

TENDER SPECIFICATION
BHEL: PSSR: SCT: 1915

FOR

Civil, structural & Architectural
works of FLUE GAS
DESULPHURISATION PLANTS (FGD)
in existing 2 x 500 MW Tuticorin
Thermal power station at Tuticorin,
Tamilnadu, India for NLC
TAMILNADU POWER LIMITED (NTPL)
VOLUME-II

PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

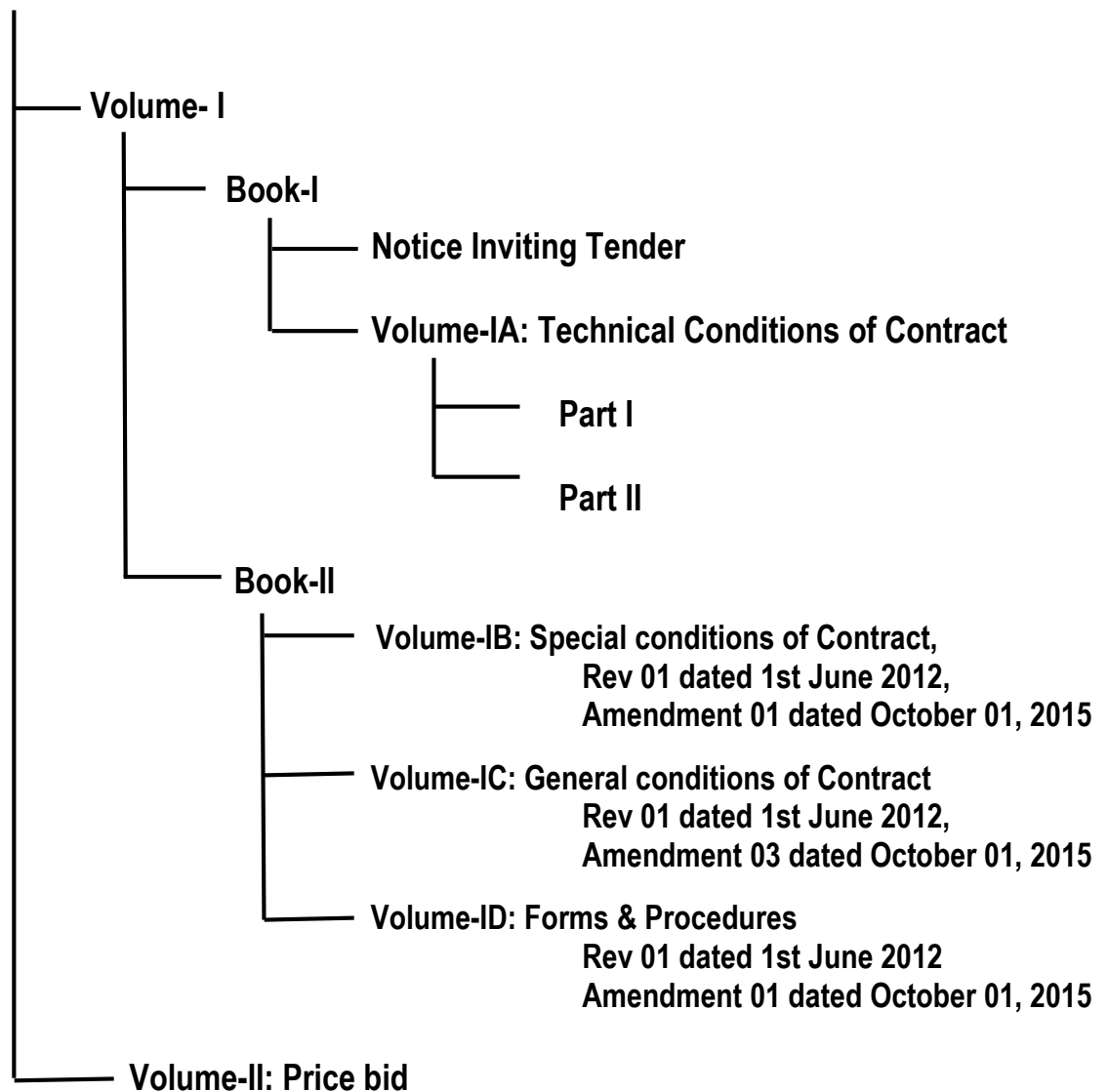
Power Sector – Southern Region

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

PRICE BID

TENDER SPECIFICATION CONSISTS OF

Techno-Commercial Bid



PRICE BID

CONTENTS	
Description	No. of pages
Part A: Instructions to the Bidders	1
Part B: Format	1
Part C: Bill of quantities with weightage for amount of each items w.r.t. the total quoted price	113

PRICE BID

PART-A-INSTRUCTIONS TO BIDDERS:

1. The Price bid contains the consolidated list of BOQ with brief description of items. The quantity indicated in the BOQ / Price bid is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
2. Before filling the Rates in the Price bid, the bidder shall go through the detailed specification of all items of BOQ as well as Scope of Work as specified in relevant Clause of this document
3. Bidders shall quote 'Total Amount' in the format for Price Bid available in the e procurement portal.
Any other entry elsewhere in the price bid shall be treated as Null and Void.
4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid.
5. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C.
6. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
7. Based on the quantities of individual item and the amount arrived in SI No: 6 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
8. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per SI No.7 above.

Part B: Format	
Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works at NTPL Tuticorin (2X500MW) FGD	
Total Amount for the entire Bill of Quantities(BOQ) given in Part C	Quoted
	Unquoted

Date

SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
100.0	EARTH WORK	--		
--	Earth work: Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following:	--		
101.0	Earthwork 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), 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	70,911.977	.0082548
b	Depth exceeding 2 m but not exceeding 4 m	CUM	9,940	.0014464
c	Depth exceeding 4 m but not exceeding 6 m	CUM	3,132	.0005689
d	Depth exceeding 6 m but not exceeding 8 m	CUM	100	.0000227
e	Depth exceeding 8 m but not exceeding 10 m	CUM	100	.0000272
f	Depth exceeding 10 m but not exceeding 15 m	CUM	10	.0000031
102.0	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759. Measurement shall taken for quantity of earthwork executed in excavation below ground water level. Ground water level is to be recorded jointly at site.	CUM	56,469.199	.0198606

Part C : Bill of Quantities

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at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
103.0	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required except special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	10	.0000013
b	Depth exceeding 2 m but not exceeding 4 m	CUM	100	.0000161
c	Depth exceeding 4 m but not exceeding 6 m	CUM	100	.0000194
d	Depth exceeding 6 m but not exceeding 8 m	CUM	10	.0000023
e	Depth exceeding 8 m but not exceeding 10 m	CUM	10	.0000027
f	Depth exceeding 10 m but not exceeding 15 m	CUM	10	.0000029
A103	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required except special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading / levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	1,700	.0002286

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	Depth exceeding 2 m but not exceeding 4 m	CUM	222	.0000358
c	Depth exceeding 4 m but not exceeding 6 m	CUM	100	.0000194
d	Depth exceeding 6 m but not exceeding 8 m	CUM	100	.0000232
e	Depth exceeding 8 m but not exceeding 10 m	CUM	100	.0000267
104.0	Earth work in excavation upto any depth below ground level in hard rock requiring blasting (but excluding controlled blasting) including drilling of holes etc. as required for grading, setting out, levelling, dewatering (wherever required except special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	--		
a	Depth from ground level but not exceeding 2 m	CUM	170	.0000544
b	Depth exceeding 2 m but not exceeding 4 m	CUM	10	.0000038
105.0	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required excluding special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	680	.0002225
b	Depth exceeding 2 m but not exceeding 4 m	CUM	10	.0000039

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
106.0	Earth work in excavation upto any depth below ground level in hard rock requiring chiselling as required for grading, setting out, levelling, dewatering (wherever required excluding special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	--		
a	Depth from ground level but not exceeding 2 m	CUM	10	.0000185
b	Depth exceeding 2 m but not exceeding 4 m	CUM	10	.0000222
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 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	21,050	.0017533
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	100	.0000092
A107	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 in loose thickness using/with selected materials from compulsorily excavated earth 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	6,380	.0005314
Ac	Each layer compacted so as to achieve at least 75% relative density as per IS-2720 part XIV in case of sandy soils.	CUM	10	.0000008

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at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA107	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 300 mm in loose thickness using/with selected materials from compulsorily excavated earth 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	20,938	.001723
B107	Earthwork in backfilling upto any depth below ground level for grading to proper grade and level in layers of thickness and procedure as decided at site by Engineer-incharge but not exceeding 500mm loose thickness of each layer so as to achieve required compaction with available hard rock boulders and fine material (i.e soil, soft rock or mix of both) from available stacked excavated material within a lead upto 2Km and compacted as specified including re-excavation of stacked material, watering, ramming/compaction by manual/mechanical means, dressing etc all complete in following manner. Backfilling with hard rock boulder pieces having size less than 150mm and interstices filled with available stacked soil, soft rock (or both soil & soft rock mix) as fine material and shall be compacted to minimum of 85% of original stack of material after filling the interstices. The item includes for breaking of oversized rock into pieces less than 150mm size by manual or mechanical means including manual picking. (Compacted filled volume shall be measured for payment.)	CUM	10	.0000026

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
BB107	Earthwork in backfilling upto any depth below ground level for grading to proper grade and level in layers of thickness and procedure as decided at site by Engineer-incharge but not exceeding 500mm loose thickness of each layer with available excavated hard rock boulders within a lead upto 2Km, interstices filled with borrowed earth and compacted as specified below including re-excavation of hard rock boulders if required, watering, ramming/compaction by manual/mechanical means, dressing etc all complete in following manner. Backfilling with hard rock boulder pieces having size less than 150mm and interstices filled with approved borrowed earth (soil, sand, moorum, soft/ weathered rock etc) as fine materials (borrowed earth to be arranged by the bidder for all lead & lifts) for filling and shall be compacted to minimum of 85% of original stack of material after filling the interstices. The item includes for breaking of oversized rock into pieces less than 150mm size by manual or mechanical means including manual picking. Required borrowed earth for filling interstices are to be arranged by the bidder and the cost of the same including royalty/seignorage fee etc (if any) is included in this item rate. (Compacted backfilled volume shall be measured for payment).	CUM	10	.0000043
108.0	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.	--		
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	2,746.188	.0000854
A108	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 250mm thickness using/with selected materials earth 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:	--		

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	1,020	.0000287
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	20	.0000006
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	6,100	.0000612
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	5,000	.0000502
A109	Extra over ST No. 101 and 103 to AA107 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.	CUM	114,510	.0011491
AA109	Extra over ST No. 101 and 103 to 107 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	1,830.792	.0000367
110.0	Earthwork 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	10	.0000055

Part C : Bill of Quantities

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at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B110	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc. to proper grade and level in layers not exceeding 250mm compacted thickness so as to achieve required compaction with approved excavated material from the area within plant boundary and compacted as specified, dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing etc all complete as per specification, drawing and as directed by the engineer for the following. (Item includes for excavation work in soil and soft rock (i.e., excluding hard rock) for making available approved excavated material (required for back filling) from area identified within plant boundary as per direction of engineer - in - charge for all lead and lifts). Compacted backfilled volume shall be measured for payment.	--		
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	100	.0000168
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	1,556.96	.0037749
A111	Supplying and filling sand upto any depth under floors, around foundations, plinths, paving, passages, etc. in layers not exceeding 250 mm in loose thickness and compacted so as to achieve at least 75% 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	110	.000264
AA111	Supplying and filling sand upto any depth under floors, around foundations, plinths, surrounding pipe and in pipe beds etc. in layers not exceeding 300 mm thickness and compacted so as to achieve at least 75% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	100	.0002376

Part C : Bill of Quantities

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at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A112	Supplying and filling clean and well graded sand (conforming to IS 383 with grading zone I to III, as applicable) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 200 mm thickness and compacted so as to achieve at least 85% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	2,882	.0076873
A114	Earth work in stripping of top soil upto a minimum depth of 0.30 m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	15,790	.0006021
200.0	CONCRETE WORKS	--		
--	CONCRETE WORK: Providing and placing concrete in 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 (as applicable) like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following: Cement shall be supplied by BHEL free of cost for incorporation in permanent work.	--		
201.0	Concrete of grade M7.5 (1 part cement, 4 part fine aggregate, 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	146.948	.0005955
202.0	Concrete of grade M10 (1 part cement, 3 part fine aggregate, 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	3,356	.0135993
203.0	Concrete of grade M15 (1 part cement, 2 part fine aggregate, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	194	.0007861

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A203	Concrete of grade M15 (1 part cement, 2 part fine aggregate, 4 parts of 40 mm graded aggregate by volume) with minimum cement content of 240 kg/m ³ as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	200	.0008104
AA203	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 20 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	20	.0000851
204.0	Concrete of grade M20 (1 part cement, 1.5 part fine aggregate, 3 parts of 12 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete.	CUM	155	.0006147
A204	Concrete of grade M20 under floors, paving, plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades.	CUM	11.04	.000047
205.0	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with fine aggregate and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.	--		
a	M25 Grade	CUM	742.264	.0031516
b	M30 Grade	CUM	10	.0000426
c	M 35 Grade	CUM	6,300	.0269768

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with minimum cement content of 400 kg/m ³ , fine aggregate 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 35 Grade	CUM	15,445	.066136
206.0	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with fine aggregate and graded hard stone aggregate of 20mm nominal size in superstructure at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.	--		
a	M25 Grade	CUM	85.856	.0003616
b	M30 Grade	CUM	10	.0000423
c	M 35 Grade	CUM	1,150	.0048851
A206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with minimum cement content of 400 kg/m ³ , fine aggregate 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 35 Grade	CUM	4,230	.0179687

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in machine foundations for Booster fans, Ball mills, etc. with minimum cement content of 400 kg/m ³ at all elevations below/above finished floor level with addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing	--		
a	M 35 Grade	CUM	2,906	.013021
208.0	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system) and top deck of TG foundation at all levels including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preperation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. This item is applicable for crusher deck and its column also. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.	--		
b	M 35 Grade	CUM	150	.0008996

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A209	Extra over St. No. A207 & 208 for controlling of temperature of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	2,666	.0024988
A210	Extra over ST Nos. A207 & 208 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	2,666	.000923
211.0	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)	--		
a	M 20	CUM	25	.0001013
A211	Providing and encasing of structural steel member with concrete with minimum cement content of 400 kg/m3 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. (Payment of welded wire mesh, chicken wire mesh shall be made separately)	--		
a	M35 grade	CUM	290	.0011751
212.0	Screed concrete conforming to IS 456 with fine aggregate and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at all level or thickness, drains etc complete as per following.	--		
a	01:02:04 (1 part cement, 2 part sand, 4 parts of aggregate by volume) (M15)	CUM	25	.0001013
b	1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume) (M20)	CUM	70	.0002837

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A212	Screed concrete conforming to IS 456 with fine aggregate and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc mixed with polypropylene fibres (RECRON or equivalent) and admixed with integral liquid waterproofing compound conforming to IS: 2645. Green stage saw cutting on the screed will be done in panels (3mx4m) with grooves 10mmx10mm. Finally the groove will be sealed with suitable elastomeric sealant. Item includes surface preparation, polyscrim cloth /fabric, polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge complete as per following.	--		
a	1:2:4 (1 part cement, 2 part fine aggregate, 4 parts of aggregate by volume) (M15)	CUM	40	.0001699
b	1:1.5:3 (1 part cement, 1.5 part fine aggregate, 3 parts of aggregate by volume) (M20)	CUM	83	.0003526
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	M 25 grade	CUM	187.976	.0012954

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works with minimum cement content of 400 kg/m ³ 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	M 35 grade	CUM	256	.0017742
AA213	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 M35 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	M35	CUM	20	.0001389

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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 relevent BIS code and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required.	--		
a	M35	CUM	230	.0012254
b	M30	CUM	5	.0000266
A214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works with minimum cement content of 400 kg/m3 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 relevent BIS code and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required.	--		
a	M 35 grade	CUM	225	.0011987
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	170	.0001568
b	Reinforced cement concrete of all grades	CUM	815	.0011696

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	72	.0000051
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	31	.0000002
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	26	.0000052
219.0	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	155	.0000196
221.0	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with fine aggregate and graded hard stone aggregate of 20mm nominal size in sloped surface of canal lining or channel cast in alternate panels with provision of expansion gap/construction joints 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, compaction with special equipments, etc all complete as per specification & drawing for the following.	--		
a	M20 Grade	CUM	5	.0000237
b	M25 Grade	CUM		
222.0	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	10	.0000007

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
223.0	Cutting of existing concrete/ RCC slab (total thickness upto 250mm including floor finish & deck sheet if any) inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make or equivalent) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at all level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	1,910	.0046653
300.0	FORM WORKS	--		
--	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	35,120.711	.0205123
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	22,700.064	.0160827

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
303.0	Fairface Formwork with good quality water proof ply wood of minimum 18mm thickness and smooth surface for TG superstructure (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights complete including chamfering of edges, deshuttering as per drawing,specification, and instruction of engineer in charge. This item is applicable for CRUSHER super structure (above base raft level) also.	SQM	550	.0021614
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	135	.0000309
b	Pockets of depths more than 150mm and upto 300 mm depth	EACH	131	.0000506
c	Pockets of depths more than 300mm and upto 600 mm depth	EACH	141	.0000975
d	Pockets of depths more than 600mm and upto 1000 mm depth	EACH	310	.0003369
e	Pockets of depths more than 1000mm and upto 1500 mm depth	EACH	30	.0000471
f	Pockets of depths more than 1500mm and upto 2000 mm depth	EACH	350	.0007253
305.0	Extra over item no.301 and 302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.	--		
a	Extra for Curve Shuttering for Item No. 301	SQM	551	.0000641
b	Extra for Curve Shuttering for Item No. 302	SQM	101	.0000143
400.0	REINFORCEMENT	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	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 for the following:.	--		
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	8	.0004493
402.0	Providing, straightening, cutting, bending, placing in position at any level, binding in position of corrosion resistant steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. Steel reinforcements shall be high yield strength deformed TMT steel bars of grade Fe-500 (CRS) corrosion resistant steel conforming to IS:1786. Payment terms - Supply - 75% Cutting, bending & fixing - 25%	MT	70.972	.0043769
A402	Transportation from BHEL store, straightening, cutting, bending, placing in position at all level, binding in position of Corrosion Resistant 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. Reinforcement steel shall be supplied by BHEL free of cost for incorporation in permanent works.	MT	1,949	.0275288
A403	Transportation from BHEL store, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of high yield strength deformed TMT steel bars of grade Fe-500 (CRS) corrosion resistant steel conforming 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. (BHEL to supply steel free of cost)	MT	2,881	.0406929

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA403	Transportation, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements (Corrosion Resistant) of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(BHEL to supply steel free of cost)	MT	130	.0018362
405.0	Providing & fixing of Rebar in existing concrete surface by inserting reinforcemnet 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 beconducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.	--		
a	12mm Reinforcement bar	EACH	32	.0000126
b	16mm Reinforcement bar	EACH	32	.0000198
c	20mm Reinforcement bar	EACH	32	.0000277
406.0	Supply and fixing reinforcement bar couplers (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).	--		
a	12mm dia	Nos.	25	.0000015
b	16mm dia	Nos.	25	.0000022

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c	20mm dia	Nos.	25	.0000028
d	25mm dia	Nos.	25	.0000037
e	28mm dia	Nos.	25	.0000056
f	32mm dia	Nos.	25	.000007
500.0	WATER PROOOOFING WORKS	--		
--	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 for the following: Cement shall be provided by BHEL free of cost.	--		
501.0	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	2,250	.0003319
A502	Providing and laying topping plaster with cement mortar 1:4 (1 cement : 4 sand) and thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	1,600	.0002408
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.	--		
a	Average 50 mm thickness of foam concrete	SQM	100	.0000121

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A503	Providing and applying bitumen felt water proofing for normal 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 one layer of felt consisting of five courses and with a minimum overlap of 75 to 100 mm of felt including preparation of surfaces etc all complete. (For description of layers refer specification)	--		
a	With hessian base felt	SQM	600	.0003879
504.0	Providing and laying rigid insulation (expanded polystyrene blocks) as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:4 (1 cement: 4 plastering grade sand) and providing of expansion joint at intervals and filling with sealant in both directions as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.026 Kcal m/m deg C.The block shall be strong enough to withstand without deformation the workload and standard loads expected on the roof. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following. (Note: If expanded polystyrene blocks are not available in the market, the contractor may use extruded polystyrene blocks obtaining necessary approval from BHEL Engineer In- Charge).	--		
a	25 mm thickness of rigid insulation (expanded polystyrene blocks)	SQM	100	.0000225
506.0	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric, polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge.	SQM	50	.0000399

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane of minimum 1.5mm thickness subject to minimum 750 gm/sqm/coat application rate with $\geq 500\%$ elongation applied by a spray/brush/roller. Item includes surface preparation, polyscrim cloth /fabric, polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge.	SQM	3,600	.0028721
AA506	Roof Waterproofing: Compressed air cleaning has to be done so as to make the surface free of dust, debris, laitance etc. Repairing cracks by cutting and making V-groove in 25x25 mm, with polymer modified mortar, filling the groove with Cement Mortar (1:3) mixed with polymer 10% by weight of cement. Top of thoroughly cleaned roof surface shall have a minimum 1.5mm thick sealer coat, which is a single component cold applied elastomeric waterproofing coating with $\geq 500\%$ elongation confirming to ASTM C836 applied by a spray/brush/roller in 2 coats. Water ponding/flood test is to be conducted after application. Water shall be filled up and retained for at least 24 to 48 hours. Loosely laid 120-150 GSM geotextile (non-woven polyester) shall be provided over the Elastomeric coating. Laying protective slope (1:100) with 75mm average thick (thickness will depend upon the required slope and span of the building) M20 grade screed mixed with polypropylene fibres (RECRON or equivalent) and admixed with integral liquid waterproofing compound conforming to IS: 2645. Green stage saw cutting on the screed will be done in panels (3mx4m) with grooves 10mmx10mm. Finally the groove will be sealed with suitable elastomeric sealant. Finally top shall be finished with pressed clay tiles of size 230x230x18 mm laid in waterproofing compound mixed cement mortar (1:3) and sealing of joints using sealing compound.	SQM	300	.0005599

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
507.0	Providing and laying wearing course consisting of 25mm 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	50	.0000215
A507	Providing and laying wearing course consisting of 25mm thick plain cement concrete of grade M20 (1:1.5:3) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m 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	3,600	.0015498
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 required for tile making).	SQM	1,650	.0011044
A510	Providing and laying pressed clay tile of 18 mm thickness and size 230x230 mm laid in waterproofing compound with 8 mm thick 1:3 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 filled up with (silicon/elastomeric) joint sealant, underbed (as per drawings) etc all complete. (Water proofing paid elsewhere) (excluding the cost of under bed grading plaster)	SQM	1,900	.0013023
AA510	Providing and laying cement concrete chequered flooring tiles of 20 mm thickness and size 600x600 mm conforming to IS 13801 over the under bed grading plaster with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions filled up with (silicon/elastomeric) joint sealant, including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete as per specification. (Water proofing paid elsewhere), (excluding the cost of under bed grading plaster) (including cost of cement required for tile making).	SQM	100	.0000803

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
511.0	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	6,100	.0007897
A511	Providing and applying three 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	10,860	.0021088
AA511	Providing and applying bitumen emulsion protective coating of approved manufacturer applied with two coats of Hot bituminous painting of grade 20/30 over a coat of Bitumen Primer in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	8,419	.0013433
A512	Providing and fixing waterproofing treatment to be provided in Walls/base of Structures/slab/foundation as outlined and as per sequence given here under : i) the concrete surface shall be made smooth with 12 mm cement plaster 1:6 ii) apply hot bitumen 80/100 grade (IS:73-1961) at the rate of 1.0 Kg/Sq.m minimum iii) lay black polyethylene film 250 micron (IS:2508-1977) with cut back bitumen adhesive in overlaps over hot bitumen surface, gently pressed, taking care not to puncture the film. The above mentioned items shall includes surface preparation, dressing etc. all complete as per specification.	SQM	1,300	.0004631
513.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	235	.0000196

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A513	Providing and fixing waterproofing treatment to be provided on sunken portion of all vertical and horizontal surfaces of depressed portions of false floor, toilets, W.C., kitchen, Pantry and the like consisting of : (i) Ist course of applying cement slurry @ 4.4 kg/sq.m mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface. (ii) IInd course of 20 mm cement plaster 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface. (iii) IIIrd course of applying blown or residual bitumen applied hot at 1.7 kg. per sq.m of area. (iv) IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sq.m) etc. all complete.	sqm	30	.0000149
514.0	Providing and applying concrete structures two coats of ERPB (Epoxy rasin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with 300 to 325 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine enviornment all complete of approved make and as per manufacturer's recommendation	SQM	10	.0000016
515.0	Providing and applying IP net coating system(min 200 micron thickness) to exposed concrete surfaces of approved make and as per manufacturer's recommendation.	SQM	5	.0000014
516.0	Providing and applying epoxy coaltar based coating system, moisture compatible(min 300 micron thickness) to below ground concrete surfaces of approved make and as per manufacturer's recommendation.	SQM	5	.0000011
A521	Providing and placing approved quality of 120-150 GSM geotextile (non-woven polyester) over elastomeric coating (cost of elastomeric coating shall not be included in this item) on the roof as well as on the sides to prevent seepage including joining with approved method including testing, necessary cleaning/surface preparation, fixing at the edges in plain as shown in the drawing etc all complete as per specification and as directed by the engineer-in-charge.	SQM	2,200	.0001705

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A522	Providing and fixing waterproofing treatment to be provided on sunken portion of all vertical and horizontal surfaces of depressed portions of false floor, toilets, W.C., kitchen, Pantry and the like consisting of : (i) Ist course of applying cement slurry @ 4.4 kg/sq.m mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface. (ii) IInd course of 20 mm cement plaster 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface. (iii) IIIrd course of applying blown or residual bitumen applied hot at 1.7 kg. per sq.m of area. (iv) IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sq.m) etc. all complete.	SQM	50	.0000248
A523	Providing and applying an angular fillet 50mm x 50mm trowel applied in cement-sand mortar 1:3 mortar (cement:sand) in all around on the roof at the parapet wall junction. A latex based bonding agent should be added (10% by weight of cement) and also a glass cloth must be inserted around the junctions while the angle fillet is being constructed. including necessary cleaning/surface preparation, fixing at the edges in plain, as shown in the drawing etc all complete as per specification and as directed by the engineer-in-charge.	RM	300	.0000786
A524	Providing and applying 2 coats of a high performance elastomeric coating, composed of acrylic emulsion polymers having anti-carbonation properties, UV resistant and DFT of 110 microns, conforming to ASTM-D412-02, D1202-97, D 4587, D 4645, BS-EN 12390 over the surface of parapet. Including surface preparation, minor cleaning works, removal of loose concrete, laitance, dust particles, etc. and filling cracks with polymer modified mortar using latex based bonding agent. Removal of algae if present is to be done. Item includes water based acrylic primer over the entire surface of the parapet walls (2 part primer : 1 part water) etc. as per specification and as directed by the engineer-in-charge.	SQM	250	.0000539

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A525	Providing and laying polyurethane foam insulation spray applied an average 40 mm thick two component Hydro flouro-carbon(CFC free), polymeric M.D.I based closed cell(96-98% as per ASTM D2856) multilayer, waterproof, mixed in a ratio of 1:1 by volume with a nominal core density of 45-50 Kg/m3 as per ASTM D1622 , and a thermal conductivity of 0.023 W/m.k at 25 degree mean temperature as per ASTM C518/91 possessing waterproofing properties as per ASTM C-518/91 ,ASTM C-272 and complying to Fire resistance Class B2 as per DIN 4102 including Compressed air cleaning to make the RCC surface free of dust, debris, laitance etc. and repairing cracks by cutting and making V-groove in 25x25 mm, with polymer modified mortar, filling the groove with Cement Mortar (1:3) mixed with polymer10% by weight of cement etc all complete as per specification.The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane. The testing of material shall be done from authorised lab same shall be furnished before execution of work,as directed by engineer in charge.Performance Guarantee should be given by the manufacturer after completion of the water proofing work for 20 years for material and workmanship.	SQM	50	.0000727
--	600 JOINTS AND FILLERS	--		
--	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 for the following:	--		
601.0	Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.	--		
a	12 mm wide joints.	SQM	45	.0000208
b	20 mm wide joints.	SQM	45	.0000318
c	25 mm wide joints	SQM	649	.0005588
d	50 mm wide joints	SQM	697	.0011331

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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.	--		
a	12 mm wide joints.	SQM	5	.0000028
b	20 mm wide joints.	SQM	5	.0000044
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	125	.0000053
b	50mmX25mm	RM	2,555	.0001308
604.0	Supplying and filling in position hot applied bitumin sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		
a	10mm X 40mm	RM	2,037	.0000961
b	12mm X 25mm	RM	50	.0000021
c	20mmX25mm	RM	2,629	.0001346
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.	--		
a	12 mm wide joints.	SQM	20	.0000007
b	20 mm wide joints.	SQM	20	.0000011
c	25 mm wide joints	SQM	20	.0000014

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
d	50 mm wide joints	SQM	20	.0000028
Ae	100 mm wide joints with polystyrene board of type-1 conforming to IS: 4671 with density 20 Kg/cum	SQM	812	.0002265
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	100	.0000069
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	70	.000006
608.0	Supplying and filling in position hot applied bitumin sealing compund (Grade B) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		
a	10mm X 40mm	RM	20	.0000013
b	12mm X 25mm	RM	20	.0000011
c	20mmX25mm	RM	20	.0000014
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;	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	25mmX25mm	RM	20	.0000106
b	50mmX25mm	RM	20	.00002
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)	--		
a	150 mm wide and 8 mm thick	RM	100	.0000309
b	230 mm wide and 8 mm thick	RM	125	.0000413
d	230 mm wide and 6 mm thick	RM	560	.0001191
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	15	.0000087
b	50mmX25mm	RM	15	.0000165
613.0	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	25	.0000026
614.0	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	25	.0000063
615.0	Providing and fixing 300 mm wide Stainless steel strips over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	40	.0000136
700.0	MS EMBEDMENTS	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	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 for the following:	--		
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. Payment: Supply 70%, fixing 30%	MT	131.871	.009425
A701	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, manual Cleaning and providing with Primer Coat of Chlorinated Rubber based Zinc Phosphate Primer of Minimum 50 Micron Dry Film Thickness (DFT). etc. all complete. Payment - supply 70%, fixing 30%	MT	46	.0036015
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. Payment: supply 70%, fixing 30%	MT	37	.0033664
A702	Extra above over item ST no 702 for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer .	MT	2	.0000331
A703	Same as above items 701, A701 & 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	15	.0004039

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	10	.0002784
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	115	.0000093
b	PVC pipes / conduits of all diameters	Kg	150	.0000527
c	UPVC pipes / conduits of all diameters	Kg	200	.0000739
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	EACH	4	.0000003
ii	10mm Dia	EACH	4	.0000003
iii	12mm Dia	EACH	4	.0000003
iv	14mm Dia	EACH	4	.0000004
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:	--		
i	HST M8	EACH	4	.0000006
ii	HST M10	EACH	4	.0000009
iii	HST M12	EACH	29	.0000102

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
iv	HST M16	EACH	29	.0000177
v	HST M20	EACH	29	.000037
vi	HST M24	EACH	29	.0000468
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	EACH	4	.0000014
ii	HAS-E5.8 M10	EACH	4	.0000016
iii	HAS-E5.8 M12	EACH	29	.0000141
iv	HAS-E5.8 M16	EACH	29	.000023
v	HAS-E5.8 M20	EACH	29	.0000354
vi	HAS-E5.8 M24	EACH	29	.0000466
705.0	Placing, locking and releasing of Vibration Isolation spring modules over the foundation at all elevations including providing all assistance under the supervision of the supplier, transportation from BHEL store, necessary staging, platforms, leveling, alignment etc. all complete.	Nos	24	.0000433
706.0	Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	25	.0000394
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. Payment: supply 70%, fixing 30%	MT	11	.0007453
800.0	GROUTING	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	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 for the following:	--		
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	17	.0000107
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	3	.0000618
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	24	.0004953
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	28	.0013271
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	47	.0028096

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	5	.000009
807.0	Providing on the outer surface of walls, frames, rafts and roof slabs coming in contact with earth, Polymer modified cementitious coating in two layers as specified and as per manufacturers specifications shall be provided directly on the concrete surface : 50 mm thick P. C. C. (1 : 2 : 4 with 10 mm nominal size stone aggregates) shall be provided under the raft i.e. over the lean concrete, followed by polymer modified cementitious coating in two layers (slurry mix application) as per manufacturers specification. 50 mm thick P. C. C. (1 : 2 : 4) with 10 mm nominal size stone aggregates shall then be laid over the polymer modified cementitious coating before laying the raft.	SQM	25	.0000141
808.0	Providing Chemical Injection Grouting with Minimum, 12 mm dia (NB) threaded nozzle of suitable length over the surface and along the construction joint line in a grid pattern at a spacing not exceeding 1.5m c/c before concreting operation After the nozzles are fully set, neat cement slurry admixed with water soluble non-shrink polymer / monomer based chemical shall be injected through the net - work of nozzles with low pressure grout pumps at a pressure of about 2.0 Kg/Sqcm. Cement slurry shall be prepared by mixing cement with non-shrink polymer/monomer @ 500 gm/50 kg bag of cement and water, ensuring that Water: Cement ratio does not exceed 2 (by weight). Wetter the structure, lesser should be the water cement ratio. The property of the polymer/monomer should be such that when it is mixed with water @ 0.5% by weight of water, the viscosity of the resultant solution (water and polymer/monomer) should not be more than 1.2 centipoises. Plasticizing agent shall be added wherever required. The grouting shall be started at very low pressure and increased gradually to a required pressure. The grouting shall continue, till the hole refuses to take any further grout, even at an increased pressure. Applied pressure shall not be more than the designed strength of the concrete. After completion of grouting operation, the nozzles shall be sealed properly to the satisfaction of the Engineer	SQM	125	.0004506
900.0	DOORS, WINDOWS, VENTILATORS, LOUVERS	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	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 for the following:	--		
901.0	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned CP teakwood free from large or loose knots, cracks or other defects including sand paper smoothening, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (Finish painting / polishing paid separately) Payment: supply 70% , fixing 30%	CUM	2	.0002724
902.0	Providing and fixing teak wood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preperation of working drawings,godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately) Payment: supply 70%, fixing 30%	SQM	25	.0000882

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A903	Providing and fixing factory made Solid core wooden flush doors as per IS 2202 part-I & II, 35mm thick homogenous particle board bonded with BWR grade phenolformaldehyde synthetic resin conforming to IS 848, partical board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish synthetic paint over primer, screws,with commercial faces and teak wood edges.etc. all complete as per drawing, specification and instruction of engineer in charge. (Finish painting / polishing paid separately) Payment: supply 70%, payment 30%	SQM	15	.0000388
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. Payment: supply 70%, fixing 30%	SQM	45	.0002205
A904	Providing and fixing single or double steel door shutters with 46mm thk flush design shutter comprising of two outer sheets of 0.8 mm thick (22 gauge) galvanized steel sheets rigidly connected and reinforced inside with continuous vertical stiffeners, spot welded in position at not more than 150mm on centres including void filled with resin bonded honey comb core, all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete as per specification and as per direction of engineer-in-charge. Side , top and bottom edges of shutters shall be reinforced by continuous pressed steel channel with minimum 18G. Payment: supply 70%, fixing 30%	SQM	40	.000196

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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 doors, frames, mullions, transom etc. shall be anodized in a bath of sulphuric acid to provide a clear coating of minimum 0.6 mm thickness. The anodized materials shall then be sealed by immersing in boiling water for 15 minutes. A protective transparent coating shall be applied to the sections before shipment from the factory. Where required factory made evenly baked powder coated coloured aluminium extruded sections shall be used. DFT shall not be less than 0.8 mils. Colour shall be as per Colour Schedule or as per instruction of the Engineer-in-Charge 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 8mm 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 and frame shall be paid separately) Payment: supply 70% , fixing 30%	KG	420	.0002103
A906	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL/INDAL or equivalent make having minimum 2mm 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/toughened 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) Payment: supply 70%, fixing 30%	KG	40	.0000167

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A907	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be minimum 50 mm thk flush design comprising of two outer sheets of 18 gauge galvanized 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 void filled with resin bonded honey comb core, all fittings, vision panel of minimum 6 mm clear borosilicate fire rated glass, shop painting with approved post office/signal red color fire resistant paint all complete as per specification and as per direction of engineer-in-charge. Fire proofing shall be as per IS:3614, TAC requirements and as per specification. Minimum ratings including glass shall be 2 Hrs. Payment: supply 70%, fixing 30%	SQM	60	.0004717

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA907	Providing and fixing fire rated hollow metal steel doors (single or double shutter) as per IS 3614 Part-2 of pressed galvanised steel conforming to IS 277 with Door shutters of minimum 46 mm thick consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide,fully flush double skin door with or without vision panel, suitably mounting on door frame (143X57 mm). Door frame shall be manufactured from minimum1.6 mm (14 gauge) thick SWG G.I. sheet (zinc coating not less than 120gm/sqm) duly filled FR insulation material. The frame is fitted with intumescent fire seal strip of size 10 x 4 mm (minimum) all-round the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer. Frames shall be metered and field assembled with self tabs.The internal construction of the door should be rigid reinforcement pads for receiving appropriate hardware. All doors shall be factory prepared for receiving appropriate all fire rated hardware and provided with necessary reinforcement,stainless steel ball bearing hinges, locks and door closers,panic bar ,panic trim, vision panel with fire rated glass. For pair of doors astragals shall be provided on the meeting stile for both active and inactive leaf. The door leaf and frame shall have passed minimum 250hours of salt spray test and shall be finished with etched primer coating, stove zinc phosphate primer and thermosetting polyurethane aliphatic grade paint of approved colour including spot welded in position at not more than 150mm on centers including all fittings, shop painting, filled with resin bonded honeycomb core as infill material all complete as approved by Engineer-in-Charge, shall be fire proof as per specification and NBC requirements etc. The door shall be tested at CBRI or ARAI for maximum rating of 2 hrs with vision panel and its Fabrication drawing shall also be approved by CBRI, Roorkee. Payment: supply 70%, fixing 30%	SQM	20	.0001887
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) Payment: supply 70%, fixing 30%	--		
a	Openable type	SQM	520	.0009028

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	fixed type	SQM	245	.0002783
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 preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment: supply 70%, fixing 30%	Kg	150	.000067

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A909	Providing and fixing anodised aluminium work of INDAL, Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections (of minimum 3mm wall thickness) including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measured. Payment: supply 70%, fixing 30%	Kg	7,772	.0034707
A910	Providing and fixing of aluminium composite panel(ACP) 4mm Thickness (aluminium skin 0.5mm & Tensile strength 120N/mm2 minimum), Density of PE core 920 to 980 Kg/m3 (Non toxic grade Polyethylene) with PVDF Adhesive film Coating (DUPONT, USA Coating thickness (front foil) 24micron to 30micron in PVDF including primer.15micron to 18micron in polyester coating. Coating thickness (back foil) 4micron to 7micron polyester coating and of approved shade ,color etc all complete as per specification. Payment: supply 70%, fixing 30%	SQM	100	.0003236
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	20	.000029
b	Floor mounted Hydraulic door closers as per IS 6315	EACH	20	.0000492

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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. Payment: supply 70%, fixing 30%	Kg	500	.0000687
A912	Providing and fixing pressed steel frames fabricated from 18 gauge galvanized 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. Payment: supply 70%, fixing 30%	Kg	1,183	.0001626
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) all complete as per specification and as per direction of engineer-in-charge. Payment: supply 70%, fixing 30%	--		
b	Mechanically Operated	SQM	30	.0000838
c	Electrically operated	SQM	146	.0004385

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A914	Providing and fixing solid core PVC frame with PVC door shutter minimum 30mm thick and shall be factory fabricated made from min. 5 mm PVC sheet.PVC Door Frames shall be made from min. 50 x 47 mm section and fabricated from 5 mm PVC sheet having density of 600 kg./cum.The weight per running metre of the door frame including reinforcement should be a minium of 1.5 kg./sqm. Frames shall have smooth surface, without any warping or bending in any member. All the parts of the door frame are to be jointed to each other using solvent adhesive conforming to IS 14182.The sheets used for frame and shutters may be in plain colour, printed design or prelam veneer shade as approved sample, including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	10	.0000337
B914	Providing and fixing solid core FRP(Fibre Glass Reinforced Plastic) frame with FRP door shutter minimum 30mm thick and shall be factory fabricated .FRP Door Frames shall be made from min. 90 X 45 mm section made of laminate of thickness of 2 mm and shall be filled with wooden blocks of exterior grade MDF or seasoned and treated hard wood inside the laminate in all the three legs of the frame. Frames shall have smooth surface, without any warping or bending in any member.The shutter at suitable place to hold fittings and fixtures such as aldrops, tower bolt, handle, sliding door bolt, mortice lock etc.FRP door shall be manufactured conforming to IS 14856,The sheets used for frame and shutters shall be free from any visible defects such as small pores, crazing, blistering, wrinkling, impurities, defective impregnation, colour bolts and aggregate defects, may be in plain colour, printed design or prelam veneer shade as approved sample, including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	15	.0000505
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.	--		
c	6 mm thick clear float glass	SQM	550	.0008185
Aa	6 mm thick ground glass	SQM	100	.0002091

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
Ad	5.5 mm thick wired glass	SQM	336	.0005156
Ae	4mm thick Polycarbonate sheet fire retardant and ultra violet resistant	SQM	35	.0000708
h	6 mm thick clear toughened safety glass	SQM	100	.000177
Ah	6 mm thick clear float glass	SQM	186	.0003257
af	8 mm thick toughened float glass	SQM	100	.0002617
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	40	.0001352
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	10	.0000352
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). Quality of glass as per spec.	SQM	120	.000441
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	200	.0004496
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	20	.0000039
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	15	.0000243
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	22	.0000598
919.0	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	7	.0000284

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A920	Roof skylight/Wall lights structure made of translucent white acrylic modified, ultraviolet stabilised, fibreglass with minimum thickness of 2 mm and tensile strength of 10.3 kN/cm ² . Translucent panels shall provide the same coverage as the panel width with length of 3600 mm. The translucent panels shall meet the light transmission value of 80%(+5%) according to ASTM D 1494. Sheet of multi (twin) wall fire retardant and ultra violet resistant with sealed open edges for sky light for approved shape like dome, pyramidal etc. Joints are properly sealed with sealant, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification. Steel structural support required for roof skylight/ wall light, shall be paid seperately under item no. 2301. Steel will be supplied by BHEL free of cost.	SQM	125	.0003657
A923	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment). Payment: supply 70%, fixing 30%	KG	500	.0002233
1000.0	BRICKWORK	--		
--	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 for the following: Cement shall be provided by BHEL free of cost.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1001.0	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	50	.0003208
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	30	.0002257
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	25	.000168
Aa	Using machine moulded fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash 50% (including cost of cement for brick making)	CUM	196	.0012576
Ac	Using machine moulded burnt clay bricks of class designation 7.5 of nominal dimension	CUM	15	.0001129
1002.0	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	580	.0045254
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	127.784	.0011344
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	50	.0004049
Aa	Using machine moulded fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash 50% (including cost of cement for brick making)	CUM	1,200	.0093629
Ac	Using machine moulded burnt clay bricks of class designation 7.5 of nominal dimension	CUM	25	.0002219

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 345mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	25	.0001951
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. Payment for MS bars will be made as per relevent item.	--		
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	40	.0000289
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	26	.0000282
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	25	.0000248
A1003	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 fourth layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. Payment for MS bars will be made as per relevent item.	--		
Aa	Using machine moulded fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash 50% (including cost of cement for brick making)	SQM	90	.000065
Ac	Using machine moulded burnt clay bricks of class designation 7.5 of nominal dimension	SQM	20	.0000217

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA1003	Providing brick work in cement mortar 1:3 (1 cement 3 coarse sand) in partition walls, chambers etc. in thickness 75mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every alternate layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. Payment for MS bars will be made as per relevant item.	--		
Aa	Using machine moulded fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² and minimum percentage of fly ash 50% (including cost of cement for brick making)	SQM	10	.0000072
Ac	Using machine moulded burnt clay bricks of class designation 7.5 of nominal dimension	SQM	5	.0000054
1004.0	Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item). Using brick on edge.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making)	SQM	5	.0000036
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	26	.0000462
1006.0	Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)	CUM		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making)	CUM	7	.0000466

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1006	Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6. Encased member shall be wrapped with 18gauge chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to be paid separately)	CUM	5	.0000333
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	61	.0000134
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	11	.0000219
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	31	.0000036
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	11	.0000119
1011.0	Providing and filling brick bats in soak pits all complete.	CUM	21	.0000293
1100.0	DAMP PROOF COURSE	--		
--	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 for the following:	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1101.0	Providing Damp Proof Course following thickness 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	45 mm thick	SQM	200	.0000556
b	50 mm thick	SQM	58.12	.0000188
A1101	Providing Damp Proof Course of following thickness with M20 (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 etc. all complete as per specification.	--		
a	40mm thick	SQM	220	.0000612
1200.0	CEMENT MORTAR PLASTER	--		
--	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 for the following: Cement will be supplied by BHEL free of cost.	--		
A1201	Providing 20mm thick sand faced plaster in two layers outside the building/boundary wall/rough side of interior brick wall in cement sand mortar 1:4 including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete as per specification.	SQM	9,874	.0030618

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA1201	Providing 20mm thick plaster in two layers outside the building/rough surface of internal wall in cement mortar 1:4 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.The two layer include 1:4 cement sand mortar 12mm thick first layer and 1:3 cement sand mortar with 8mm.	SQM	60	.0000188
AAA1201	Providing 20 mm thick 1:4 Sand faced cement plaster to be laid in two courses to all external surfaces.	SQM	1,200	.0003721
B1201	Providing 20mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	220.8	.0000627
1202.0	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete.	SQM	294.8	.0000583
A1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on walls finished to a smooth finish as per specification all complete.	SQM	6,300	.0012455
1203.0	Providing 12mm thick plaster in cement mortar 1:6 on walls with rough finish all complete.	SQM	10	.0000019
A1203	Providing 12mm thick plaster in cement mortar 1:4 on walls with smooth finish all complete.	SQM	1,750	.0003302
1204.0	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	110.4	.0000207
A1204	Providing 10mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	12,278	.0027649
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	70	.0000117

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1205	Providing 15mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	300	.0000593
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 battens, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	30	.000001
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 engineer in charge (chicken wire mesh to be paid separately)	SQM	25	.0000145
1209.0	Ruled pointing in masonry in Cement Mortar 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	10	.0000017
A1210	Providing drip course in cement mortar (1:3) in parapet, chajjas, window/door heads, architectural facias, fins etc. all complete.	RM	15	.0000009
1300.0	FINISHES TO CONCRETE / PLASTERED SURFACES	--		
--	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 for the following:	--		
1301.0	Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	295.8	.0000098

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1303.0	Providing and applying two or more coats of oil bound destemper as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	100	.0000083
1304.0	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	11,339	.0009149
1305.0	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	1,708	.0002033
A1305	Providing and applying two or more coats of acrylic plastic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	1,098	.0001377
AA1305	Providing and applying two or more coats of waterproof external quality acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.(Cost of primer is included in this item and wall putty is payable under separate item).	SQM	150	.0000214
1306.0	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	1,201	.0003643
1307.0	Providing and applying two coats of Epoxy coating with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 150 micron thickness over epoxy primer.	SQM	813	.000152

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1308.0	Providing and applying 2 or more coats of Chlorinated Rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying chlorinated rubber zinc phosphate primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, inclusive of intermediate coat of Titanium dioxide / micaceous iron oxide complete as per specifications.	SQM	110	.0000188
1309.0	Two or more coats of fire resistant transparent paint (@3.5 litre per sqm per coat) as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications. French polish payment will be made separately.	SQM	90	.0000219
1311.0	Two or more coats of synthetic enamel paint of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete.	SQM	1,351	.000091
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	225.8	.000016
1314.0	Providing and applying resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film nominal thickness of 2.5 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	1,150	.0005837
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	100	.0000097
1317.0	Providing and applying 2 mm thick white cement punning on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer.	SQM	125	.0000088

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1317	Providing and applying 3 mm thick white cement putty 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	11,263	.0008691
AA1317	Providing and applying 3 mm thick fire proof putty 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	60	.000006
B1317	Providing and applying 3 mm thick white cement putty punning on walls and ceiling (Birla White/ JK White or Similar approved) including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	5	.0000004
C1317	Providing and applying 2 mm thick polymer based water resistant wall putty 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	500	.0000502
1319.0	Providing and applying two or more coats of Acrylic based weather coat paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification.	SQM	5,975	.0007777
1320.0	Providing and applying acid alkali and oil resistant high build, solvent free, self smoothing, seamless epoxy based amine cured floor finish 150 microns over primer on C.C. flooring.	SQM	300	.0000907
1400.0	FLOORING AND SKIRTING	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	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 for the following: Cement will be provided by BHEL free of cost.	--		
1401.0	Providing and laying 50 mm thick heavy duty granolithic flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete nominal mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	2,500	.0013824
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick M20 grade cement concrete mix (with stone chips of size 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	18,222	.0100757
AA1401	Providing and laying 50 mm thick heavy duty granolithic cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	863	.0004772

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1404	Providing and laying interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 20mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing). Payment: supply 60%, fixing 40%	--		
a	75mm thick	SQM	100	.0000793
B1404	Providing and laying 80mm thick interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be underlain by 20mm thick layer of sand followed by 200mm thick 63 mm and down aggregate with interstices filled with selected moorum/ non-expansive soil all complete as per specification.(inclusive of cost of cement for paver manufacturing). Payment: supply 60%, fixing 40%	SQM	100	.0001272
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. Payment: supply 60%, fixing 40%	SQM	100	.0001638
1410.0	Marble stone Flooring laid in 50mm overall thickness with 18-20mm thick marble slabs (grade -1) with minium 30mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, 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. Payment: supply 60%, fixing 40%	SQM	100	.0002478

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1412.0	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. Payment: supply 60%, fixing 40%	SQM	25	.0000812
A1412	Providing and laying 20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. Payment: supply 60%, fixing 40%	SQM	818	.0026564
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 Payment: supply 60%, fixing 40%	--		
b	10mm thick tiles In flooring	SQM	50	.0000653
d	10mm thick tiles In skirting and dado upto specific height	SQM	50	.0000676

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1416	Providing and laying non skid fully vitrified ceramic tiles of mirror polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 40mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm , 3 mm groove joint pointed neatly with 3x4mm stainless epoxy grout SP-100 of laticrete or approved equivalent etc. all complete for following Payment: supply 60%, fixing 40%	--		
b	10mm thick tiles In flooring	SQM	2,600	.0036085
d	10mm thick tiles In skirting and dado upto specific height	SQM	137	.0001853
1417.0	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following Payment: supply 60%, fixing 40%	--		
b	10mm thick tiles In flooring	SQM	50	.0000692
d	10mm thick tiles In skirting and dado upto specific height	SQM	50	.0000716
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	20	.0000859
A1419	Providing and laying granite stone slab of 18mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete.	SQM	20	.0000859

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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. Payment: supply 60%, fixing 40%	SQM	50	.0000509
A1421	Providing and laying anti skid vitrified ceramic tiles of size 400x400mm(approved size) and 10mm 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 40mm 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. Payment: supply 60%, fixing 40%	SQM	100	.0001522
1422.0	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable. Payment: supply 60%, fixing 40%	--		
a	20mm thick	SQM	150	.0003325
1423.0	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado bedded and jointed with epoxy mortar all complete for following thicknesses. The tiles should be abrasion resistant & durable. Payment: supply 60%, fixing 40%	--		
a	20mm thick	SQM	100	.0001678

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1423	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with silica based epoxy mortar all complete as per specification and as per the directions of engineer-in-charge for following thicknesses. The tiles should be abrasion resistant & durable. Payment: supply 60%, fixing 40%	--		
a	20mm thick with minimum 30 mm bedding	SQM	200	.0007916
Aa	20mm thick tiles In skirting and dado upto specific height with minimum 12 mm bedding	SQM	12	.0000283
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: Payment: supply 60%, fixing 40%	--		
a	5mm thick	SQM	176	.0001646
b	7mm thick	SQM	50	.0000448
1428.0	Providing and laying 3mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	100	.0000261
A1428	Providing and laying 2mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete as per specification and as per the directions of engineer-in-charge .	SQM	200	.000047
1429.0	Providing and fixing removable type flooring system 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	75	.0002323

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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.	--		
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	25	.0000023
c	Brass strips 20 mm wide and minimum 4 mm thick.	RM	25	.0000024
1500.0	ROOFING / SIDE CLADDING	--		
--	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 for the following:	--		
A1501	Designing, providing, erection and fixing permanently color coated High tensile Galvalume (AZ 150 gsm) SMP colour coated (in approved colour) or equivalent profile metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 550 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. Payment: supply 60%, fixing 40%	--		
a	Span Upto 1800mm	SQM	3,680	.0046421
b	Span Exceeding 1800mm and upto 2500 mm	SQM	50	.0000662

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1502.0	Designing, providing, erection and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hot dipped galvanising @ 275 gm/sqm including fixing of sheet to purlin with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6 mm dia @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking. Payment: supply 60%, fixing 40%	--		
a	Span Upto 1800mm	SQM	1,000	.0013367
b	Span Exceeding 1800mm and upto 2500 mm	SQM	1,100	.0014704
1503.0	Providing and fixing shear connectors of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	20	.0003806
A1503	Providing and fixing shear connectors of mild steel studs having 16mm/19mm dia and minimum 65mm/100mm projected length above purlin passing through metal decking as per relevant IS \ AWS D1.1 \ D1.1M \ ASTM A29 codes and specification.	QUINTAL	3	.0000571

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1504	Designing, providing, Erection and fixing profiled External/Internal Cladding sheet manufactured out of 0.8 mm TCT(Total Coated Thickness) of permanently colour (approved shade) coated Zinalume steel (150gsm. zinc-aluminium alloy coating total of both sides as per AS 1397) having minimum 550MPa yield strength. The colour coating shall comprise of silicon modified polyester finish of thickness 20 microns finish coat over a 5 micron (DFT) primer coat on the exposed side and a back coat of 5 micron over a primer coat of 5 micron on reverse side.The sheet shall have a min depth 34.5mm at 333mm pitch with special male/female side laps and anti-siphoning features to prevent leakage. The permanently colour coated sheet shall meet the general requirements of IS:513, IS:277 & IS:14246. The sheet shall be fixed with the help of concealed compatible interlocking clips and wafer head zinc coated self drilling fasteners/screws 4.2 X 25mm long on to the sub-girts. The clips shall be concealed and no fasteners are to penetrate the external sheeting, all complete as per specification. Payment: supply 60%, fixing 40%	SQM	5,574	.0087317
1508.0	Designing, providing and fixing Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides of both sheets including fixing to supports / rails by concealed fixing system (Z Purlin) , corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting. Payment: supply 60%, fixing 40%	SQM	100	.0001069

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1508	Designing, providing and fixing Permanent colour coated metal cladding with troughed M.S. sheets of 0.8mm bare metal thickness having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides of both sheets including fixing to supports / rails by concealed fixing system (Z Purlin) , corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center. Payment: supply 60%, fixing 40%	SQM	17,500	.0249376
1511.0	Providing and fixing insulation of resin bonded lamellar mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 100 kg/cum mineral wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass wool as per manufacturer's recommendations. Payment: supply 60%, fixing 40%	--		
a	For insulation in Sandwich Cladding	SQM	5,524	.0027163
A1512	Providing and fixing insulation of resin bonded mineral wool of 25 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for 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. Payment: supply 60%, fixing 40%	--		
a	Mineral wool (spintex 300 or equivalent) insulation(density 48kg/cum) bound in polythene bags on top of false ceiling panels.	SQM	2,704	.0014409

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
ISG 1519	Design, supply & erection of permanent colour coated Pre-Fabricated sandwiched insulated metal cladding of approved shade and color comprising of top sheet as troughed permanently colour coated sheet & bottom sheet as plain permanently colour coated with 50mm thick insulation sandwiched between the two sheets etc all complete as per specification. Each sheet shall be of steel with minimum thickness (i.e. excluding the thickness of coating and painting) 0.6mm of grade G250 as per AS1397/ grade SS255 as per ASTM A653M / grade S250GD as per EN 10326 or of steel with aluminium-zinc alloy coated to class AZ150 with minimum bare metal thickness (i.e. excluding the thickness of coating and painting) of 0.5mm of grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 or of steel with aluminium-zinc alloy coated to class AZ150 with minimum bare metal thickness (i.e. excluding the thickness of coating and painting) of 0.4mm of grade G550 as per AS1397 / grade SS550 as per ASTM A792M / grade S550GD as per EN 10326. .Metal sheets shall be colour coated with total coating thickness of at least 40 microns (nominal) dry film thickness (DFT) comprising of Silicon Modified Polyester (SMP with silicon content of 30% to 50%) paint or Polyester paint, of minimum 20 microns (nominal) SMP or polyester paint on one side (exposed face), over minimum 5 micron (nominal) primer coat and minimum 10 micron (nominal) SMP or Polyester paint over minimum 5 micron (nominal) primer coat on other side. SMP and Super Polyester paint shall conform to product type 4 of AS/NZS 2728.The sheets shall be of approved profile and shall have such section modulus and moment of inertia per metre width that deflection of sheets is limited to span/250 under design wind pressure for two span conditions. No increase in allowable stresses under wind load condition is allowed. Special coated fastener conforming to corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test shall be used for fixing Pre-Fabricated Insulated Metal Sandwich Panels with the structural members below as per specification.For insulation of cladding , mineral wool conforming to IS: 8183 shall be used. The density shall be 32 or 48 kg. /cu.m for glass or rock wool respectively. The nominal thickness of insulation shall be 50mm. Payment: supply 60%, fixing 40%	SQM	250	.0006089

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
ISG 1520	Providing & fixing permanently at all heights and elevations, troughed sheets over roof purlins/beams/side runners etc for roofing and side cladding (internal & external) including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge. Quoted rate shall include cost of all labour, material, tools and plants, consumables, lead, lift etc complete. Fixing fire resistant and UV resistant polycarbonate translucent sheets of minimum 3MM thickness on roof & side cladding as per the specification and approved drawings and directions of engineer in charge Payment: supply 60%, fixing 40%	SQM	550	.0005878
1600.0	FALSE CEILING	--		
--	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 for the following:	--		
A1602	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 25mm 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 be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate. (Payment for Mineral wool insulation shall be made separately). Payment: supply 60%, fixing 40%	SQM	100	.0001215

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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) Payment: supply 60%, fixing 40%	SQM	100	.0001787
A1603	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 25mm 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)(Payment for Mineral wool insulation shall be made separately). Payment: supply 60%, fixing 40%	SQM	1,000	.0017341

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1604	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 25mm thick Closed Cell Elastomeric Nitrile Rubber having density 40 to 60 Kg/m ³ , Thermal conductivity shall not exceed 0.035W/mdegreeK at an average temperature of 0 degree C and fire performance such that it passes Class 1 as per BS476 Part 7 for surface spread of flame as per BS 476 and also pass Fire Propagation requirement as per BS476 Part 6 to meet the Class O Fire category. Water vapour permeability shall not exceed 0.017 Perm inch (2.48 x 10 ⁻¹⁴ Kg/m.s.Pa), i.e. Moisture Diffusion Resistance Factor value should be minimum 7000. Backed with 0.05 mm thick aluminium foil & 24 G x 25 mm mesh wire netting and shall be fixed to ceiling with 24 G wire ties and suitable fixing arrangements.. 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) Payment: supply 60%, fixing 40%	SQM	1,000	.0018505
1700.0	RAIN WATER DOWN TAKE PIPES	--		
--	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 for the following:	--		
1704.0	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	5	.0000081

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1704	Providing and fixing Ductile Iron (DI) pipes of 150 mm dia, fittings etc. all complete. All rain water down comers shall be provided with roof drain heads and complete with shoes bends, junctions, sockets, adapters, brackets and finished with anticorrosive painting over a coat or primer. Downcomers shall be provided with 45 x 45 cm size Khurras having minimum thickness of 30 mm with M-20 concrete over PVC sheet of 1mx1mx400micron and finished with 12 mm thick cement sand plaster 1:3.The rainwater down comers shall be provided with suitable C.I. grating at inlet point etc. all complete as specification. Payment: supply 70%, fixing 30%	RM	1,513	.0026996
1705.0	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	100	.0000495
1706.0	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete. Payment: supply 70%, fixing 30%	RM	1,500	.000989
1800.0	MISCELLANEOUS WORKS	--		
--	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 for the following:	--		
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	3,510	.0071011

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA1801	Providing and Filling in plinths and other underground structures with two layers of locally available broken stone 230mm thickness (Each layer shall have a pre-compacted thickness of 150 mm and consolidated to 115mm) including breaking of stone boulders to required sizes etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	290	.0005867
B1801	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 275 mm compacted thickness including breaking of stone boulders to required sizes, filling the interstices with well graded selected sand and compacting to 90 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	1,500	.0030347
C1801	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 200 mm compacted thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum and compacting to 90 % 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	400	.0008092
1802.0	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	49	.0001468
1803.0	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	15	.0000404
A1803	Providing and laying broken stone aggregate in switch yard areas in Two layers. The first layer shall be 75mm thick base course (bottom layer) of 20 mm of nominal size and second layer shall be 75mm thick surface course (Top layer) of 40mm nominal size making overall thickness of stone aggregate as 150mm thick as per customer specification and direction of Engineer-In-Charge .	SQM	2,120	.0019058

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1804.0	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	50	.0000079
1807.0	Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment).	SQM	14,486	.001977
A1807	Anti termite chemical treatment of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	300	.0000491
1808.0	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	10	.0001099
1809.0	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	EACH	5	.0000521
1810.0	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	EACH	5	.000038
1811.0	Construction of below ground earthing system earth electrodes as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items)	EACH	5	.0000104
1812.0	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)	EACH	5	.0000086
1813.0	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	5	.000119

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1814.0	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	5	.0000913
1815.0	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	200	.0000136
1818.0	Fire proofing of steel structures with VERMICULITE cementious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, suface preparation, curing, staging, compatible paintings etc. all complete.	CUM	6	.0005162
1819.0	Supply & fixing expanded metal steel sheet conforming to IS:412. Size of mesh shall be 10mmX40mm with strands of 2.5mm width and 1mm thickness to the structural steel for facilitating fireproofing works.	SQM	10	.0000043
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	21	.0000118
1822.0	Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	CUM	3	.0000237
1823.0	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	5	.000011
1824.0	Disposal of scrap steel, scrap wood, broken packing crates, cable scrap, debris and other civil waste, electrical waste materials etc. from project site to a designated place within 5 KM range, with all manpower T & P etc. including loading and unloading as and when directed by BHEL.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	Steel scrap / metal scrap	MTÂ	15	.0000087
b	Debris & Other waste materials.	CUM	775	.0000848
A1827	Antiweed treatment in switchyard area (Antiweed chemical shall be customer approved & as per Technical specification) including surface dressing/preparation (surface dressing of earth to an extent of (plus or minus)200mm) to the lines & grades including removing vegetation/plant , dressing, micro-leveling ,cutting and filling earth, maintain slope to nearest drain ,water spinkal on surface ,compaction /consolidating with roller(Min. 1/2 ton roller with 4-5 passes) ,shifting of excess earth/debris generated during the process to the designated point and all works complete as per instructions of the Engineer -in- Charge (The rate shall be inclusive of all materials & all activities mentioned above including any other activity required for completion but not mentioned above etc all complete as per Technical Specification & direction of Engineer-In-Charge.	SQM	2,120	.0002466
1832.0	Providing and fixing sliding layer of bitumen paper or craft paper over the screed layer for water retaining structures to destroy the bond between the screed and the base slab concrete of the water retaining structure etc all complete.	SQM	140	.0000022
A1837	Supply & fixing 18G chicken wire mesh on brick/ stone masonry and RCC joints and fixed with GI type nails etc. complete	SQM	200	.0000126
A1839	Providing bore wells in ground with perforated/non-perforated PVC pipe of standard approved make for rain water harvesting by means of mechanical equipment including pipe, drilling inside earth, weathered rock, sandstone, shale etc. upto required depth at locations shown in drawing etc all complete. Depth of borewell shall vary from 6m to 15m. Payment shall be made cumulative diamterwise as per actual length of bore well and diameter as mentioned below.	--		
(a)	200 mm diamter	RM	30	.0000732
(b)	300 mm diamter	RM	30	.0000868

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1840	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	Cum	5	.0000149
A1841	Supply & packing uniformly downgraded 40mm size gravel at all depth in the pit/welldug for rain water harvesting.	Cum	5	.0000151
A1842	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the pit/welldug for rain water harvesting.	Cum	5	.0000115
A1843	Supply & laying coarse sand layer at all depth in the pit/welldug for rain water harvesting.	Cum	5	.0000098
A1844	Supply and fixing of bar screen of 5 mm square M. S. bar at inlet point of Rain water collecting tanks with 50 mm X 50 mm opening etc all complete	SQM	3	.0000037
A1845	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	10	.0000066
A1846	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	10	.0000066
A1847	Supply & fixing Netlon jali/ PVT net in the well dug for rain water	SQM	10	.000002
A1849	Providing 25mm thick premix carpet surfacing laid to slope with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete as per specification.	SQM	585	.0003046
A1850	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete as per specification.	SQM	585	.0003046
2000.0	FENCING AND GATES	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	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 for the following:	--		
2001.0	Supplying and erecting in position 2.4 m high galvanised chain linked fencing of minimum 3.15mm of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing shall not be less than 4.0mm (as per IS:2721). Galvanisation on chain link shall be as per IS: 12753, hard coated finish. 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 A2008)	RM	89	.0001417
A2003	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 4 mm (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 2.5 mm. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	30	.0000515
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	7	.0005503
A2008	Supply, fabrication and fixing of mild steel posts of 80NB GI pipes (medium duty and YST 210) for fencing including painting etc all complete.	MT	1	.0000896

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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. Supply of steel is in the scope of contractor.	MT	3	.0002562
A2009	Supply, fabrication and installing in position and testing STEEL Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, Aldrops with locking arrangement, tempered steel pivot, guide track Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete as per specification. Supply of galvanised steel is in the scope of contractor.	MT	1	.0000854
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. Supply of steel is in the scope of contractor.	MT	2	.0001631
2100.0	WATER SUPPLY	--		
--	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 for the following:	--		
2101.0	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	56	.0000405
2102.0	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	40	.0000093

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2103.0	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:	--		
a	25mm nominal bore.	EACH	16	.0000062
b	50mm nominal bore.	EACH	14	.0000096
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	55	.0000215
b	20 mm nominal bore.	RM	55	.0000238
c	25 mm nominal bore.	RM	25	.0000127
d	50 mm nominal bore.	RM	10	.0000077
A2104	Providing and fixing CPVC pipes class I conforming to IS:15778 shall be concealed, complete for internal works with sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes: Payment: supply 70%, fixing 30%	--		
a	15 mm nominal bore.	RM	200	.0000147
b	20 mm nominal bore.	RM	100	.0000116
c	25 mm nominal bore.	RM	100	.0000171
d	50 mm nominal bore.	RM	20	.0000113

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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: Payment: supply 70%, fixing 30%	--		
a	15 mm nominal bore.	RM	25	.0000073
b	20 mm nominal bore.	RM	25	.0000083
c	25 mm nominal bore.	RM	25	.0000102
d	50 mm nominal bore.	RM	25	.0000167
A2105	Providing and fixing CPVC pipes class I conforming to IS:15778 shall be concealed, complete for external works with 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	40	.0000029
b	20 mm nominal bore.	RM	80	.0000093
c	25 mm nominal bore.	RM	120	.0000205
d	50 mm nominal bore.	RM	80	.000045
2106.0	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	4	.0000034
A2106	Providing and fixing wall to wall mirror of height 750mm & 6 mm thk float glass mounted on PVC sheet, from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	12	.0000125
2107.0	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	NOS	5	.0000034

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2108.0	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) with C.P. mounting brackets all complete.	NOS	2	.0000013
A2108	Providing and fixing 20 mm diameter chromium plated MS pipes towel rails (500mm X 20mm) all complete. The brackets, screws etc. shall also be chromium plated.	EACH	12	.0000078
2109.0	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.	NOS	5	.0000027
2110.0	Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete.	EACH	17	.0000078
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.	EACH	17	.0000106
2112.0	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	EACH	17	.0000061
2113.0	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete.	EACH	9	.0000005
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	2	.0000055
b	1000 litres capacity	NOS	2	.0000111
A2114	Providing & fixing in position High density polyethylene (cylindrical/vertical) molded seamless type tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. CPVC pipes shall be paid separately under ST No. A2105.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	1000 litres capacity	EACH	7	.0000388
2115.0	Providing and fixing approved stainless steel sink with integrated drainboard as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	1	.0000116
2116.0	Providing and fixing glass shelves 600mmx127mmx6 mm thick clear glass with guard rails and shall be wall mounted with brackets all complete. All brackets, guard rails and screws shall be chromium plated.	EACH	4	.0000048
2117.0	Providing and fixing metal storing cabinets all complete.	EACH	4	.000042
2118.0	Providing Minimum 600 mm long chromium plated tray etc all complete..	EACH	4	.0000051
2119.0	Providing and fixing Recessed chromium plated soap tray in shower area etc all complete.	EACH	4	.0000021
2120.0	Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete.	EACH	4	.0000552
A2121	Providing and fixing Electric operated hand dryer with photo voltaic control including fittings, cutting and making good the wall where required etc. all complete.	EACH	4	.0000168
2200.0	SANITARY WORKS	--		
--	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 for the following:	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	1	.0000032
A2201	Supply and fixing glazed vitreous china Wash Basin of (oval shape) approved make (with photovoltaic control) 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	6	.0000193
b	Colored	EACH	6	.0000206
2202.0	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, 40mm CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	2	.0000051
A2203	Providing and fixing stainless steel kitchen sink of size 600x400x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	2	.0000088
2204.0	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	Floor mounted	EACH	7	.0000328
b	Wall mounted	EACH	7	.0000615
2205.0	Providing and fixing glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including white glazed vitreous china with chequered surface foot rests, high level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	14	.000062
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	2	.0000118
A2206	Providing and fixing white flat back glazed vitreous china lipped 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,with provision of squatting urinal for ladies toilet etc. all complete.	EACH	12	.0000777
2207.0	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.	--		
a	75mm dia pipes	RM	1,000	.0002348
b	110mm dia pipes	RM	50	.0000167
c	160mm dia pipes	RM	50	.0000225
d	200mm dia pipes	RM	20	.0000107
2208.0	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.	--		
b	300mm dia	RM	50	.0000331

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c	450mm dia	RM	50	.0000677
A2208	Providing, laying non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.	--		
a	200mm dia	RM	40	.0000204
b	300mm dia	RM	20	.0000132
c	450mm dia	RM	20	.0000271
d	600mm dia	RM	40	.0000736
2209.0	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.	--		
a	150mm dia	RM	90	.0000323
b	250mm dia	RM	70	.0000366
A2209	Providing, laying non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.	--		
a	150mm dia	RM	10	.0000036
b	250mm dia	RM	40	.0000209
c	400mm dia	RM	20	.0000111
2210.0	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following:	--		
a	450mm dia	RM	15	.0000228

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	50	.0001292
2212.0	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	30	.0000681
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	20	.0000298
b	150x100mm P or S Type.	EACH	20	.0000309
c	150x150mm P or S Type.	EACH	20	.000033
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	.0000347
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	80	.0000901
2216.0	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	30	.0008676
2217.0	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	20	.0007203
2218.0	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	10	.0000127

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2218	Providing and fixing marble slab urinal partitions of size 675x325x18mm all complete.	EACH	10	.0000127
2219.0	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	6	.0001302
2221.0	Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation,backfilling,concrete to be paid seperately)	--		
b	100mm dia	RM	10	.000021
c	150mm dia	RM	210	.0006514
d	200mm dia	RM	150	.0007019
f	300mm dia	RM	50	.000352
2300.0	STRUCTURAL STEEL	--		
--	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 for the following:	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2301	Fabrication, erection and alignment of structural steel (fabricated in factory, area for setting up temporary factor inside plant premises will be provided by BHEL free of cost, electricity and water for the temporary factor will be provided by BHEL free of charges) 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, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc. including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection, payment for primer painting shall be made separately under relevant item of BOQ), connection design & preparation of fabrication drgs., collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20 degree celsius for welding over 20 mm and up to 40 mm & 66 degree celsius for welding over 40 mm and up to 63 mm & 110 degree celsius for thickness over 63 mm & use of low hydrogen), post heating, testing of welders, inspection of welds, visual inspection, non-destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per specification, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc. all complete. Including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drgs., in consultation with BHEL (Corrosion category shall be considered as C3). Surface preparation shall be paid separately under relevant item of BOQ.	MT	826	.0287342

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B2301	Fabrication, erection and alignment of structural steel (fabricated in factory, area for setting up temporary factor inside plant premises will be provided by BHEL free of cost, electricity and water for the temporary factor will be provided by BHEL free of charges) with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection, payment for primer painting shall be made separately under relevent item of BOQ), 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), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per specification (payment for surface preparation shall be separately under relevent item of BOQ), 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	2,500	.0869678

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2302	Extra over ST NO. A2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and applying a primer coat of Zinc Ethyl silicate of total DFT 50-60 micron , including touch-up painting etc all complete.	MT	821	.0056008
AA2302	Providing and applying with primer coat of Zinc Ethyl silicate of 50 to 60 micron + Under coat of Epoxy Glass Flake(High Build) of 100 to 110 micron + Top coat of Aliphatic Polyurethane(TiO2) rutile of 50 to 60 micron on steel galvanised iron/ steel works.	SQM	100	.0000577
B2302	Extra over ST NO. B2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and applying self-curing Zinc Ethyl Silicate Primer Coat (Solid by Volume Minimum 80%) of Minimum 50 Micron Dry Film Thickness (DFT), instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete. The Primer Coat shall be applied in Shop immediately after blast cleaning by Airless spray technique.	MT	2,500	.0170549
A2304	Providing and applying (with airless spray technique) Intermediate two or more coat of Epoxy Glass Flake (High Build) of total DFT 100-110 micron. This coat shall be applied in shop after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique including protection and cleaning, scaffolding etc. all complete as per specification for all structures .	MT	821	.0035493
B2304	Providing and applying final finish two or more coat of Aliphatic Polyurethane (TiO2) rutile of total DFT 50-60 micron on steel surfaces already having primer coat and intermediate coat of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete as per specification.	MT	821	.0038533
A2305	Providing Intermediate coat of two component Polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% (plus or minus)2%) of minimum 100 micron DFT. This coat shall be applied in shop after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique.	MT	2,500	.0108079

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B2305	Providing Finish coat of Two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% (plus or minus)2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 deltaE) and minimum 50 micron DFT. This coat shall be applied shop after an interval of minimum 10 hours and within six (6) months (from the completion of Intermediate coat), Colour and shade of the coat shall be as approved by the Employer.	MT	2,500	.0117337
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. Payment: supply 75%, fixing 25%	--		
a	Minimum galvanisation of 610 g/sqm	MT	36	.0030067
b	Minimum galvanisation of 900 g/sqm	MT	1	.0000931
2308.0	Supplying, fabrication, erection and alignment of factory made galvanised welded grating units with mild steel 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 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment: supply 75%, fixing 25%	MT	77	.0049488
2309.0	Extra over above ST NO. 2301 for finishing the grating units/bolts/inserts with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	5	.0000826

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2309	Extra over above ST NO. 2308 for finishing the grating units/bolts/inserts with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	10	.0001653
2311.0	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	KG	1,270	.0000879
2312.0	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	KG	33,570	.0025266
2313.0	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alighment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	26	.0002354
2314.0	Addition to, alterations in and/or modifiction of	--		
a	In erected position	MT	16	.0003842
b	In fabrication yard	MT	6	.0001181
c	Erection and alignment of gratings of part a and b.	MT	10	.0001432
2315.0	Re-erection of dismantled fabricated structural steel members including carriage of modified	MT	16	.0002292

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2318.0	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of (plus or minus)50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
a	20 Tons	EACH	3	.000043
b	25 Tons	EACH	3	.000048
c	40 Tons	EACH	3	.0000513
d	50 Tons	EACH	3	.0000546
2320.0	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete.	MT	3	.0008788
2321.0	Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payments terms - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%; Material shall be medium duty YSt 210. Payment: supply 75%, fixing 25%	MT	25	.0022279
A2322	Supply, fabrication and fixing of galvanised MS pipe hand railing (1000 mm high) of 32mm/40mm/50mm dia (Medium Class) including transportation, loading/unloading, painting etc. all complete. Material shall be medium duty YSt 210. Payment: supply 75%, fixing 25%	MT	8	.0008011
2323.0	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	25	.0000697
2324.0	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	25	.0000228

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2325.0	Conducting ultrasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	15	.0000062
2326.0	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	25	.0000186
2327.0	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	25	.0000173
2328.0	Supply, fixing lightning arrester and air terminal over roof of building, pump house and other structures including all materials, labour, electrodes etc complete (all materials to be supplied by the contractor).	EACH	1	.0000043
2334.0	Providing and fixing stainless steel (SS-409) handrails with balustrades etc all complete.	KG	50	.0000147
2400.0	ROAD WORKS	--		
--	ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation etc. as per specification drawing, relevant IRC & IS codes and as directed by the Engineer-in-charge for the following:	--		
2401.0	Preparation of sub grade by excavating earth to required depth for all types of soil/rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	2,275	.0001073
2402.0	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed CNS/Morrum (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, testing etc all complete.	CUM	610	.0003324

SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2403.0	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	125	.0001395
2404.0	Providing & laying water bound macadam sub base course in layers of required thickness with crushed stone aggregates 90 to 40 mm down size (IRC 19 - grading -1), stone screening & blinding material including screening, sorting, spreading to template & consolidation with road roller including carriage, spreading & consolidation of blinding material moorum etc all complete.	CUM	130	.0002912
2405.0	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size(IRC 19 - grading -2), stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	780	.0018692
2406.0	Providing & Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone(IRC 19 -grading -3) screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.	CUM	80	.000203
2413.0	Supplying and laying 400mmx150mmx350mm deep precast concrete kerb stone of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required and including painting as per IRC-35 etc all complete.	RM	730	.0002637
AA2414	Providing & laying edge protection on edges with M-25 GRADE PCC BLOCKS etc all complete..	CUM	10	.0000689
A2414	Supply and laying 200 mm 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	.0000254

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B2414	Supply and laying 600 mm 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	10	.0000184
2415.0	Supply and laying 150mm dia R.C.C NP-2 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:3) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. Payment terms - a) On receipt of materials at site - 50%; b) On completion of erection & fixing - 50%.	RM	10	.0000039
A2415	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 (1:3) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. Payment terms - a) On receipt of materials at site - 50%; b) On completion of erection & fixing - 50%.	RM	125	.0000572
2416.0	Dismantling of existing road consisting of premix carpet, kerb stone/ brick on edge, bitumen macadem course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 km etc all complete.	SQM	200	.000017
2418.0	Concrete of grade M10 (1 part cement, 3 part fine aggregate, 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	100	.0003662
A2418	Concrete of grade M20 (1 part cement, 1.5 part fine aggregate, 3 parts of 12 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	1	.000004
A2419	Providing and laying (using fully mechanised paver) cement concrete of grade M35 using 20 mm nominal size stone aggregate with minimum cement content of 400 kg/m ³ , 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	600	.0025487

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA2419	Providing and laying Reinforced cement concrete of grade M35 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	500	.002124
2420.0	Supplying and filling sand for preparation of read sub-base/ sub-grade 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	15	.0000363
A2420	Supplying and filling sand for preparation of road sub-base/ sub-grade in layers not exceeding 300 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	1	.0000024
2421.0	Providing & laying dry lean cement concrete of grade M15 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete.	CUM	50	.0002026
A2421	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	210	.000851
A2423	Providing and fixing separation Membrane of impermeable plastic sheeting of 125 microns thick laid flat without creases etc. all complete	SQM	2,000	.0001665
--	REINFORCEMENT	--		
2425.0	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	3	.0001685

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2426	Transportation from BHEL store, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of high yield strength deformed TMT steel bars of grade Fe-500 (CRS) corrosion resistant steel conforming 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. Reinforcement steel will be supplied by BHEL free of cost.	MT	30	.0004237
2427.0	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of mild steel reinforcements including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer.	MT	4	.0002246
A2427	Transportation from BHEL store, straightening, cutting, bending, placing in position at any level, binding in position of corrosion resistant steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer. Corrosion resistant Reinforcement steel shall be supplied by BHEL free of cost.	MT	50	.0007062
--	MISCELLANEOUS	--		
--	Providing & installation of bitumen impregnated fibre board of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer. Thickness of bitumen impregnated fibre board shall be 50mm	SQM	25	.0000406
A2428	Providing & installation of bitumen impregnated fibre board of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer. Thickness of bitumen impregnated fibre board shall be 50mm	RM	15	.0000244
--	Providing and filling in position hot applied bitumen sealing compound (Grade A) of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	965	.0000407

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer. Debonding tape of 12mm size shall be used.	RM	365	.0000022
--	Providing & laying 75 mm thick precast interlocking anti skid concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	1,750	.001858
A2432	Providing and laying 50mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	cum	60	.0001455
B2432	Providing and laying 100mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	cum	5	.0000121
2433.0	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15-2002etc all complete as per specification, drawing and as directed by Engineer.	SQM	10	.0000008
A2434	Providing and fixing precast Bollards (150mm dia and 1.2metre high spaced @ 2.0m c/c) of concrete grade min M25 near road for equipment if requires protection etc. all complete as per approved location and instruction by engineer Incharge. Reinforcement if required, shall be supplied by BHEL free of cost. Payment for reinforcement cutting, bending and fixing shall be paid under relevant item.	EACH	10	.0000896
A2435	Providing and installation of vehicle management signs,dual worded(English & Local language) as per Indian standards including supports etc. all complete as per drawings, specifications,manufacturer's recommendations, indian standards.	EACH	10	.0000715
2436.0	Providing and laying Inverted Choke with 25 mm course of screenings (Grading-B) over prepared subgrade including compaction etc all complete as per specification, drawing and as directed by Engineer.	CUM	1	.0000036
--	2500 PILING	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	PILING WORK: Piling 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 for the following: Cement shall be supplied by BHEL free of cost. Reinforcement steel required for piling work shall be provided by BHEL free of cost. Payment for transportation of reinforcement steel, cutting, bending and placing for piling installation work shall be paid under relevant item of 400 series.	--		
T2501	For test pile installation - Mobilisation of hydraulic rotary piling rigs and accessories capable of pile boring/drilling in all types of strata/ash etc., installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of test piling works etc all complete.	EACH	1	.0012668
A2501	Mobilisation of hydraulic rotary piling rigs and accessories capable of pile boring/drilling in all types of strata/ash etc., installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of piling works etc all complete.	EACH	5	.0042228
2503.0	Mobilisation of conventional DMC/RMC piling rigs and accessories capable of pile boring/drilling in all types of strata/installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of piling works etc all complete.	NOS	1	.000115
T2503	For installation of test piles - Mobilisation of conventional DMC/RMC piling rigs and accessories capable of pile boring/drilling in all types of strata/installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of piling works etc all complete. Note: 1. At site, first effort shall be made to obtain approval of customer for installation of test pile by this method. 2. If customer agrees then item no. T2501 shall not be operated. 3. If customer denies, then item no. T2501 shall be operated. 4. Tripod mounted piling rig shall also be accepted for operating under this item.	NOS	1	.0001724

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2503	Mobilisation of conventional Tripod mounted piling rig and accessories capable of pile boring/drilling in all types of strata/installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of piling works etc all complete.	EACH	1	.000115
A2504	Installation of Bored cast-in-situ RCC vertical pile as per IS 2911 (Part 1 Sec 2) with diameter and length as specified (length to be measured from pile cut-off level to the bottom of pile) using cement concrete grade M35 conforming to IS:456 with 20 mm nominal size stone aggregates with a minimum cement content of 400Kg per cum of concrete including providing all materials (but excluding reinforcement steel for which measurement/payment shall be made separately), boring/drilling in all types of soil, providing bentonite slurry and/or casing for stabilization of pile bore, flushing of pile bore, cleaning, providing plasticizer wherever required, breaking pile head to cut off level and exposing pile reinforcement for embedment in pile cap etc including empty boring from ground level to pile cutoff level etc all complete as per specification, drawing and as directed by the engineer-in-charge for the following.	--		
a	Pile with 600 mm diameter and 6 m length below cut off level	EACH	1,869	.0612228
b	Pile with 600 mm diameter and 7 m length below cut off level	EACH	1,412	.0479433
c	Pile with 450 mm diameter and 20 m length below cut off level	EACH	12	.0004654
d	Pile with 600 mm diameter and 20 m length below cut off level	EACH	402	.0263096
e	Pile with 760 mm diameter and 20 m length below cut off level	EACH	125	.0110235

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
T2504	For test pile installation - Installation of Bored cast-in-situ RCC vertical pile as per IS 2911 (Part 1 Sec 2) with diameter and length as specified (length to be measured from pile cut-off level to the bottom of pile) using cement concrete grade M35 conforming to IS:456 with 20 mm nominal size stone aggregates with a minimum cement content of 400Kg per cum of concrete including providing all materials (but excluding reinforcement steel for which measurement/payment shall be made separately), boring/drilling in all types of soil, providing bentonite slurry and/or casing for stabilization of pile bore, flushing of pile bore, cleaning, providing plasticizer wherever required, breaking pile head to cut off level and exposing pile reinforcement for embedment in pile cap etc including empty boring from ground level to pile cutoff level etc all complete as per specification, drawing and as directed by the engineer-in-charge for the following. Cement required for this item shall be in the scope of contractor. Reinforcement steel shall be supplied by contractor and will be paid under item no. 402.	--		
a	Pile with 600 mm diameter and 6 m length below cut off level	EACH	6	.000258
b	Pile with 600 mm diameter and 7 m length below cut off level	EACH	6	.0002979
c	Pile with 450 mm diameter and 20 m length below cut off level	EACH	6	.0003219
d	Pile with 600 mm diameter and 20 m length below cut off level	EACH	6	.0005471
e	Pile with 760 mm diameter and 20 m length below cut off level	EACH	6	.0007668
A2505	Extra over ST. No. A2504 for pile length more than the specified length below cut off level for the following.	--		
a	Pile with 600 mm diameter and 6 m length below cut off level	RM	1,168	.0045584
b	Pile with 600 mm diameter and 7 m length below cut off level	RM	1,412	.0055106

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA2505	Extra over ST. No. A2504 for pile length more than the specified length of 20m below cut off level for the following.	--		
c	450 mm diameter pile in A2504 c	RM	10	.000027
d	600 mm diameter pile in A2504 d	RM	35	.0001366
e	760 mm diameter pile in A2504 e	RM	50	.0002652
A2506	Rebate on ST.No.A2504 for pile length less than the specified length below cut off level for the following.	--		
a	Pile with 600 mm diameter and 6 m length below cut off level	RM	584	.0021245
b	Pile with 600 mm diameter and 7 m length below cut off level	RM	706	.0025683
AA2506	Rebate on ST.No.A2504 for pile length less than the specified length of 20m below cut off level for the following.	--		
c	450 mm diameter pile in A2504 c	RM	10	.0000204
d	600 mm diameter pile in A2504 d	RM	135	.0004911
e	760 mm diameter pile in A2504 e	RM	100	.0004643
A2510	Extra over ST.No.A2504 a for boring/drilling for a length not exceeding 3 times diameter of pile inside rock including cleaning the pile hole, concreting etc all complete for the following. Measurement shall be taken below the level/ depth considered under item no. A2504. Measurement considered for this item shall not be operated for item no. A2504.	--		
a	For 600 mm diameter pile	RM	2,211	.0228868

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
AA2510	Extra over ST.No.A2504 b for boring/drilling for a length not exceeding 6 times diameter of pile inside rock including cleaning the pile hole, concreting etc all complete for the following. Measurement shall be taken below the level/ depth considered under item no. A2504. Measurement considered for this item shall not be operated for item no. A2504.	--		
b	For 600 mm diameter pile	RM	5,675	.0646183
2510.0	Extra over ST.No.A2504 c&d for boring/drilling in rock for a length not exceeding 3 times the diameter of pile, cleaning the pile hole, concreting etc all complete for the following. Measurement shall be taken below the level/ depth considered under item no. A2504. Measurement considered for this item shall not be operated for item no. A2504.	--		
c	For 450 mm diameter pile	RM	10	.0000982
d	For 600 mm diameter pile	RM	10	.0001035
TA2510	For test pile installation - Extra over ST.No.A2504 a for boring/drilling for a length not exceeding 3 times diameter of pile inside rock including cleaning the pile hole, concreting etc all complete for the following. Measurement shall be taken below the level/ depth considered under item no. A2504. Measurement considered for this item shall not be operated for item no. A2504. Cement required for this item is in the scope of contractor.	--		
a	For 600 mm diameter pile	RM	54	.0006008
TAA2510	For test pile installation -Extra over ST.No.A2504 b for boring/drilling for a length not exceeding 6 times diameter of pile inside rock including cleaning the pile hole, concreting etc all complete for the following. Measurement shall be taken below the level/ depth considered under item no. A2504. Measurement considered for this item shall not be operated for item no. A2504. Cement required for this item is in the scope of contractor.	--		

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	For 600 mm diameter pile	RM	54	.0006609
T2510	For test pile installation -Extra over ST.No.A2504 c&d for boring/drilling in rock for a length not exceeding 3 times the diameter of pile, cleaning the pile hole, concreting etc all complete for the following. Measurement shall be taken below the level/ depth considered under item no. A2504. Measurement considered for this item shall not be operated for item no. A2504. Cement required for this item is in the scope of contractor.	--		
c	For 450 mm diameter pile	RM	10	.0001026
d	For 600 mm diameter pile	RM	10	.0001113
2511.0	Conducting initial load test upto a maximum test load of 2.5 times the safe load capacity on single pile as specified in accordance with IS 2911 Part-4 including preparation of pile head for testing, necessary excavation, all arrangements of loading, unloading, test equipments/ accessories, jacks, recording of results, labour, submission of test report but excluding the cost of installation of pile (installation of pile shall be paid separately) etc. all complete as per specification, drawing and as directed by engineer in - charge for the following:	--		
a	For vertical compression test by cyclic load method	--		
i	450 mm diameter pile in A2504 c	EACH	3	.0003538
iii	600 mm diameter pile in A2504 d	EACH	6	.0007391
iv	760 mm diameter pile in A2504 e	EACH	3	.000392
b	For lateral load test	--		
i	450 mm diameter pile in A2504 c	EACH	3	.0001385
iii	600 mm diameter pile in A2504 d	EACH	6	.0003159

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
iv	760 mm diameter pile in A2504 e	EACH	3	.000187
c	For tension/uplift test	--		
i	450 mm diameter pile in A2504 c	EACH	3	.0001524
iii	600 mm diameter pile in A2504 d	EACH	6	.0003491
iv	760 mm diameter pile in A2504 e	EACH	3	.0002078
A2511	Conducting initial load test upto a maximum test load of 3 times the safe load capacity on single pile as specified in accordance with IS 2911 Part-4 including preparation of pile head for testing, necessary excavation, all arrangements of loading, unloading, test equipments/ accessories, jacks, recording of results, labour, submission of test report but excluding the cost of installation of pile (installation of pile shall be paid separately) etc. all complete as per specification, drawing and as directed by engineer in - charge for the following:	--		
a	For vertical compression test by cyclic load method	--		
--	600 mm diameter pile in A2504 a&b	EACH	6	.0010643
b	For lateral load test	--		
--	600 mm diameter pile in A2504 a&b	EACH	6	.0004548
c	For tension/uplift test	--		
--	600 mm diameter pile in A2504 a&b	EACH	6	.0005027

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2512.0	Conducting routine load test on single job pile as specified in accordance with IS 2911 (Part-4) including preparation of pile head for testing, necessary excavation, providing all arrangements of loading, unloading, test equipments/accessories, jacks, recording of results, labour, submission of test report etc but excuding the cost of installation of job pile complete as per specification, drawing and as directed by the engineer-in-charge for the following.	--		
a	For vertical compression test by maintained load method	--		
i	450 mm diameter pile	EACH	2	.0001529
iii	600 mm diameter pile	EACH	28	.0025
iv	760 mm diameter pile	EACH	1	.0001081
b	For lateral load test	--		
i	450 mm diameter pile	EACH	2	.0000924
iii	600 mm diameter pile	EACH	28	.0014741
iv	760 mm diameter pile	EACH	1	.0000623
2513.0	Carrying out pile integrity test on 450mm/500mm/550mm/600mm/760mm/900mm diameter pile in A2504 c&d including all arrangements for test, equipments/accessories, materials, labour, submission of test report etc but excluding the cost of installation of job pile all complete as per specification and as directed by the engineer-in-charge.	EACH	480	.0016589
A2513	Carrying out low strain pile integrity test on 600mm diameter pile in A2504a&b including all arrangements for test, equipments/ accessories, materials, labour, submission of test report etc but excluding the cost of installation of job pile all complete as per specification and as directed by the engineer-in-charge.	EACH	3,281	.0113396

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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.	--		
2602.0	Earth work in stripping of top soil upto a maximum depth of 0.30m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300 mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	150	.0000036
2603.0	Earth work in excavation upto any depth below ground level upto 2m depth 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	150	.0000143
2608.0	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm loose thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil/soft rock directly from excavation within a lead upto 1km and compacted as specified including dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer for the following.	CUM	750	.0000233

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2609.0	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm loose thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil/soft rock from compulsorily excavated earth available within a lead upto 1km and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer for the following.	CUM	5,775	.0005332
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	1	
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	300	.000003
2611.0	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300 mm loose thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following.	CUM	1,500	.0008234
3000.0	GROUND IMPROVEMENT: Ground improvement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge.	--		
3006.0	Mobilisation of ground improvement rigs for Vibro-displacement (dry method) of stone columns and accessories capable of pile boring/drilling applicable for ST No.3007,3008 in all types of strata/installing various size to project site and demobilisation of the same after completion of piling works etc all complete.	NOS	1	.0004338

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3008.0	Providing and installing 600 mm diameter and 15 m long stone column with Vibrodisplacement method (dry method) using vibro-float/ vibro-cat/ any other suitable means and filling in layers of 800 mm thick using 40mm down stone aggregate as back fill material and each layer be well compacted by dynamic compaction method and shall be thoroughly compacted . This procedure shall be repeated for each layer till the ground level is reached for ground improvement of pond ash/soil deposit at desired location including all materials, equipments etc complete as per specifications,drawing and as directed by the engineering -in-charge	NOS	100	.0026097
3009.0	Rebate on ST No 3002 and 3003 for not providing 1 (sand) : 2 (stone aggregate; stone aggregate shall be 50mm & down) to a depth of 02 M below ground level.	CUM	1	.000004
3010.0	Rebate on ST No 3004 and 3005 for not providing 1 (sand) : 2 (stone aggregate; stone aggregate shall be 50mm & down) to a depth of 02 M below ground level.	CUM	1	.000004
3011.0	Rebate on ST No 3007 for not providing 1 (sand) : 2 (stone aggregate; stone aggregate shall be 40mm & down) to a depth of 02 M below ground level.	CUM	1	.0000026
3012.0	Extra over ST. No. 3002 and 3003 for driven cast-in-situ compaction piles having length beyond the specified depth below cut off level.	RM	1	.0000018
3013.0	Extra over ST. No. 3004 and 3005 for driven cast-in-situ compaction piles having length beyond the specified depth below cut off level.	RM	1	.0000019
3014.0	Extra over ST. No. 3007 for stone column with Vibrodisplacement method (dry method) having length beyond the specified depth below cut off level.	RM	5	.0000083
3015.0	Rebate on ST.No.3002 and 3003 for driven cast-in-situ compaction piles for depth less than the specified length below ground level .	RM	1	.0000018
3016.0	Rebate on ST.No.3004 and 3005 for driven cast-in-situ compaction piles for depth less than the specified length below ground level .	RM	1	.0000019

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1915 for Civil Works - Foundations, Civil works-Super structure& architecture works, Pile and Pile Caps, Structural Steel Fabrication & Erection works

at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3017.0	Rebate on ST No.3007 for stone column with vibro displacement method (dry method) having length less than the specified length below ground level.	RM	1	.0000017
3020.0	Conducting plate load test in various locations at specified depth complete as per specification, drawings and as directed by the engineer-in-charge. Payment for making the pit of suitable size, maintaining it dry and backfilling etc shall be paid separately as per item no.3019.	NOS	1	.0000789
3021.0	Conducting Dynamic cone penetration Test at specified locations as per IS-4968,Part-II for a maximum depth up to 18m below ground level submission of approved test report etc as per specification. (The rate shall include mobilisation of necessary testing equipments etc. to the project site and de-mobilisation of the same after completion of the test.)	NOS	1	.0000005
TOTAL Weightage				1.0