

Corrigendum 11 dated 11th September 2018 to TENDER SPECIFICATION BHEL PSSR SCT 1740 - Package-A & Package-B of Civil, Structural and Architectural works of Coal Handling Plant & Ash Handling Plant area (Inside & outside plant boundary) at 2x660 MW Ennore SEZ Super Thermal Power Project, at Ash dyke of North Chennai Thermal Power Station (NCTPS), Thiruvallur District, Tamil Nadu.

A. The Description for following Item Ref. No. in Volume II Price Bid is revised as below & Volume II Price Bid Revision 01 is enclosed herewith

Item Ref. No.	Description (In Existing Price Bid)	Revised as (In Price Bid Revision 01)
ISG225	Providing and laying Design Mix cement concrete conforming to <u>IS:456 & IS 10262-2009</u> for reinforced concrete works of Piers in Bridge type structures (standard pier, portal pier, cantilever piers, etc.), 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 grade of concrete. Item also includes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work. (Bending, binding and coating of reinforcement shall be paid separately.)	Providing and laying Design Mix cement concrete conforming to <u>IS:456 & IS 10262-2009</u> for reinforced concrete works of Piers in Bridge type structures (standard pier, portal pier, cantilever piers, etc.), 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 grade of concrete. <i>Item excludes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work, which will be paid in relevant item separately.</i> (Bending, binding and coating of reinforcement shall be paid separately.)

Item Ref. No.	Description (In Existing Price Bid)	Revised as (In Price Bid Revision 01)
ISG226	Providing and laying Design Mix cement concrete conforming to <u>IS:456 & IS 10262-2009</u> for reinforced concrete works of cantilever pier cap/Normal pier cap in Bridge type structures, 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 grade of concrete. Item also includes shuttering, scaffolding and all related operations as required for completing the concreting work. (Bending, binding and coating of reinforcement shall be paid separately.)	Providing and laying Design Mix cement concrete conforming to <u>IS:456 & IS 10262-2009</u> for reinforced concrete works of cantilever pier cap/Normal pier cap in Bridge type structures, 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 grade of concrete. <i>Item excludes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work, which will be paid in relevant item separately.</i> (Bending, binding and coating of reinforcement shall be paid separately.)
ISG227	Providing and laying Design Mix cement concrete conforming to <u>IS:456 & IS 10262-2009</u> for reinforced concrete works of deck slab over Precast I -Beams / T - Beams / Steel beams & cross girder in Bridge type structures, 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 grade of concrete. Item also includes shuttering, scaffolding and all related operations as required for completing the concreting work. (Providing & laying deck sheet for shuttering purpose, fabrication and erection of supporting structures for deck sheet, bending, binding and coating of reinforcement shall be paid separately.)	Providing and laying Design Mix cement concrete conforming to <u>IS:456 & IS 10262-2009</u> for reinforced concrete works of deck slab over Precast I -Beams / T - Beams / Steel beams & cross girder in Bridge type structures, 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 grade of concrete. <i>Item excludes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work, which will be paid in relevant item separately.</i> (Providing & laying deck sheet for shuttering purpose, fabrication and erection of supporting structures for deck sheet, bending, binding and coating of reinforcement shall be paid separately.)

Item Ref. No.	Description (In Existing Price Bid)	Revised as (In Price Bid Revision 01)
ISG228	Providing and laying Design Mix cement concrete conforming to <u>IS:456 & IS 10262-2009</u> for reinforced concrete works reinforced cement concrete crash barrier/Pier Protection all round the pier leaving a gap of 25mm minimum between and following the pier shape exactly on at grade road, 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 grade of concrete. Item also includes shuttering (rectangular/circular), scaffolding, providing of compressible fibre board to be filled in the gap and all related operations as required for completing the work. (Bending, binding and coating of reinforcement shall be paid separately.)	Providing and laying Design Mix cement concrete conforming to <u>IS:456 & IS 10262-2009</u> for reinforced concrete works reinforced cement concrete crash barrier/Pier Protection all round the pier leaving a gap of 25mm minimum between and following the pier shape exactly on at grade road, 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 grade of concrete. <i>Item excludes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work, which will be paid in relevant item separately.</i> (Bending, binding and coating of reinforcement shall be paid separately.)
402	Transportation, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	Transportation, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 <i>excluding cost of reinforcement steel but including cost of</i> binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.

Item Ref. No.	Description (In Existing Price Bid)	Revised as (In Price Bid Revision 01)
A303	Fairface Formwork with good quality water proof ply wood of minimum 18mm thickness and smooth surface for Pier works (rectangular/ Circular) outside plant boundary (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties for all heights complete including chamfering of edges, deshuttering as per drawing,specification, and instruction of engineer in charge..	Fairface Formwork with good quality water proof ply wood of minimum 18mm thickness and smooth surface for Pier works (rectangular/ Circular) outside plant boundary (above base raft level) / <i>or slip form work for ash silo</i> including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties for all heights complete including chamfering of edges, de-shuttering as per drawing, specification, and instruction of engineer in charge.

All other terms and conditions of the Tender remains unchanged. Bidders are requested to upload only the revised price bid.

Bidders are requested to consider this corrigendum as part of the tender specification and quote accordingly.

Encl: (i) Volume II Price Bid Revision 01 – 56 Pages

-Sd-
(T.K.Eashwar)
Sr.Engineer / Subcontracts

**TENDER SPECIFICATION
BHEL: PSSR: SCT: 1740**

FOR

Package-A & Package-B of Civil, Structural and Architectural works of Coal Handling Plant & Ash Handling Plant area (Inside & outside plant boundary) at 2x660 MW Ennore SEZ Super Thermal Power Project,

at

Ash dyke of North Chennai Thermal Power Station (NCTPS), Thiruvallur District, Tamil Nadu

VOLUME-II

PRICE BID

Revision 01



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

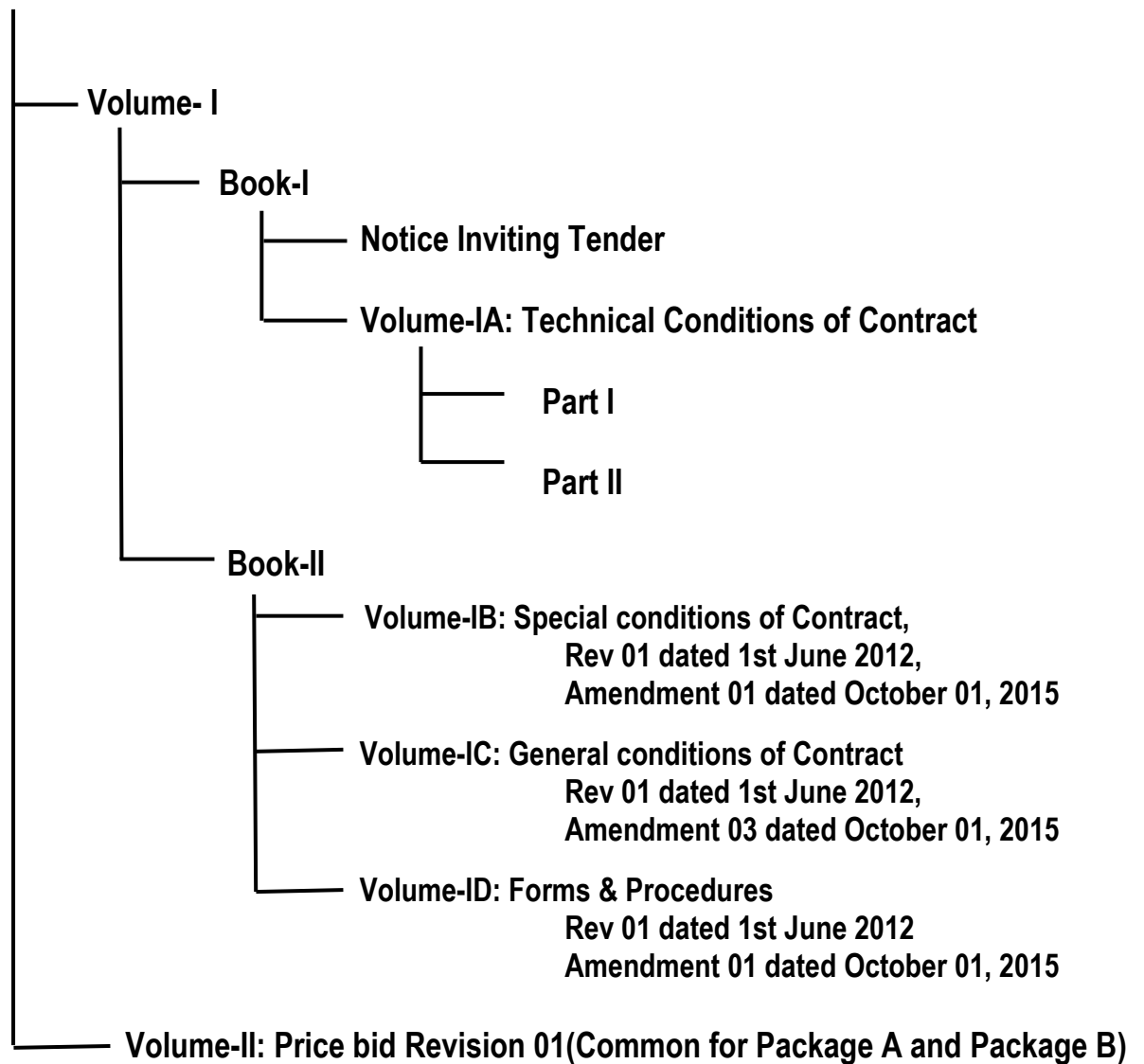
Power Sector – Southern Region

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

PRICE BID Revision 01

TENDER SPECIFICATION CONSISTS OF

Techno-Commercial Bid



PRICE BID Revision 01

CONTENTS	
Description	No. of pages
Part A: Instructions to the Bidders	1
Part B: Format to quote total amount	1
Part C: Bill of quantities with weightage for amount of each items w.r.t. the total quoted price	51

PRICE BID Revision 01

PART-A-INSTRUCTIONS TO BIDDERS:

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

Part B: Format to quote Total Amount

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

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

In Figures

In words

Note :

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

Date

SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t 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 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	52,100	.0034778
b	Depth exceeding 2 m but not exceeding 4 m	CUM	19,208	.0016098
c	Depth exceeding 4 m but not exceeding 6 m	CUM	2,083	.0002178
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1,987	.0002594
e	Depth exceeding 8 m but not exceeding 10 m	CUM	1,425	.000223
f	Depth exceeding 10 m but not exceeding 15 m	CUM	1,078	.0001943
102.0	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	11,571	.0004857
107.0	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 from compulsorily excavated earth/ash available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.	--		
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	14,479	.0008269

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	30,216	.0019273
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 1Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.	--		
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	4,616	.0001096
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	4,616	.0001198
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 1km.	--		
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	500	.0000037
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	250	.0000019
110.0	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 required compaction 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	250	.0001231

Part C : Bill of Quantities

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
111.0	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	350	.0007287
200.0	CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.	--		
201.0	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	4,668	.0142505
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	3,121	.0101181
204.0	Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete.	CUM	9,537	.0357001
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	6,000	.0240175
b	M 30 Grade	CUM	6,567	.0269837

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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.	--		
a	M 25 Grade for all works up to a height of 20 m	CUM	1,231	.0049376
i	M 25 Grade for all works above 20 m up to 40 m	CUM	751	.0032908
ii	M 25 Grade for all works above 40 m up to 60 m	CUM	455	.0021625
iii	M 25 Grade for all works above 60 m up to 80 m	CUM	375	.0019214
iv	M 25 Grade for all works above 80 m up to 90 m	CUM	100	.0005494
b	M 30 Grade for all works up to a height of 20 m	CUM	9,843	.0405323
i	M 30 Grade for all works above 20 m up to 40 m	CUM	390	.0017506
c	M 35 Grade for all works up to a height of 20 m	CUM	3,000	.0126718
d	M 40 Grade for all works up to a height of 20 m	CUM	250	.0013762
A211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Quoted rate shall include the cost of chicken wire mesh also.)	--		
a	M20 Grade	CUM	525	.0019867

Part C : Bill of Quantities

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A212	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.	--		
a	M 20 grade	CUM	1,889	.0071482
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	.0001362
b	M30	CUM	5	.0000276
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 confirming 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.	--		
a	M25	CUM	25	.0001177
b	M30	CUM	25	.0001203

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
215.0	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.	--		
a	Plain cement concrete of all grades	CUM	25	.0000166
b	Reinforced cement concrete of all grades	CUM	50	.0000487
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	25	.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	500	.0000015
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	50	.0000067
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	500	.0017274
222.0	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	250	.0000007
ISG22 4	SHOTCRETING	--		
--	Shotcreting (Guniting) specified concrete surfaces as per the following specifications including all materials. Labour, tools and plants, scaffolding etc all complete as per the directions of Engineer in charge, : 6	--		

Part C : Bill of Quantities

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	i.Supply, fabricating and fixing in position 6mm M S bars at 750mm c/c including connecting to the lugs for fastening	--		
--	ii.Supply & fixing wire fabric conforming to IS:1566 as reinforcement with 3mm diameter spaced at 50mm c/c both ways electrically cross welded including securely tying to the 6mm MS bars by maintaining 100mm overlap for adjacent sheets	--		
--	iii.Fine aggregate shall consist of natural sand or crushed stone from a known source and shall be strong, hard, coarse, sharp, chemically inert, clean and free from any coating. It shall be free from clay, coal or coal residue, organic or any other impurities that may impair the strength or durability of the concrete and shall conform to IS: 383. The fineness modulus shall be preferably between 2.5 and 3.3. Any other value can be used, with prior approval of the Engineer. Fine aggregate (Sand) shall be well graded and particles shall range in size within limits. The Engineer may approve the use of any other grading as per requirement or as per IS: 9012.	--		
--	iv.The surface after the placement of reinforcement and / or welded mesh and not more than six hours prior to the application of concrete, shall be thoroughly cleaned of all loose materials and dirt. The Contractor shall properly prepare the surfaces, reinforcement and / or welded mesh to receive the shotcrete. Cleaned surfaces shall be wetted not more than hour prior to shotcreting.	--		
--	v.The mix as placed on surface shall be one part cement to three parts approved sand by mass. Cement and sand shall be dry mixed; no water shall be added after mixing and before using in the gun. The quantity of water when added shall be only that which is sufficient to hydrate the cement. For average atmospheric conditions, the water cement ratio for shotcrete in place shall be between 0.35 and 0.5 by mass. Suitable admixture shall be used wherever required.	--		
--	vi.A uniform pressure of not less than 25 Kgf / cm ² at the nozzle shall be maintained. Necessary adjustments shall be made to ensure this pressure, taking into account the length of hose and height of the place to be shotcreted, above location of the machine.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	vii.The application shall proceed in an upward direction. Beams, stiffeners and intermediate walls, if any, shall be wrapped with wire fabric and completely covered with shotcreting. All rebound shall be removed from the area of application as the work progresses and such rebound material shall not be reused.	--		
--	viii.As soon as the freshly shotcreted surface shows the first dry patches, a fine spray of water shall be applied to keep too moist. After the surface has hardened, it shall be kept continuously moist for minimum seven days. If there is extreme heat, especially when accompanied by hot winds, the shotcreted surface, immediately upon completion, shall be covered with burlap or similar covering, which must be kept continuously moist for 14 days after shotcreting. The temperature of the lining shall not be permitted to exceed 38oC during placing and curing.	--		
--	Note: 6mm MS Reinforcement and welded wire mesh as specified shall be used for thickness of Shotcreting above 50mm	--		
--	a.Shotcreting for thickness 50mm and above of with 6mm MS Reinforcement and welded wire mesh as specified	SQM	200	.0000668
--	b.Shotcreting for thickness 25mm without 6mm MS Reinforcement and welded wire mesh as specified	SQM	25	.0000037
ISG22 5	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of Piers in Bridge type structures (standard pier, portal pier, cantilever piers, etc.), 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 grade of concrete. Item excludes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work, which will be paid in relevant item separately. (Bending, binding and coating of reinforcement shall be paid separately.)	--		
a)	M35	CUM	1,450	.0078024

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Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b)	M40	CUM	200	.001101
ISG22 6	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of cantilever pier cap/Normal pier cap in Bridge type structures, 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 grade of concrete. Item excludes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work, which will be paid in relevant item separately.. (Bending, binding and coating of reinforcement shall be paid separately.)	--		
a)	M35	CUM	1,640	.0088248
b)	M40	CUM	200	.001101
ISG22 7	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of deck slab over Precast I -Beams / T - Beams / Steel beams & cross girder in Bridge type structures, 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 grade of concrete. Item excludes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work, which will be paid in relevant item separately... (Providing & laying deck sheet for shuttering purpose, fabrication and erection of supporting structures for deck sheet, bending, binding and coating of reinforcement shall be paid separately.))	--		
a)	M35	CUM	4,000	.0215239
b)	M40	CUM	400	.0022019

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
ISG228	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works reinforced cement concrete crash barrier/Pier Protection all round the pier leaving a gap of 25mm minimum between and following the pier shape exactly on at grade road, 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 grade of concrete. Item excludes shuttering (rectangular/circular), scaffolding and all related operations as required for completing the work, which will be paid in relevant item separately... (Bending, binding and coating of reinforcement shall be paid separately.)	--		
a)	M35	CUM	125	.0006726
b)	M40	CUM	25	.0001376
ISG229	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 I - beams of length 24 m approximately at all levels above pier cap of the bridge type structure, including all kinds of work like precast bed formation, formwork/moulds for precasting, casting of precast beams by providing arrangement for lifting as per drawing, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transporting, lifting & erection on the bearing without damage, using heavy capacity cranes, etc.complete as per specification and drawing for following grades.	--		
a)	M35	CUM	6,150	.0674516
b)	M40	CUM	625	.0069225
ISG230	Transporting precast beams from the casting yard to work site, erection in position including the cost of all temporary supports, erection equipment, lifting cranes, transporting etc. positioning and fixing in position.	MT		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	Transportation of precast beams upto 2 KM	MT	7,875	.0004631
b	For every KM or part thereof, beyond initial lead of 2KM	MT	7,875	.0000451
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	35,774	.0120727
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	61,278	.02477
A 303	Fairface Formwork with good quality water proof ply wood of minimum 18mm thickness and smooth surface for Pier works (rectangular/ Circular) outside plant boundary (above base raft level) / or slip form work for ash silo including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties for all heights complete including chamfering of edges, de-shuttering as per drawing, specification, and instruction of engineer in charge.	SQM	10,453	.0058515
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	25	.0000036
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	75	.0000189

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	50	.000023
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	10	.0000073
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	10	.0000106
f	Pockets of depths more than 1500mm and upto 2000 mm depth	Each	10	.0000141
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		
402.0	Transportation, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 excluding cost of reinforcement steel but including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	8,778	.0636345
404.0	Extra over ST No. 401,402 & 403 for providing fusion bonded epoxy coating by mechanised & qualified process including blast cleaning to white metal as per Swedish code, heating in induction heater, electrostatically spraying the epoxy powder, complete fusion to give minimum coating thickness of 200-300 microns, gradual cooling without affecting the properties of steel, testing as per ASTM 775 and IS:13620, flexibility & holiday test, proper packing, safe transportation, touchup at site, etc. complete to ensure proper resistance of FBE against corrosive environment. The bidder has to transport the steel from BHEL site store to vendor plant and bringing back to site and special handling during straightening, cutting, bending, placing and providing PVC coated binding wire.	MT	8,778	.0697219

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t 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.	--		
b	16mm Reinforcement bar	Nos.	25	.0000098
c	20mm Reinforcement bar	Nos.	25	.0000138
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.	--		
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	8,300	.0008126
503.0	Providing and laying in-situ light weight foam concrete insulation as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:5 (1 cement: 5 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.	--		
b	Average 75 mm thickness	SQM	4,677	.0012419

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A504	Providing and applying bitumen felt water proofing for heavy treatment having bonding materials consisting of blown type conforming to IS: 702 or residual bitumen conforming to IS: 73 or a mixture of the two with seven courses as per IS 1346 using layer of type 2 grade 1 as per IS 7193 and with a minimum overlap of 75 to 100 mm of felt including preparation of surfaces etc all complete for following base felts (For description of layers refer specification):	--		
a	With hessian base felt	SQM	8,300	.0030719
b	With glass fiber base felt	SQM	250	.0001003
508.0	Providing and laying wearing course consisting of 40mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	SQM	375	.0001254
509.0	Providing and laying wearing course consisting of 25mm thick plain cement concrete of proportion 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	5	.0000014
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	8,300	.0022346

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	38,938	.0032923
513.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	45,180	.0025132
A513	Anti termite chemical treatment of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete. Plinth area of Building at ground floor only shall be measured for payment	SQM	3,562	.0006341
A515	Providing and applying waterproofing treatment for the concrete surfaces of underground structure in contact with soil/ash including surface preparation etc. all complete with following layers:-	--		
a	For base slab, a 75 mm thick layer of PCC 1:4:8 followed by 25mm thk Cement Mortar 1:3 mixed with approved water proofing compound at the rate specified by the manufacturer. Over this two coats of acrylic polymer modified cement based flexible water proofing membrane of approved make laid as per manufactures and instruction. Over water proofing membrane, 25mm thk Cement mortar 1:3 mixed with approved water proofing compound at the rate specified by the manufacturer provided, over which protective layer of 15mm thk kota / cuddapa or equivalent stone with joints sealed with cement mortar 1:3 shall be laid. Over this stone layer, 25mm thk Cement mortar 1:3 mixed with approved water proofing compound at the rate specified by the manufacturer shall be applied.	SQM	2,556	.0036683
b	For side walls, two coats of acrylic polymer modified cement based flexible water proofing membrane of approved make laid as per manufactures specification and instruction followed by 25mm thk Cement Mortar 1:3 mixed with approved water proofing compound at the rate specified by the manufacturer. Protective layer of 15mm thk kota / ciddapa or equivalent stone with joints sealed with Cement Mortar 1:3 shall be laid. Finally 25mm thk Cement Mortar 1:3 mixed with approved water proofing compound at the rate specified by the manufacturer shall be applied.	SQM	2,728	.0027578

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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.	--		
602.0	Supplying and installation of Dura board HD100 or its equivalent as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.	--		
c	25 mm wide joints	SQM	350	.0002586
603.0	Providing and applying polysulphide based sealant conforming to IS:12118 in joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:	--		
a	25mmX25mm	RM	450	.0001192
b	50mmX25mm	RM	150	.0000742
604.0	Supplying and filling in position hot applied bitumin sealing compund (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.	--		
b	12mm X 25mm	RM	300	.0000089
c	20mmX25mm	RM	100	.0000027
605.0	Supplying and installation of commercial quality of expanded polystyrene products from reliable manufacturers as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.	--		
c	25 mm wide joints	SQM	350	.0000177

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	50	.0000018
607.0	Providing and installing strong and tough alkathene sheet or equivalent of about 1 mm in thickness in isolation joints and shall be fixed by an approved adhesive compound on the cleaned surface of the already set concrete as per the manufacturers recommendations, to cover it fully including the material and tools required for jointing, testing, protection, etc all complete.	SQM	50	.0000028
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.	--		
b	12mm X 25mm	RM	300	.0000107
c	20mmX25mm	RM	100	.0000047
609.0	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicons or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:	--		
a	25mmX25mm	RM	100	.0000366
b	50mmX25mm	RM	100	.0000698
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) 17	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	230 mm wide and 8 mm thick	RM	1,387	.0001985
d	230 mm wide and 6 mm thick	RM	1,387	.0003138
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	25	.0000119
b	50mmX25mm	RM	25	.0000229
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	75	.0035583
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	10	.0005865
703.0	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.	--		
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	30	.0003791
B	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.	MT	1	.0000122

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t 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	1,000	.0000564
b	PVC pipes / conduits of all diameters	kg	500	.000119
c	UPVC pipes / conduits of all diameters	kg	500	.0001261
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	15	.0000005
ii	10mm Dia	Nos	15	.0000006
iii	12mm Dia	Nos	15	.0000007
iv	14mm Dia	Nos	15	.0000009
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		
ii	HAS-E5.8 M10	Nos		
iii	HAS-E5.8 M12	Nos	15	.0000044
iv	HAS-E5.8 M16	Nos	15	.0000069
v	HAS-E5.8 M20	Nos	15	.0000115

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	2	.0001003
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.	--		
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	250	.0000907
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	5	.0000731
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	5	.0000668
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	50	.0015595

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	50	.0016934
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	125	.0001189
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.	--		
904.0	Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	1,063	.0030867

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t 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	250	.0000686
907.0	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	11	.0000494
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	1,499	.0016621
b	fixed type	SQM	1,000	.0007358

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
909.0	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections 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 preparation 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	4,882	.0014194
910.0	Providing and fixing of aluminium composite panel(ACP) of following thickness with PVDF or polyester coating for interior partition of approved shade ,color etc all complete as per specification.	--		
a	3mm	SQM	10	.0000183
b	4mm	SQM	10	.0000214
c	5mm	SQM	10	.0000254
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	15	.0000133
b	Floor mounted Hydraulic door closers as per IS 6315	Each	15	.0000241

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	150	.0000129
913.0	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).	--		
a	Hand Operated	SQM	10	.0000144
b	Mechanically Operated	SQM	127	.0002352
c	Electrically operated	SQM	98	.000196
914.0	Providing and fixing PVC doors (25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	63	.0001109
915.0	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.	--		
b	4 mm thick clear float glass	SQM	200	.000152
c	5.5 mm thick clear float glass	SQM	200	.0001773
d	6 mm thick wired glass	SQM	2,319	.0021431

Part C : Bill of Quantities

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
f	4 mm thick ground glass	SQM	325	.0002471
h	6 mm thick clear toughened safety glass	SQM	50	.0000499
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	691	.0015324
j	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	25	.0000592
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	25	.000061
l	6 mm thick laminated glass	SQM	25	.0000231
916.0	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	50	.0000065
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	75	.0000795
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	25	.0000466
A923	Providing and fixing 12 mm square MS bars as grills for security on windows/ventilators including fixtures, painting etc. all complete.	SQM	1,142	.0008402
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.	--		
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.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t 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)	CUM	250	.0010139
b	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm2(including cost of cement for brick making)	CUM	25	.000093
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	25	.0000951
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	25	.0000951
A1002	Providing brick work in cement mortar 1:5 (1 cement 5 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2	CUM	2,396	.011592
b	Using clay ash bricks as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash 25%	CUM	50	.0002257
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	50	.0002297
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	50	.0002297
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.	--		
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	150	.0000902
b	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm2(including cost of cement for brick making)	SQM	25	.0000141
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	25	.0000143

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	25	.0000143
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	5	.0000047
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	50	.0000048
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	10	.000011
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	250	.0000219
1010.0	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at all level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	5	.0000028
1011.0	Providing and filling brick bats in soak pits all complete.	CUM	25	.0000175
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.	--		
1101.0	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.	--		
a	40mm thick	SQM	25	.0000058

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	50mm thick	SQM	799	.0002175
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.	--		
A1201	Providing 20 mm thick in 2 coats, 1st coat of 12 mm thick in Cement Mortar 1:3 & 2nd coat of 8 mm thick in Cement Mortar 1:2 sand faced outside/inside the building/boundary wall finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	10,308	.0018349
A1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:3 on walls finished to a smooth finish as per specification all complete.	SQM	10,308	.0012309
A1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	8,834	.0008976
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	100	.0000118
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	250	.0000048
1208.0	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 (chicken wire mesh to be paid separately)	SQM	25	.0000101
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	25	.0000025

Part C : Bill of Quantities

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Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t 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.	--		
A1304	Two or more coats of acrylic washable distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	15,749	.0007172
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 conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, inclusive of intermediate coat of Titanium dioxide / micaceous iron oxide complete as per specifications.	SQM	200	.0000222
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	9,606	.0004253
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	625	.0000355
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.	--		

Part C : Bill of Quantities

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Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1401	Providing and laying 50 mm thick granolithic heavy duty cement concrete in flooring with non-metallic hardener pigmented topping 12mm thick in flooring. Under layer of 38mm thick cement concrete mix 1:1:2 (1 cement: 1 sand : 2 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	14,252	.0055601
1402.0	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 10mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete as per specification. (Quoted item rate shall be inclusive of providing glass joint strips).	SQM	50	.0000145
1403.0	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping pigment content is 3.5 kg per 50 Kg of Cement) of size 300X300X25 thick of approved shade as per IS 1237, including minimum 20mm cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry@4.4 kg/sqm,labour,materials, etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grinding and polishing complete with laying as per IS 1443 etc.(inclusive of cost of cement for tiles manufacturing) all complete for following:	--		
a	Laid in floors	SQM	20	.0000146
b	Laid in skirting	SQM	20	.0000185

Part C : Bill of Quantities

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Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1404.0	Providing and laying interlocking M30 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing)	--		
a	60mm	SQM	3,000	.0013729
b	75mm	SQM	3,250	.0016874
1406.0	Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	25	.000022
1407.0	Providing and laying polished Kota stone 14mm to 16mm thk in flooring. Under bed shall average 35mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	25	.0000217
1408.0	Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	10	.0000091
1409.0	Providing polished Kota stone 14mm to 16mm thk in skirting projecting 6mm from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	10	.0000087

Part C : Bill of Quantities

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	100	.0001971
1415.0	Providing and laying polished Granite stone 14-16mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	100	.0001648
1416.0	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following	--		
a	7mm thick tiles In flooring	SQM	10	.0000091
b	10mm thick tiles In flooring	SQM	10	.0000093
c	7mm thick tiles In skirting and dado upto specific height	SQM	10	.0000091
d	10mm thick tiles In skirting and dado upto specific height	SQM	10	.0000093
A1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following	--		
a	7.5 mm thick tiles In flooring	SQM	733	.0006665
b	7.5mm thick tiles in skirting and dado upto specific height	SQM	50	.0000454

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1417	Providing and laying heavy duty anti skid ceramic tiles of matt finish of size 300x300mm from reputed / approved manufacturer including underbed of 43mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) etc. all complete for following.	--		
a	7mm thick tiles In flooring	SQM	50	.0000511
c	7mm thick tiles In skirting and dado upto specific height	SQM	50	.0000511
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	13	.0000328
1420.0	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 20mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete.	--		
a	300X300 mm	SQM	100	.000053
b	600X600 mm	SQM	25	.0000132
1421.0	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 600x600mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 43mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar with neat cement slurry @3.3kg/sqm all complete.	SQM	5	.0000035
1423.0	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar all complete for following thicknesses. The tiles should be abrasion resistant & durable.	--		
a	20mm thick	SQM	75	.000075

Part C : Bill of Quantities

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	38mm thick	SQM	75	.0000828
1427.0	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses:	--		
a	5mm thick	SQM	5	.0000032
b	7mm thick	SQM	5	.000003
A1429	Providing and fixing removable type flooring system (Height of floor 800 mm)consisting of fire resistant particle board of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification.	SQM	150	.0003395
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	250	.0000067
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	250	.0000154
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.	--		

Part C : Bill of Quantities

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AAA1 501	Designing, providing and fixing permanently cold rolled troughed profile sheets manufactured from tested quality CR rolls as per IS:513 over roof purlins for cast-in-situ roof slab as per specification and relevant IS codes. 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 including Pre treatment and Phosphating of sheet with application of primer and final paint coating as per specification and 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.	--		
a	Span Upto 1800mm	SQM	250	.0002249
b	Span Exceeding 1800mm and upto 2500 mm	SQM	250	.0002249

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AB15 01	Designing, providing and fixing permanently cold rolled troughed profile sheets manufactured from tested quality CR rolls as per IS:513 over floor beams for cast-in-situ floor slab as per specification and relevant IS codes. 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 floor slab 150mm 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 beams, side lapping, end lapping etc. all complete for below mentioned spans including Pre treatment and Phosphating of sheet with application of primer and final paint coating as per specification and fixing of sheet to beam 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.	--		
a	Span Upto 1700mm	SQM	6,756	.0060782
b	Span Exceeding 1700mm and upto 2500 mm	SQM	17,956	.0161545
1504.0	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 275 gm/sqm total on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	30,880	.0181396

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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.	--		
b	For underdeck insulation below RCC slabs	SQM	250	.0000859
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.	--		
1602.0	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also beprovided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.	SQM	15	.0000124

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1603.0	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to 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 all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	15	.0000183
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour (closed type plain panels) or approved equivalent with corrosion resistant aluminium alloy AA5050 panels of minimum thickness 0.5mm fixed on roll formed carriers including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to 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 all complete. Suitable M.S. channel grid with minimum ISMC175 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	150	.0001829
1604.0	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamel finish of approved make in LINEAR and SQUARE type with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm 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 etc. Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	SQM	10	.0000115

SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1605.0	Providing, fixing and laying anodised natural colour matt finished aluminium false ceiling of Jindal/Hindalco make with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool (density 48kg/cum 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 etc. Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	SQM	10	.0000107
1606.0	Providing and Fixing 12mm thick Gypsum board plain/perforated false ceiling tiles(600x600mm) of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete.as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	SQM	10	.0000057
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.	--		
1708.0	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of heavy duty all complete for following diameters.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c	200 mm Dia	RM	2,990	.0058413
1709.0	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.	--		
b	160 mm Dia	RM	700	.0002819
Ab	Upper receiving cap (Hot dipped galvanised @650 g/sq.m steel) for 150mm Dia pipe	KG	400	.0000187
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.	--		
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	875	.0011773
1821.0	Sprinkling of water by water tanker fitted with perforated GI pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust supression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling).	TANK-HR	2,920	.0010266
1823.0	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	5	.0000065
1825.0	Providing & Laying 20micron thick polythene sheet below the concrete base including materials, labour etc. complete as per drawing / direction of engineer.	SQM	125	.0000018

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	25	.0000006
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	50	.0000542
1830.0	Supplying, stacking and laying sand of approved quality as sand blanket/cushion over base/bed and on slopes of embankment/canal including screening, washing (wherever required), watering, compaction, dressing, necessary trimming if any including all leads and lifts etc all complete as per specification and as directed by the engineer-in-charge.	CUM	5	.0000142
1831.0	Providing random rubble (RR) stone masonry in foundation, 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	5	.000014
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.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2001.0	Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing of height of 600 mm confirming to IS 298 at top of chain link fencing shall be provided with 4 strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply of wires with barbs of 16G spaced at 100mm. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts, accessories etc. all complete. (Structural post shall be paid separately under item 2007)	RM	200	.0001868
2005.0	Supplying and fixing 600mm high G.I. barbed wire fencing on top of boundary wall consisting of min. 6 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 paid separately under ST No. 2007/2008 as the case may be) Measurement shall be for per running meter of fencing.	RM	3	.0000001
2006.0	Supplying and fixing 600mm high concertina on top of boundary wall including GI tension wires, clips, anchors, accessories etc. all complete. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. (Structural post shall be separately under ST No. 2007)	RM	100	.0000166
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	5	.00026
2009.0	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	8	.0004548

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	3	.0001629
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.	--		
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	25	.0000128
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	30	.0000049
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	15	.0000041
b	50mm nominal bore.	NOS	15	.0000073
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	50	.0000119
b	20 mm nominal bore.	RM	200	.0000536
c	25 mm nominal bore.	RM	200	.0000642
d	50 mm nominal bore.	RM	5	.0000025

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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:	--		
b	20 mm nominal bore.	RM	150	.0000323
c	25 mm nominal bore.	RM	200	.0000537
A2106	Providing and fixing 1200mmx900mmx5.5mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	14	.0000296
2108.0	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) with C.P. mounting brackets all complete.	NOS	20	.0000083
2111.0	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	20	.0000085
2112.0	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	NOS	10	.0000022
2113.0	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete.	NOS	10	.0000004
2114.0	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.	--		
a	500 litres capacity	NOS	5	.00001
b	1000 litres capacity	NOS	10	.0000402
c	2000 litres capacity	NOS	3	.0000241

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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.	--		
2201.0	Supply and fixing glazed vitreous china Wash Basin of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.	--		
a	White	EACH	25	.000052
A2203	Providing and fixing stainless steel kitchen sink of size 600x400x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	5	.0000147
2204A	Providing and fixing colour glazed vitreous china European type water closet of approved make conforming to IS:2556 390 mm high 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	13	.0000385
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	13	.0000339
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	25	.000092
A2207	Supply, laying and jointing Supreme B class stoneware pipe including bends, branches and all other necessary fittings, socket and spigot joint, M.S holder bats/clamps, cutting and making good the walls and floors, lead jointing, testing etc all complete for following. 45	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	110mm dia pipes	RM	50	.0000029
2212.0	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	10	.0000152
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	10	.0000086
b	150x100mm P or S Type.	EACH	10	.0000009
c	150x150mm P or S Type.	EACH	5	.0000049
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	30	.0000204
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	10	.0000066
2218.0	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	30	.0000243
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	50	.0000041
b	100 mm dia	RM	50	.0000083
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. 46	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2301.0	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, 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. 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).	MT	14,670	.250962
A2302	Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) as per SIS 05-5900 and applying 100 micron total DFT zinc silicate primer(two coats of 50 micron DFT each), including touch-up painting etc all complete.	MT	14,670	.0452308
A2305	Providing and applying two coats of high built epoxy based colour Finish paint of approved brand with minimum 90 micron Dry film thickness of each finish coat including protection and cleaning, scaffolding etc. all complete.	MT	14,655	.0401194

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2307.0	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	--		
a	Minimum galvanisation of 610 g/sqm	MT	100	.0057581
b	Minimum galvanisation of 900 g/sqm	MT	5	.000322
A2318	Providing and fixing in position PTFE type bearings (sliding type or POT type) of reputed manufacturer, individual bearing suitable for required loads & rotations as per the construction drawings and for maximum horizontal load of 15 Tons & displacement of + or - 220 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
a	25 Tons	EACH	15	.0001373
b	40 Tons	EACH	20	.0002065
c	50 Tons	EACH	20	.0002221
d	60 Tons	EACH	20	.0002377
e	100 Tons	EACH	6	.000076
f	200 Tons	EACH	130	.0022558
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.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1740R1 for Civil works-Super structure& architecture works, CHP & AHP SUPER STRUCTURE, Structural Steel Fabrication & Erection works

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

Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2402.0	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including 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 etc all complete.	CUM	500	.0002422
A2402	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using compulsorily excavated soil and compacted so as to achieve at least 98 % proctor dry density as per IS-2720 (Part-VII) including 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 etc all complete.	CUM	1,000	.0004843
B2402	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300 mm loose thickness with approved good quality murrum (murrum is a borrowed material to be arranged by the bidder) and compacted as specified including supplying murrum, 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.	--		
A	Each layer compacted so as to achieve at least 98 % proctor dry density as per IS-2720 (Part-VII)	CUM	12,900	.0073098
2403.0	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	5,500	.0031166
2412.0	Providing and applying liquid seal coat comprising of an application of a layer of bituminous binder using medium setting grade bitumen at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling etc all complete.	SQM	4,200	.0002586

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Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2414	Supply and laying 150mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	50	.000004
A2418	Providing and laying of plain cement concrete of grade M20 using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete	CUM	840	.0028846
2419.0	Providing and laying cement concrete of grade M30 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	3,225	.0131534
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	1,290	.004672
A2422	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	14,700	.0003862
2421.0	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	10	.000285
2600.0	LEVELING & GRADING: Levelling & grading works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge.	--		
2601.0	Cutting of trees having girth more than 300 mm measured at a height of 1m above ground level including removal of roots, stacking the seviceable material like trunks,branches etc at specified area within the plant boundary and disposal of unseviceable parts/materials wwithin a lead upto 1km etc all complete.	--		
a	300 mm upto 600 mm girth.	Nos	38	.0000085
b	601 mm upto 1200 mm girth.	Nos	25	.0000249

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Ref.No.	Description	Unit	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2601	Clearing jungle including uprooting of rank vegetation, grass, brushwood, trees and saplings of girth upto 30 cm measured at a height of 1m above ground level and removal of rubbish upto a distance of 50 m outside the periphery of the area cleared.	SQM	7,500	.0008344
2603.0	Earth work in excavation upto any depth below ground level in all types of soil including moorum, ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	50	.0000029
2610.0	Extra over ST No. 2601 to 2609 for carriage of unserviceable material/earth for every 500m or part thereof beyond an initial lead of 1km.	--		
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	75	.0000006
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	75	.0000006
TOTAL Weightage				1.0