10	0.0008159

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
	hinges, door closure,panic trim,panic bar,handles all complete along with test certificate from authorise labs,submit shop drawing for approval, as per specification and instructions of engineer in charge.Minimum ratings shall be 2 Hrs.			
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	20	0.0004158
b	fixed type	SQM	30	0.0004049
A909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventillators, partitions, railing,grill 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-metalic 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 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 measure.	Kg	2,382	0.0112446

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A910	<p>Providing, fabricating, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqmt) material consisting of 3mm thick FR grade Class B1 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicon sealant, backer rods etc. The top coated surface of ACP shall comply with the specification for coated coil for the exterior building application issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non- staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the coping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade approval shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor, Reynobond or equivalent. The system shall be designed to withstand a</p>	--		

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Balance works of Civil and Architectural works of the Permanent store (Non Plant Structures/Buildings of Package-2) of
2x660MW Udangudi Super Critical Thermal Power Project,
Tuticorin Dt, Tamilnadu**

Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
	wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.			
c	5mm	SQM	50	0.0019852
911.0	Providing and fixing of door closers as per specification ,of approved make & quality all complete of following type :	--		
a	Over head hydraulic door closures as per IS 3564	Each	18	0.0002722
b	Floor mounted Hydraulic door closers as per IS 6315	Each	1	0.0000265
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	948	0.0012814

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A913	Providing and fixing in position metal rolling shutter and rolling grill type shutter as per specification made from 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 including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248, and shall be designed to withstand a wind load of minimum 200 Kg/m ² without excessive deflection as per specification and of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely riveted with stiffening angles. (partly coiled and lath/full lath). The guides shall be either rolled or pressed deep channel sections of minimum 75 mm and 25 mm wide fitted with necessary fitting and fixtures.	--		
b	Mechanically Operated	SQM	10	0.0003138
c	Electrically operated	SQM	165	0.0055557
A914	Providing and fixing solid core PVC doors with PVC shutter (25 thk double skin) of approved manufacturer make as per relevant IS standard including all fitting & fixtures as per specification, drawing and as instructed by engineer in charge.	SQM	9	0.000268
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.	--		
Ac	6 mm thick clear float glass	SQM	422	0.0066299
d	6 mm thick wired glass	SQM	50	0.0007511
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	10	0.0002426
f	4 mm thick ground glass	SQM	1	0.0000137

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
h	6 mm thick clear toughened safety glass	SQM	2	0.0000718
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	5	0.0001796
Ai	Two nos. 6 mm thick clear toughened safety glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	1	0.0000365
k	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick plain float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	SQM	5	0.0001979
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	8	0.0001343
918.0	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	2	0.0000566
919.0	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	10	0.0004071
920.0	Roof skylight structure for atrium with 6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges for sky light for approved shape like dome, pyramidal etc. Joints are properly sealed with sealent, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification.	SQM	10	0.0003132

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1000.0	BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge. Cement for mortor Shall be supplied by BHEL as a free issue.			
1001.0	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	2	0.0001336
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	2	0.0001573
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	2	0.0001068
1002.0	Providing brick work in cement mortar 1:6 (1 cement 6 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 bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	497	0.039087
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	10	0.0009998
1003.0	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.	--		

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	SQM	10	0.0000957
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	50	0.0006064
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	3	0.0000186
A1004	Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item.).- Using flat bricks.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2	SQM	2	0.000016
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	2	0.0000199
1005.0	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	2	0.0000313
A1006	Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	5	0.0003536
b	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	2	0.0001784
1007.0	Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM	2	0.0000053

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1008.0	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	2	0.0000409
1009.0	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc. complete.	SQM	10	0.0000086
1011.0	Providing and filling brick bats in soak pits all complete.	CUM	2	0.0000221
1100.0	DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			
1102.0	Providing Damp Proof Course 50mm thick 1:1.5:3 concrete (6 mm and down graded stone chips) with 1% of approved admixture of water proofing compound all complete. Then hot bitumen (residual petroleum bitumen of penetration 80/100 of approved quality) shall be applied over the prepared surface in two coats at the rate of 1.7kg per sq. meter per coat and dry sand spread over it	--		
b	50mm thick	SQM	137	0.0003881
1200.0	PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			
A1201	Providing 20mm thick plaster in two layers outside the building/boundary wall with an under layer 12 mm thick in CM 1:5 and top 8 mm thick layer in CM 1:3 (Sand faced) with approved water proofing compound on walls, finished to a smooth finish with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel over plastered surface (Aldeck smooth finish) including providing 3mmx3mm size grooves at junctions of two dissimilar materials etc all complete.	SQM	2,875	0.008205

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on even side of walls finished to a smooth finish with approved water proofing compound on walls, finished to a smooth finish with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel over plastered surface (Aldeck smooth finish) as per specification all complete.	SQM	2,167	0.0040705
B1202	Providing 18mm thick plaster inside the building/boundary wall in cement mortar 1:4 on uneven side of walls finished to a smooth finish with approved water proofing compound on walls, finished to a smooth finish with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel over plastered surface (Aldeck smooth finish) as per specification all complete.	SQM	10	0.0000288
A1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	108	0.0001981
1205.0	Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	10	0.0000161
1207.0	Forming groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	5	0.0000016
A1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge.	SQM	20	0.0001123
1209.0	Ruled pointing in masonry in Cement Mortar 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	10	0.0000175

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Ref.No	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1300.0	FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
A1303	Providing and applying two or more coats of water bound distemper as per IS 427 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	2,276	0.0061441
1304.0	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	2,024	0.0015073
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	290	0.0003086
1306.0	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	5	0.0000163
1307.0	Providing and applying two coats of Epoxy coating with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 150 micron thickness over epoxy primer.	SQM	5	0.0000096
1308.0	Providing and applying 2 or more coats of Chlorinated Rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying chlorinated rubber zinc phosphate primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, inclusive of intermediate coat of Titanium dioxide / micaceous iron oxide complete as per specifications.	SQM	10	0.0000176

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1309.0	Two or more coats of fire resistant transparent paint (@3.5 litre per sqm per coat) as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications. French polish payment will be made seperately.	SQM	10	0.0000256
1310.0	Two or more coats of black anti-corrosive bitumastic painting of approved brand and manufacture to give an even shade complete.	SQM	5	0.0000028
1312.0	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	2,308	0.0018
A1314	Providing and applying resin bonded granular textured finish, 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 paint should have VOC content limit less than 200 grams per litre.The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulphide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	10	0.0000538
1316.0	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	10	0.0000082
1317.0	Providing and applying 2 mm thick white cement punning on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer.	SQM	10	0.0000076

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1400.0	FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			
1401.0	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	100	0.000471
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with non-metallic hardener pigmented topping 12mm thick in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick non-metallic concrete of mix 1:2 (1 cement hardner mix with approved quality non-metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips)	SQM	6,030	0.0283957
A1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with non-metallic hardener pigmented topping in skirting and dado etc all complete as per specification.	SQM	5	0.0000231

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum) of size 300X300X22 mm thick of approved shade using colouring pigments and hard chips like carborundum, quartz etc.as per IS 1237 and laid as per IS 1443 over concrete under bed 1:3 (1 cement : 3 sand) jointed with neat cement slurry etc. all complete including rubbing, curing, grindig and polishing complete with laying to result in over all thickness of 50 mm all complete for following:	--		
a	Laid in floors	SQM	1	0.0000104
b	Laid in skirting	SQM	5	0.0000709
A1405	Providing and laying 50 mm thick floor finish with 250X250X20mm thick Terrazo Tiles including cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry etc. all complete.	SQM	10	0.0000898
B1405	Providing and laying 25 mm thick cast-in-situ Terrazo in flooring/skirting as per IS: 2114 using white cement or cement with colouring pigment including cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry etc. all complete.	SQM	5	0.0000449
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 30 mm thick of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	5	0.0002063
1414.0	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete. including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	10	0.0004181

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Ref.No	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A1416	Providing and laying glazed vitrified ceramic tiles of size 600x600mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.	--		
b	10mm thick tiles In flooring	SQM	121	0.0015625
d	10mm thick tiles In skirting and dado upto specific height	SQM	67	0.000899
1417.0	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following	--		
b	10mm thick tiles In flooring	SQM	10	0.0001277
c	7mm thick tiles In skirting and dado upto specific height	SQM	10	0.0001168
d	10mm thick tiles In skirting and dado upto specific height	SQM	10	0.0001335
1418.0	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in flooring and skirting over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, cement slurry 3.3kg/sqm complete as per specification laid in pattern of following sizes	--		
a	400X400 mm	SQM	10	0.0001434
A1418	Providing and laying min.10 mm thk Double Charge Glazed vitrified tiles of make johnson, Qutone, Varmora or equivalent in flooring and skirting over 38 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, cement slurry 3.3kg/sqm complete as per specification laid in pattern etc. all complete as instructed by engineer incharge.	--		
a	400X400 mm	SQM	10	0.0001434

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
b	600X600 mm	SQM	5	0.0000722
1419.0	Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners,moulding and opening etc. all complete.	SQM	2	0.0001038
A1420	Providing and laying Heavy Duty anti skid Ceramic Tiles with matt finish of 10mm 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	10	0.000072
b	600X600 mm	SQM	10	0.0000718
1422.0	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.	--		
a	20mm thick	SQM	10	0.0002716
b	38mm thick	SQM	10	0.0003949
1424.0	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End sealing shall be done with bituminastic AR bricks shall be laid with 6mm	SQM	10	0.0002664

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
	wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.			
1428.0	Providing and laying 3mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	5	0.0000142
A1429	Providing and fixing Removable type flooring system (raised access floor) consisting of fire resistant Cementitious panels of 600 x 600x 35 mm and Laminated with 1.2 mm thick fire retardant food grade antistatic laminate top finish to ensure max bonding to the steel surface. Cementitious panels shall be steel welded construction, with an enclosed bottom pan of 64 hemispherical and top plain sheet which are fuse welded at multiple location to form a panel. The panel is coated with 40-60-micron epoxy coat after cleaning, degreasing, phosphate by several tank processes & is heated to achieve max adhesion to the panel surface & corrosion resistance. The inner empty core of the panel is injected with a light weight fire retardant, non-combustible cementations compound at high pressure to fill in all the crevices of the panel and ensures support of not less than 90% of the top surface area of the panel. Pedestal (300mm to 800 mm) must be 25mm dia. pipe with min.2.0 mm thickness with bottom plate of 100x100x min.2.0mm thick & top plate must be 75x75x3.0 mm. All pedestal shall be tightening to Stringer of 20x30x575x1.0 mm Rectangular tube. The system shall be design for Uniformly distributed load (UDL) of 13 KN (1300 kg/ sqm), for the same all complete as per specification.	SQM	5	0.0001621
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	10	0.0000043
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	1	0.000001

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1500.0	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
1502.0	Designing, providing, erection and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hot dipped galvanising @ 275 gm/sqm including fixing of sheet to purlin with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6 mm dia @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking.	--		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	7,525	0.1043749
1503.0	Providing and fixing shear connectors of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	1	0.0002183

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1506.0	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 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 silicon modified super polyester paint of minimum DFT 7 microns over suitable primer.	SQM	3,836	0.034796
A1510	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 sheet including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified super polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with silicon modified super polyester paint 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 made of at least 2mm thick galvanised steel sheet of grade 375 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	100	0.0011189
1512.0	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.	--		
a	For insulation in Sandwich Cladding	SQM	10	0.0000602

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Balance works of Civil and Architectural works of the Permanent store (Non Plant Structures/Buildings of Package-2) of
2x660MW Udangudi Super Critical Thermal Power Project,
Tuticorin Dt, Tamilnadu**

Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
b	For underdeck insulation below RCC slabs	SQM	10	0.0000688
A1514	Providing and installing 50 mm thick under deck insulation with resin bonded mineral wool conforming to IS 8183 backed with 0.05 mm thick alluminium foil and 24 G x 25 mm wire mesh netting including fixing with 100x50x6 slotted mild steel plate welded to MS plate insert embedded at the soffit of the slab at suitable distance and 14G steel wire drawn through slots and fixing to wire netting etc. all complete.	SQM	5	0.0000322
1600.0	FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			
1601.0	Providing and fixing glass fibre reinforced gypsum plaster board (GRG) ceiling (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preperation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.	--		
a	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat (seamless).	SQM	10	0.0000607

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon or approved equivalent lineal panel of 75 mm to 300mm width as per design detail with corrosion resistant aluminium alloy panels of minimum thickness 0.8mm as per detail design. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc. all complete as per specification. Suitable M.S. channel grid with minimum MC 100 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	10	0.0002013
A1604	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamelled finish of approved make in LINEAR and SQUARE type with corrosion resistance aluminium alloys panels of minimum thickness 0.8mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 100) grid 1200 c/c maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.The work to be complete as per specifications, drawings and direction of engineer.(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	10	0.0001891
A1606	Providing and Fixing 12mm thick Gypsum board plain/mineral fibre based acoustic perforated ceiling tiles of approved design (600x600mm) of approved manufacturer India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint as required of approved colour to give an even shade with smooth finish all complete(paint to be paid separately).as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of	SQM	108	0.0014722

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
	structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)			
1700.0	RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
1708.0	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of heavy duty all complete for following diameters.	--		
a	100 mm dia	RM	10	0.0001702
b	150 mm Dia	RM	10	0.0002216
c	200 mm Dia	RM	10	0.000311
1709.0	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.	--		
a	110 mm Dia	RM	10	0.0000458
b	160 mm Dia	RM	10	0.0000695
c	200 mm Dia	RM	400	0.0041539

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1800.0	MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			
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	2,848	0.0409814
1802.0	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	2	0.0000467
1803.0	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	2	0.0000421
1804.0	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	2	0.0000036
1805.0	Providing and mixing approved Bipolar Concrete penetrating Corrosion inhibiting admixture phenolic base (krishna conchem or equivalent) in concrete as per detail specification of manufacturer etc. all complete. Payment shall be made per cum of concrete.	CUM	3,459	0.0289052
1807.0	Anti termite chemical treatment of soil with Chlorpyrifos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment).	SQM	6,251	0.0089811

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Ref.No	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1808.0	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	5	0.0005197
1809.0	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	EACH	5	0.0005213
1810.0	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items.	NOS	1	0.0000802
1815.0	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	10	0.0000072
1816.0	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	1	0.0000867
A1816	Providing and fixing pressure release valve of gun metal in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	1	0.0002761
1820.0	Supply and laying fire clay refractory brick work with fire clay mortar conforming to IS: 6 & 195 including curing etc. all complete on tank pads & in building walls.	CUM	1	0.0002056
1823.0	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	2	0.0000435

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Ref.No	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
1827.0	Anti weed chemical treatment of soil with suitable chemical pertaining to the types of weeds found in the vicinity including providing anti-weed/ soil sterilization test certificate, performance guarantee of three years etc. all complete.	SQM	10	0.0000004
1828.0	Providing and placing approved quality of 250 micron thick heavy duty low density polyethylene liner (LDPE) films manufactured from polyethylene resin over cement sand mortar 1:4 in the base of reservoir/pond as well as on side slopes of embankment to prevent seepage including joining with approved method including testing, necessary excavation, fixing at the edges in plain cement concrete by providing 400mm wide and 300mm thick plain cement concrete 1:2:4 on the top of embankment (the cost of plain cement concrete 1:2:4 shall be excluded and shall be payable separately) as shown in the drawing etc all complete as per specification and as directed by the engineer-in- charge. Minimum width of LDPE liner shall be 6m.	SQM	10	0.0000041
1829.0	Providing and placing 300mmx300mm size and 75mm thick precast concrete tiles of grade M-20 over 50 mm thick 1cement:4sand mortar on LDPE liner at the bed of reservoir and on side slopes of embankment, filling joints with 1cement : 3sand mortar etc all complete as per specification and as directed by the engineer-in-charge. The rate shall be inclusive of cement sand mortar as well.	SQM	10	0.0001677
1831.0	Providing random rubble (RR) stone masonry in founadation, super structure, boundary wall, retaining wall and embankment with cement mortar 1:6 at all elevations including all labour, material, equipment, handling, scaffolding etc. all complete.	CUM	1	0.0000366
2000.0	FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A2001	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 8 gauge (excluding PVC coating) of mesh size 75mm x 75mm. GI barbed wire fencing of height of 600 mm at top of chain link fencing shall be provided with 3 lines of 12 gauge high tensile spring steel wire for the entire length of fencing. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 50X6 mm galvanised MS flat at every fifth post sandwiching the fencing with post, accessories etc. all complete. (Structural post shall be separately under item 2007)	RM	541	0.010237
A2005	Supplying and fixing 600mm high anti climbing G.I. barbed wire fencing on top of boundary wall consisting of 8 nos. strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply with barbs of 16G spaced at 100mm including GI clips, anchors, accessories etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	541	0.0003584
2007.0	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts.	MT	6	0.0046936
A2009	Supply, fabrication and installing in position and testing hot dipped galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, tubular sections (conforming to IS: 1161), square welded mesh with 4 mm dia GI wire fabric & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, 20 mm wide x 80 mm dia flat MS roller at the bottom, paintings, fixing to post etc. all complete as per specification.	MT	2	0.0019652
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.	MT	1	0.0010784

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A2011	Supply, fabrication and installing in position electrically operated galvanised MS gate of approved size and design, erecting and fixing at main entrance including all guides, rails, alignments, control panels, switches, paintings etc all complete as per specification and as directed by Engineer.	MT	1	0.0011293
2100.0	WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.Cement Shall be supplied by BHEL as a free issue.			
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.	NOS	5	0.0000402
2102.0	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	5	0.0000142
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.	NOS	5	0.0000213
b	50mm nominal bore.	NOS	5	0.0000378
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	5	0.0000189
b	20 mm nominal bore.	RM	5	0.0000213
c	25 mm nominal bore.	RM	5	0.0000255

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
d	50 mm nominal bore.	RM	5	0.0000402
A2104	Providing and fixing HDPE pipes conforming to IS:4984 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	25	0.0000751
b	20 mm nominal bore.	RM	25	0.0000861
c	25 mm nominal bore.	RM	5	0.0000212
Ac	32 mm nominal bore.	RM	25	0.0001743
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	5	0.0000151
b	20 mm nominal bore.	RM	5	0.000017
c	25 mm nominal bore.	RM	5	0.0000208
Ac	32 mm nominal bore.	RM	10	0.0000475
d	50 mm nominal bore.	RM	5	0.0000359
A2106	Providing and fixing Wall to wall Bathroom mirror (6 mm thick float glass) with high square edges from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	5	0.0000426

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
2107	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	NOS	5	0.0000331
A2108	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 20mm) all complete.	EACH	5	0.0000331
A2111	Providing and fixing stainless steel / C.P. liquid soap holder cum dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	5	0.0000331
A2114	Providing & fixing in position polyethylene (P.V.C.) water tank conforming as per IS12701 of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.	--		
a	500 litres capacity	NOS	1	0.0000321
b	1000 litres capacity	NOS	1	0.0000648
c	2000 litres capacity	NOS	1	0.0001295
d	5000 litres capacity	NOS	1	0.0001443
2200.0	SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to 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, 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	1	0.0000265
2203.0	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	1	0.0000477
A2203	Providing and fixing stainless steel kitchen sink of size 750x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	5	0.0002308
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	2	0.0000964
b	Wall mounted	EACH	2	0.0001881
2205.0	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	5	0.0002458
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	5	0.0002978

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
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	5	0.0000142
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	25	0.0001362
b	300mm dia	RM	25	0.000174
c	450mm dia	RM	10	0.0002041
d	600mm dia	RM	15	0.0003941
e	900mm dia	RM	10	0.0004112
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	10	0.0000381
Aa	200 mm dia	RM	25	0.0001289
b	250mm dia	RM	10	0.0000552
c	300mm dia	RM	10	0.0000726
d	450mm dia	RM	10	0.0000945

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
2210.0	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following:	--		
a	450mm dia	RM	5	0.0001107
b	600mm dia	RM	5	0.0001408
c	900mm dia	RM	3	0.0001649
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	5	0.0001418
2212.0	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	5	0.0001229
2213.0	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:	--		
a	100x100mm P or S Type.	EACH	5	0.0000685
b	150x100mm P or S Type.	EACH	5	0.0000685
c	150x150mm P or S Type.	EACH	5	0.0000756
2214.0	Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	EACH	5	0.0000567
2215.0	Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete.	EACH	5	0.0000543

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
2216.0	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	1	0.0003294
2217.0	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	1	0.0004102
2218.0	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	5	0.0000662
2219.0	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	1	0.0002401
A2219	Providing and fixing Emergency eye wash cum shower including all fittings etc. all complete as per IS 10592 and specification.	EACH	1	0.0002401
2220.0	Providing and fixing heavy duty cast iron pipes for above and below ground sanitary works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.	--		
a	75mm dia pipes	RM	5	0.0000685
b	100mm dia pipes	RM	5	0.0000898
c	150mm dia pipes	RM	5	0.0001229
d	200mm dia pipes	RM	5	0.0001914
e	250mm dia pipes	RM	5	0.0002434
2222.0	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.			
a	Upto 75 mm dia	RM	2	0.0000019
b	100 mm dia	RM	2	0.0000057

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
c	150 mm dia	RM	1	0.0000052
2300.0	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
2301.0	Transportation, Fabrication,erection and alignment 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 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o 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.	MT	3	0.0007446

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Tender Specification BHEL/PSSR/USTPP/SCT&P/SCT/078A for Balance works of Civil and Architectural works of the Permanent store (Non Plant Structures/Buildings of Package-2) of 2x660MW Udangudi Super Critical Thermal Power Project, Tuticorin Dt, Tamilnadu

Ref.No	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
	Including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL (BHEL to supply steel free of cost).			
A2302	Extra over ST NO. 2301 for blast cleaning by shot / metal blasting of steel structures to near white metal surface(Sa 2 1/2) as per SIS05-5900 and applying 2 coats of zinc silicate primer (one coat at shop and one coat after erection) instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete as per specification.	MT	1	0.0000539
A2305	Providing and applying two coats of High built epoxy finish paint of approved brand over steel sections already having primer coats. Dry film thickness of each finish coat shall be 90 microns. The undercoat and finish coat shall be of different tint to distinguish the same from finish paint. The total dry film thickness with primer shall not be less than 300 microns. The item includes protection, cleaning, scaffolding, touch-up painting etc. all complete as per specification.	MT	1	0.0000447
2320.0	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	1	0.0010177
A2320	Supply, fabrication and fixing of G.I stainless steel ladder in forebay conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete as per drawing	MT	1	0.0010177
2321.0	Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payments terms - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	4	0.0036038
A2322	Supply, fabrication and fixing of GI pipe hand railing (1250 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete as per specification.	MT	4	0.0042705
2400.0	ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.			

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
2401.0	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	100	0.0000587
2403.0	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	100	0.0007634
2404.0	Providing & laying water bound macadam sub base course in layers of required thickness with crushed stone aggregates 90 to 40 mm down size (IRC 19 - grading -1), stone screening & blinding material including screening, sorting, spreading to template & consolidation with road roller including carriage, spreading & consolidation of blinding material moorum etc all complete.	CUM	100	0.0016502
2405.0	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size(IRC 19 - grading -1), stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	100	0.0015927
A2413	Supplying and laying 600mmx200mmx380mm deep precast concrete kerb stone of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	100	0.000443
2415.0	Supply and laying 150mm dia R.C.C NP-2 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:3) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. Payment terms - a) On receipt of materials at site - 50%; b) On completion of erection & fixing - 50%.	RM	5	0.0000189

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Ref.No	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A2419	Providing and laying cement concrete of grade M30 using 20 mm nominal size stone aggregate with approved admixture (Bipolar Concrete Penetrating Corrosion Inhibiting Admixture (CPCIA). CPCIA shall be free from nitrites, chromates and non-migrating types and having 7-8 years of usage history in Indian conditions conforming to ASTM- G-109 with an efficiency factor of minimum 25 times. Dosage as per manufacturer specifications shall be compatible with the type of cement used.),provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	50	0.0016485
2421.0	Providing & laying dry lean cement concrete of grade M15 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete.	CUM	50	0.0014658
	REIN FORC EME NT			
A2422	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer.	MT	5	0.0006097
A2423	Straightening, cutting, bending, placing in position at any level, binding in position of corrosion resistant steel -HCRM re-bars of approved make with steel of grade Fe-500 confirming to IS:1786 norms including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	5	0.000609
	MISC ELLA NEO US			
A2425	Providing & installation of bitumen impregnated fibre board of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer.	RM	50	0.0003923

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
A2426	Providing and filling in position hot applied bitumen sealing compound (Grade A) of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	100	0.0000412
A2429	Providing & laying 80 mm thick precast interlocking concrete(M20) pavers of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	100	0.00076
A2431	Providing and laying 100mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	100	0.0001766
A2432	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15-2002 etc all complete as per specification, drawing and as directed by Engineer.	SQM	200	0.0001644
A2433	Providing and laying Inverted Choke with 25 mm course of screenings (Grading-B) over prepared subgrade including compaction etc all complete as per specification, drawing and as directed by Engineer.	CUM	100	0.000086
TOTAL				0.9999999

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Ref.No .	Description	Unit	QTY	Weightage for amount of each item(Nearest to the 7 decimal points) w.r.t.to the total amount
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