

**TENDER SPECIFICATION
BHEL: PSSR: SCT: 1929**

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)

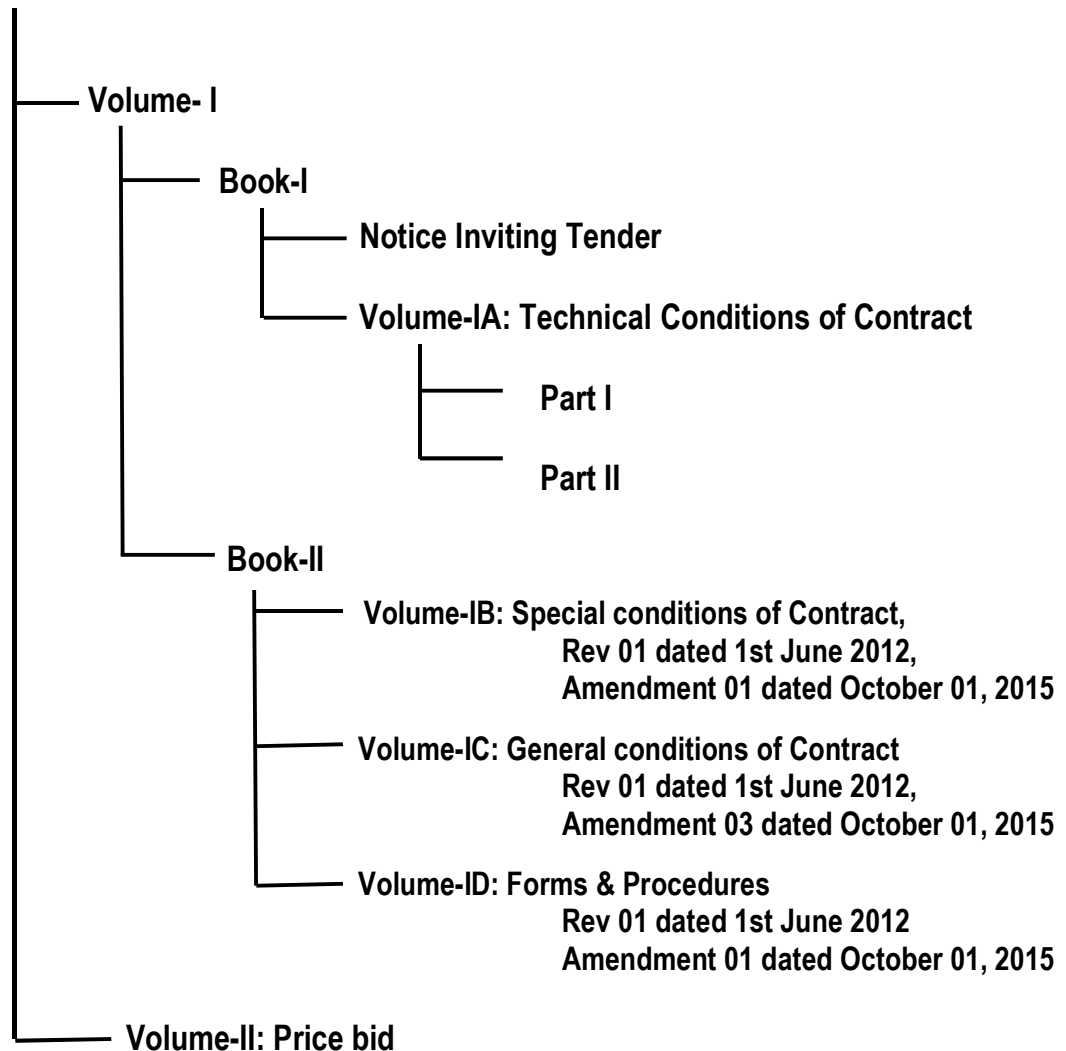
Power Sector – Southern Region

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

PRICE BID

TENDER SPECIFICATION CONSISTS OF

Techno-Commercial Bid



PRICE BID

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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 named 'SCT 1929 Format to quote Total Amount' available in e-Procurement portal and uploaded under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid). Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/formats will not be entertained. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/formats will not be entertained.
4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid.
5. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C.
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 C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1929 for Civil Works - Foundations, Civil works-Super structure& architecture works, 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	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	66,785	.0082447
b	Depth exceeding 2 m but not exceeding 4 m	CUM	9,960	.001537
c	Depth exceeding 4 m but not exceeding 6 m	CUM	3,132	.0006033
d	Depth exceeding 6 m but not exceeding 8 m	CUM	100	.0000241
e	Depth exceeding 8 m but not exceeding 10 m	CUM	100	.0000288
f	Depth exceeding 10 m but not exceeding 15 m	CUM	10	.0000033
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	56,515	.0210796

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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), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 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	1,300	.0001854
b	Depth exceeding 2 m but not exceeding 4 m	CUM	135	.0000231
c	Depth exceeding 4 m but not exceeding 6 m	CUM	205	.0000421
d	Depth exceeding 6 m but not exceeding 8 m	CUM	100	.0000246
e	Depth exceeding 8 m but not exceeding 10 m	CUM	100	.0000283
f	Depth exceeding 10 m but not exceeding 15 m	CUM	10	.0000031
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	10	.0000034

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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	10	.0000041
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	10	.0000035
b	Depth exceeding 2 m but not exceeding 4 m	CUM	10	.0000042
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	.0000196
b	Depth exceeding 2 m but not exceeding 4 m	CUM	10	.0000236
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	21,000	.001855

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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
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	150	.0000147
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	1,633	.0001442
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	25,687	.002269

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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
B107	<p>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.</p> <p>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.)</p>	CUM	10	.0000028
BB107	<p>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.</p> <p>Backfilling with hard rock boulder pieces having size less than 150mm and interstices filled with approved borrowed earth (soil, fine aggregate, 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).</p>	CUM	10	.0000045

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
108.0	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected earth directly from excavation within a lead upto 1Km 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 90% maximum dry density as per IS-2720 (Part-VII)	CUM	1,500	.0000447
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	150	.0000049
109.0	Extra over ST No. 101 and 103 to A 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	29,002	.0003086
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	4,400	.0000468
110.0	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness so as to achieve required compaction with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:	CUM	10	.0000058

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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
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 lifts and lead upto 2km). 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	.0000175
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	170	.0004371
A111	Supplying and filling sand upto any depth under floors, around foundations, plinths, paving, passages, etc. 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	1,962	.0049942
AA111	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	.00028

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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
AAA11	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	50	.000126
B111	Supplying and filling sand 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	348	.0009396
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	14,500	.0003704
B114	Earth work in stripping of top soil upto a minimum depth of 0.50 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	1,290	.0000549
200.0	CONCRETE WORKS	--		

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	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	20	.0000859
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	2,771	.011908
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	100	.0004297
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	294	.0012634
204.0	Concrete of grade M20 (1 part cement, 1.5 part fine aggregate, 3 parts of 12mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete.	CUM	155	.0006519

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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
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	50	.0002251
b	M30 Grade	CUM	10	.0000452
c	M 35 Grade	CUM	4,800	.0217971
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.	--		
C	M 35 Grade	CUM	13,595	.0617359
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	50	.0002233
b	M30 Grade	CUM	10	.0000449

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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
c	M 35 Grade	CUM	1,150	.0051806
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.	--		
c	M 35 Grade	CUM	4,030	.0181547
A207	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in machine foundations for Booster fans, Ball mills, crusher deck 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	--		
b	M 35 Grade	CUM	2,890	.0137327
A209	Extra over St. No. A207 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	2,500	.002485
A210	Extra over ST Nos. A207 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	2,500	.0009179

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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	.0001074
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)	--		
c	M35 grade	CUM	240	.0010812
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 fine aggregate, 4 parts of aggregate by volume) (M15)	CUM	25	.0001074
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	.0001719
b	1:1.5:3 (1 part cement, 1.5 part fine aggregate, 3 parts of aggregate by volume) (M20)	CUM	153	.0006575

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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	65	.000475
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/m3 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.	--		
c	M 35 grade	CUM	115	.0008452

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1929 for Civil Works - Foundations, Civil works-Super structure& architecture works, 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
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	.0001473
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.	--		
C	M35	CUM	230	.0012995
b	M30	CUM	5	.0000282

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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
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/m ³ using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required.	--		
C	M 35 grade	CUM	225	.0012713
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	160	.0001565
b	Reinforced cement concrete of all grades	CUM	745	.0011338
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	.0000054
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	.0000055

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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
219.0	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	155	.0000208
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	.0000251
b	M25 Grade	CUM	5	.0000257
222.0	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	10	.0000007
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	10	.0000259
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:	--		

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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
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	32,203	.019946
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	21,370	.0160563
303A	Fairface Formwork with good quality water proof ply wood of minimum 18mm thickness and smooth surface for Crusher Deck & Supporting Structure (Approx. height 10M above FGL) 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..	SQM	1,000	.0041675
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	.0000328
b	Pockets of depths more than 150mm and upto 300 mm depth	EACH	131	.0000537
c	Pockets of depths more than 300mm and upto 600 mm depth	EACH	141	.0001034
d	Pockets of depths more than 600mm and upto 1000 mm depth	EACH	311	.0003584
e	Pockets of depths more than 1000mm and upto 1500 mm depth	EACH	30	.0000499

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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
f	Pockets of depths more than 1500mm and upto 2000 mm depth	EACH	350	.0007692
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	1,001	.0001236
b	Extra for Curve Shuttering for Item No. 302	SQM	501	.0000752
400.0	REINFORCEMENT	--		
--	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	.0004765
402.0	Providing, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR or Fe 500 (CRS) 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.	MT	50	.0032701
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 or Fe-500 EQR 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 shall be supplied by BHEL free of cost for incorporation in permanent works.	MT	4,414	.0661175

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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
405.0	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.	--		
a	12mm Reinforcement bar	EACH	32	.0000134
b	16mm Reinforcement bar	EACH	32	.000021
c	20mm Reinforcement bar	EACH	32	.0000294
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	.0000016
b	16mm dia	Nos.	25	.0000023
c	20mm dia	Nos.	25	.000003
d	25mm dia	Nos.	25	.000004
e	28mm dia	Nos.	25	.0000059

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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
f	32mm dia	Nos.	25	.0000074
500.0	WATER PROOFING 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	3,850	.0006023
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 fine aggregate) 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	.0000129
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 fine aggregate) 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.	--		

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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	25 mm thickness of rigid insulation (expanded polystyrene blocks)	SQM	100	.0000238
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	.0000423
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 >=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	2,200	.0018613
AA506	Providing and applying PU based water proofing treatment with two coats of polymerised mastic over the RCC roof to achieve smooth surface as 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 (ASTM C836), to form an elastomeric membrane with overall dry film thickness 1.5mm. Item includes surface preparation, polyscrim cloth /fabric, polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge.	SQM	1,400	.0011845

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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
506A	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	.0005891
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	.0000228
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	2,200	.0010021

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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
AA507	Providing and laying wearing course consisting of 50mm 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	1,400	.0009625
510.0	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making)	SQM	410	.000291
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) (including cost of cement for tiles making)	SQM	2,100	.0015264
B510	Providing and laying cement concrete chequered flooring tiles of minimum 20 mm thickness and size 600x600 mm conforming to IS 13801 & IS 1443 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 filled up with (silicon/elastomeric) joint sealant, including underbed(as per drawings) etc all complete as per specification, (excluding the cost of under bed grading plaster) (This item includes the cost of cement for tiles making), (Water proofing paid elsewhere).(excluding the cost of under bed grading plaster)	SQM	1,300	.0011068

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
511.0	Providing and 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	10,831	.0014869
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	6,129	.0012621
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	8,919	.0015092
513.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	305	.0000269
514.0	Providing and applying concrete structures two coats of ERPB (Epoxy resin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with 300 to 325 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation	SQM	10	.0000017
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	.0000015
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	.0000012

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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
A520	Providing and fixing waterproofing treatment to be provided in Walls/base of Structures 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	1,030	.0006121
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	3,600	.000296
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 fine aggregate) 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	70	.0000369

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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
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	350	.0001147
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	300	.0001882

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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
A525	Providing and laying polyurethane foam insulation spray applied an average 40 mm thick two component Hydro fluoro-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/m ³ 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 polymer 10% 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 Minimum 10 years for material and workmanship.	SQM	1,600	.0029424
A526	Providing and applying to surfaces of liquid carrying/retaining structures, minimum 2 coats of cement based two-components polymer modified flexible protective and waterproofing slurry having 1 mm thick for each coat etc. all complete as per specification and as directed by engineer - in - charge.	SQM	200	.000093
--	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 conforming 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	.000022

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b	20 mm wide joints.	SQM	45	.0000338
c	25 mm wide joints	SQM	649	.0005926
d	50 mm wide joints	SQM	697	.0012017
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	.0000601
b	50mmX25mm	RM	2,555	.0022841
604.0	Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		
a	10mm X 40mm	RM	2,037	.0001019
b	12mm X 25mm	RM	50	.0000022
c	20mmX25mm	RM	2,629	.0001427
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	.0000012
c	25 mm wide joints	SQM	20	.0000015
d	50 mm wide joints	SQM	20	.000003

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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
Ae	100 mm wide joints with polystyrene board of type-1 conforming to IS: 4671 with density 20 Kg/cum	SQM	812	.0002402
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 manufacturer's recommendations including the material and tools required for jointing, testing, protection, etc all complete. The joints in rubber seals shall be vulcanised as needed.	RM	100	.0000073
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 manufacturer's recommendations, to cover it fully including the material and tools required for jointing, testing, protection, etc all complete.	SQM	70	.0000063
608.0	Supplying and filling in position hot applied bitumin sealing compound (Grade B) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		
a	10mm X 40mm	RM	20	.0000013
b	12mm X 25mm	RM	20	.0000012
c	20mmX25mm	RM	20	.0000015
609.0	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicons or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:	--		
a	25mmX25mm	RM	20	.0000113

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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	50mmX25mm	RM	20	.0000212
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	.0000328
b	230 mm wide and 8 mm thick	RM	125	.0000438
d	230 mm wide and 6 mm thick	RM	610	.0001376
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	.0000093
b	50mmX25mm	RM	15	.0000175
613.0	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	25	.0000028
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	.0000067
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	.0000144
700.0	MS EMBEDMENTS	--		
--	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:	--		

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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
701.0	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	79	.0059878
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.	MT	46	.0038193
702.0	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	27	.0026044
A702	Extra above over item ST no 702 for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer .	MT	2	.0000351
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	11	.0003141
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	11	.0003248
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	.0000099

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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	PVC pipes / conduits of all diameters	Kg	150	.0000559
c	UPVC pipes / conduits of all diameters	Kg	200	.0000783
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	.0000109
iv	HST M16	EACH	29	.0000187
v	HST M20	EACH	29	.0000392
vi	HST M24	EACH	29	.0000497
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:	--		

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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
i	HAS-E5.8 M8	EACH	4	.0000015
ii	HAS-E5.8 M10	EACH	4	.0000017
iii	HAS-E5.8 M12	EACH	29	.0000149
iv	HAS-E5.8 M16	EACH	29	.0000244
v	HAS-E5.8 M20	EACH	29	.0000376
vi	HAS-E5.8 M24	EACH	29	.0000494
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	.0000418
707.0	Providing, laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	11	.0007904
800.0	GROUTING	--		
--	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: (OPC Cement shall be supplied by BHEL free of cost).	--		
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	.0000113

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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
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	.0000656
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 fine aggregate : 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	.0005253
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	37	.0018598
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	31	.0019652
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	7	.0000134

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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
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 manufacturer's 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 manufacturer's 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. Item rate is inclusive of PCC and polymer modified cementitious coating etc., all complete as per the specification.	SQM	25	.0000229
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	.000497
900.0	DOORS, WINDOWS, VENTILATORS, LOUVERS	--		

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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
--	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)	CUM	2	.0002888
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)	SQM	25	.0000935
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 anoidised 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)	SQM	15	.0000595

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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
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. 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.	SQM	85	.0007208
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)	KG	480	.0002549

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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
B907	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 manufacturerd from minimum 1.2mm thick galvanized steel sheet, with or without vision panel, suitably mounting on door frame (143X57 mm). Door frame shall be manufactured from minimum 1.6 mm (16 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.	SQM	80	.0008037
908.0	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)	--		
a	Openable type	SQM	520	.0009574
b	fixed type	SQM	245	.0002952

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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
909.0	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventillators, 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.	Kg	150	.000071

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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
A909	Providing and fixing anodised aluminium work of INDAL, Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing,louver, 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.	Kg	6,418	.0030395

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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
A910	<p>Providing, fabricating, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqmt) material consisting of 3mm thick FR grade Class B as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The top coated surface of ACP shall comply with the specification for coated coil for the exterior building application issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the coping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade approval shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor, Reynobond or equivalent. The system shall be designed to withstand a wind pressure of</p>	SQM	110	.0003775

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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
	200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS316 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.			
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	.0000307
b	Floor mounted Hydraulic door closers as per IS 6315	EACH	20	.0000521
912.0	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	100	.0000146
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.	Kg	1,583	.0002308

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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
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).	--		
c	Electrically operated	SQM	105	.0003345
A913	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides of 75mm wide and 3mm thick(min.) and arrangements for inside and outside locking with push and pull operation including wire springs, top/hood cover 0.9mm thick (min.) , factory galvanized, primed & field painted with 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).	--		
Ac	Electrically and mechanically operated	SQM	71	.0002262

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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
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	20	.0000714
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	25	.0000893
915.0	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.	--		
Ac	6 mm thick clear float glass	SQM	736	.0011616
Ad	5.5 mm thick wired glass	SQM	286	.0004654

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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
Ae	4mm thick Polycarbonate sheet fire retardant and ultra violet resistant	SQM	35	.0000751
Af	6 mm thick ground glass	SQM	100	.0002776
h	6 mm thick clear toughened safety glass	SQM	100	.0001877
Ah	8 mm thick toughened float glass	SQM	110	.0002043
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	60	.0002151
Ai	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). Double glazed panels with glass having properties like-VLT >30 to 45%, external reflection=8 to 20%, internal reflection=15 to 30%, solar factor=0.26 to 0.29, U value=1.6 to 1.9 W/sqmK parameters varies as per specification.	SQM	40	.0001434
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	.0000374
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	100	.0003897
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	.0000042
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	.0000258
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	.0000634

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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
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	.0000302
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.	SQM	125	.0003878
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).	KG	300	.0001421
A924	Providing and fixing MS grills of approved pattern made out of 25 mm x 6 mm MS flats and 12-20 mm MS square bars for window,ventilator,openings at all heights including painting as per specification.	KG	150	.0000046
1000.0	BRICKWORK	--		

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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
--	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.	--		
1001.0	Providing brick work in cement mortar 1:6 (1 part cement 6 parts fine aggregate) 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	.0003402
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	30	.0002394
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	25	.0001782
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	150	.0010207
Ac	Using machine moulded burnt clay bricks of class designation 7.5 of nominal dimension	CUM	50	.000399
1002.0	Providing brick work in cement mortar 1:6 (1 cement 6 fine aggregate) 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	.0047991
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	77	.0007249
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	50	.0004294

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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
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)	CUM	1,205	.0099706
Ac	Using machine moulded burnt clay bricks of class designation 7.5 of nominal dimension	CUM	25	.0002354
A1002	Providing brick work in cement mortar 1:6 (1 cement 6 fine aggregate) 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/cm ² (including cost of cement for brick making)	CUM	25	.0002069
1003.0	Providing brick work in cement mortar 1:4 (1 cement 4 fine aggregate) 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/cm ² (including cost of cement for brick making)	SQM	40	.0000406
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	31	.0000356
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	25	.0000263
A1003	Providing brick work in cement mortar 1:4 (1 cement 4 fine aggregate) 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.	--		

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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
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	90	.0000914
Ac	Using machine moulded burnt clay bricks of class designation 7.5 of nominal dimension	SQM	20	.000023
B1003	Providing brick work in cement mortar 1:3 (1 cement 3 fine aggregate) 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.	--		
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	15	.0000152
Ac	Using machine moulded burnt clay bricks of class designation 7.5 of nominal dimension	SQM	10	.0000115
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	.0000038
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	.000049
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		

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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	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	6	.0000424
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.	CUM	6	.0000424
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	.0000142
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	.0000233
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	.0000038
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	.0000126
1011.0	Providing and filling brick bats in soak pits all complete.	CUM	21	.0000311
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:	--		

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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
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	40mm thick	SQM	220	.0000649
Aa	45 mm thick	SQM	200	.0000639
b	50 mm thick	SQM	25	.0000086
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 (12 mm under coat and then 8mm finishing coat) 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	11,074	.0036417
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	74	.0000155
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	.0013208
1203.0	Providing 12mm thick plaster in cement mortar 1:6 on walls with rough finish all complete.	SQM	10	.000002

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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
A1203	Providing 12mm thick plaster in cement mortar 1:4 on walls with smooth finish all complete.	SQM	1,750	.0003501
A1204	Providing 10mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	12,278	.0026525
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	.0000124
A1205	Providing 15mm thick plaster in walls, drains/culverts/sumps with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	325	.0000616
1207.0	Forming groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	1,020	.0000358
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	.0000153
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	15	.0000027
A1210	Providing drip course in cement mortar (1:3) in parapet, chajjas, window/door heads, architectural facias, fins etc. all complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	15	.0000009
A1211	Providing and fixing 150mm wide 0.56mm dia chicken wire mesh fixed with U nails 150mm centre to centre before plastering the junctions of column/beam and walls all complete as per specification and as per instructions of engineer in charge..	SQM	250	.0000053

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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
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	75	.0000026
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	.0000088
1304.0	Providing and applying 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	12,647	.0010821
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	400	.0000505
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	1,348	.0001793
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	.0003864

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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
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	.0001612
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	.0000199
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	.0000233
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	.0000965
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	5	.0000004
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	.000619

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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
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	.0000102
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	.0000093
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	.0009216
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	.0000064
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		
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	.0000532
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	50	.0000069

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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
A1319	Providing and applying two or more coats of waterproof External Quality Acrylic Emulsion 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	6,115	.0008441
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	110	.0000353
1321.0	Providing and applying french polish (minimum 2 coats) on wood surface made from best quality shelac, denatured spirit and other suitable alcohol soluble ingredients and made by a well known approved manufacturer as per IS 348 including required base preparation etc. all complete as per specification	SQM	30	.000005
1400.0	FLOORING AND SKIRTING	--		
--	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.	--		

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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
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	.001466
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick 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	.0106852
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	.0005061
A1402	Providing and laying 18 mm thick skirting and dado with cement mortar 1:3 (1 cement: 3 sand) finished with a floating coat of neat cement all complete as per specification.	SQM	100	.0000331
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).	--		

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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	75mm thick	SQM	100	.0000841
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).	SQM	100	.0001349
1406.0	Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	200	.0003474
1408.0	Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	20	.0000315
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.	SQM	250	.0006569

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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
1412.0	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	25	.0000861
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.	SQM	568	.0019561
1415.0	Providing and laying polished Granite stone 14-16mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	300	.0009013
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	--		
b	10mm thick tiles In flooring	SQM	50	.0000692
d	10mm thick tiles In skirting and dado upto specific height	SQM	50	.0000717

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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
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	--		
b	10mm thick tiles In flooring	SQM	2,600	.0038268
d	10mm thick tiles In skirting and dado upto specific height	SQM	157	.0002444
1417.0	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following	--		
b	10mm thick tiles In flooring	SQM	50	.0000734
d	10mm thick tiles In skirting and dado upto specific height	SQM	50	.0000759
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	.0000911
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	.0000911
1421.0	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 600x600mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 43mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar with neat cement slurry @3.3kg/sqm all complete.	SQM	50	.000054

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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
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.	SQM	100	.0001551
1422.0	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.	--		
a	20mm thick	SQM	150	.0003526
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.	--		
a	20mm thick	SQM	100	.0001779
A1423	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.	--		
a	20mm thick with minimum 30 mm bedding on floor	SQM	200	.0008395
Aa	20mm thick tiles In skirting and dado upto specific height with minimum 12 mm bedding	SQM	12	.00003

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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
1427.0	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses:	--		
a	5mm thick	SQM	176	.0001746
b	7mm thick	SQM	50	.0000475
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	.0000277
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	.0000498
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	.0002464
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	.0000024
c	Brass strips 20 mm wide and minimum 4 mm thick.	RM	25	.0000026
A1430	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.	--		

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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
Aa	Glass strips 40 mm wide and minimum 4 mm thick.	RM	100	.0000044
b	Aluminium strips 40 mm wide and minimum 2 mm thick	RM	1,000	.0000958
c	Brass strips 20 mm wide and minimum 2 mm thick.	RM	100	.0000102
d	PVC strips 40 mm wide and minimum 2 mm thick	RM	200	.0000087
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:	--		

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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
A1502	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 150mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to 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.	--		
a	Span Upto 1800mm	SQM	1,100	.0015593
b	Span Exceeding 1800mm and upto 2500 mm	SQM	1,150	.0016302
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	.0004036
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	.0000605

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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
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 Zincalume 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.	SQM	5,574	.0092599
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.	SQM	100	.0001133

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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
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.	SQM	17,500	.0264461
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.	--		
a	For insulation in Sandwich Cladding	SQM	150	.0000782
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.	--		
a	Mineral wool (spintex 300 or equivalent) insulation(density 48kg/cum) bound in polythene bags on top of false ceiling panels.	SQM	2,704	.001528

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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
B1512	Providing and fixing Closed Cell Elastomeric Nitrile Rubber insulation of specified minimum thickness having density 40 to 60 Kg/m ³ , Thermal conductivity shall not exceed 0.035 W/m ² °K at an average temperature of 0°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 1 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 μ value should be minimum 7000.The insulation shall be fixed with suitable fixing arrangements as per manufacturer's recommendation and as directed by engineer all complete.	--		
a	32 mm thick For Corrugated or metal ceiling	SQM	100	.000189
b	25 mm thick For Concrete Slab	SQM	2,000	.0032693

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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
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.	SQM	250	.0006457

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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
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	SQM	550	.0006234
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:	--		
A1601	Providing and fixing glass fibre reinforced gypsum plaster board (GRG) ceiling (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preperation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.	--		
a	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat.	SQM	100	.0000598

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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
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 minimum 25mm thick mineral wool insulation (density 48kg/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).	SQM	100	.0001289
1603.0	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (density 48 kg/cum) conforming to IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	100	.0001895

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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
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved make and colour with perforation of Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including minimum 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,torsional spring 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).	SQM	800	.0014712
A1604	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with or without perforation of Luxalon with stove enamel finish of approved make in LINEAR and SQUARE type with corrosion resistance aluminium alloys panels of 600mm X 600mm of minimum thickness 0.5mm including 25mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels.. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc. Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	SQM	800	.00157
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:	--		

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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
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	.0000086
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 grating at inlet point etc. all complete as specification.	RM	1,135	.0021476
1705.0	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	100	.0000525
1706.0	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	1,100	.0007691
A1706	Providing and fixing UPVC down take pipes of 160mm diameter- Type-B as per IS:13592 all complete. 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 grating at inlet point etc. all complete as specification.	RM	472	.00033
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:	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1801.0	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 230 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	4,630	.0099336
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	.0006222
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	.0032182
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	.0008582
1802.0	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	24	.0000763
1803.0	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	60	.0001714

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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
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	1,000	.0009533
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	35	.0000059
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	6,611	.0009568
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	.0001166
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	.0000553
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	.0000403
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	.000011
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	.0000092

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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
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	.0001262
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	.0000968
1815.0	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	200	.0000145
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	.0005475
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	.0000046
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	.0000125
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	.0000252
1823.0	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	5	.0000117

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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
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.	--		
a	Steel scrap / metal scrap	MTÂ	5	.0000031
b	Debris & Other waste materials.	CUM	5	.0000006
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 ± 200 mm) 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	1,000	.0001234
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	.0000024
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	20	.0000517
(b)	300 mm diamter	RM	20	.0000614

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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
A1840	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	Cum	5	.0000158
A1841	Supply & packing uniformly downgraded 40mm size gravel at all depth in the pit/well dug for rain water harvesting.	Cum	5	.000016
A1842	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the pit/well dug for rain water harvesting.	Cum	5	.0000122
A1843	Supply & laying fine aggregate layer at all depth in the pit/well dug for rain water harvesting.	Cum	5	.0000104
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	.0000039
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	.000007
A1846	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	10	.000007
A1847	Supply & fixing Netlon jali/ PVT net in the well dug for rain water	SQM	10	.0000021
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	385	.0002126
AA1849	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete as per specification.	SQM	200	.0002209
A1850	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded fine aggregate 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	.000323

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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
A1851	Providing and Filling in Tanks and other underground structures with crushed stone, screenings of minimum 75 mm layer thickness including breaking of stone boulders to required sizes, filling the interstices with fine gravel, clean sand or similar material mixed in hot asphalt (80 / 100 bitumen or equivalent 8 to 10% by volume) 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.	SQM	585	.0002508
2000.0	FENCING AND GATES	--		
--	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	119	.0002009
2005.0	Supplying and fixing 600mm high G.I. barbed wire fencing on top of boundary wall consisting of min. 6 nos. strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply with barbs of 16G spaced at 100mm including GI clips, anchors, accessories etc. all complete. (Structural post shall be paid separately under ST No. 2007/ 2008 as the case may be) Measurement shall be for per running meter of fencing.	RM	30	.0000023
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	.0005836
2008.0	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	1	.0000792

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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
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	.000095
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	.0002717
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	.0000906
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	1	.0000865
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	.000043
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	.0000098

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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
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	.0000065
b	50mm nominal bore.	EACH	14	.0000101
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	.0000228
b	20 mm nominal bore.	RM	55	.0000252
c	25 mm nominal bore.	RM	25	.0000134
d	50 mm nominal bore.	RM	10	.0000081
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:	--		
a	15 mm nominal bore.	RM	200	.0000155
b	20 mm nominal bore.	RM	100	.0000123
c	25 mm nominal bore.	RM	100	.0000181
d	50 mm nominal bore.	RM	20	.0000119

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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
2105.0	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:	--		
a	15 mm nominal bore.	RM	25	.0000077
b	20 mm nominal bore.	RM	25	.0000088
c	25 mm nominal bore.	RM	25	.0000108
d	50 mm nominal bore.	RM	25	.0000177
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	.0000031
b	20 mm nominal bore.	RM	80	.0000099
c	25 mm nominal bore.	RM	120	.0000217
d	50 mm nominal bore.	RM	80	.0000478
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	.0000036
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	.0000132
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	.0000037

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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
2108.0	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) with C.P. mounting brackets all complete.	NOS	2	.0000014
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	.0000083
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	.0000029
2110.0	Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete.	EACH	17	.0000083
2111.0	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	17	.0000113
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	.0000065
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	.0000059
b	1000 litres capacity	NOS	2	.0000117
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.	--		

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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	1000 litres capacity	EACH	7	.0000411
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		
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	.0000051
2117.0	Providing and fixing metal storing cabinets all complete.	EACH	4	.0000445
2118.0	Providing Minimum 600 mm long chromium plated tray etc all complete..	EACH	4	.0000054
2119.0	Providing and fixing Recessed chromium plated soap tray in shower area etc all complete.	EACH	4	.0000023
2120.0	Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete.	EACH	4	.0000585
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	.0000178
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:	--		

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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
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	.0000034
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	.0000205
b	Colored	EACH	6	.0000218
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	.0000054
A2203	Providing and fixing stainless steel kitchen sink of size 600x400x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	2	.0000093
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.	--		

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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	Floor mounted	EACH	7	.0000348
b	Wall mounted	EACH	7	.0000653
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	.0000657
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	14	.0000874
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	.0000824
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	.000249
b	110mm dia pipes	RM	50	.0000177
c	160mm dia pipes	RM	50	.0000239
d	200mm dia pipes	RM	20	.0000114
2208.0	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.	--		
a	200mm dia	RM	10	.0000054

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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	300mm dia	RM	60	.0000421
c	450mm dia	RM	60	.0000861
d	600mm dia	RM	10	.0000195
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	.0000216
b	300mm dia	RM	20	.000014
c	450mm dia	RM	20	.0000287
d	600mm dia	RM	40	.0000781
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	40	.0000152
b	250mm dia	RM	20	.0000111
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	60	.0000229
b	250mm dia	RM	90	.0000499
c	400mm dia	RM	20	.0000117

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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
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	25	.0000403
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	50	.000137
2212.0	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	30	.0000722
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	.0000316
b	150x100mm P or S Type.	EACH	20	.0000328
c	150x150mm P or S Type.	EACH	20	.000035
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	.0000367
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	.0000955
2216.0	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	30	.0009201

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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
2217.0	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	20	.0007638
2218.0	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	10	.0000135
A2218	Providing and fixing marble slab urinal partitions of size 675x325x18mm all complete.	EACH	10	.0000135
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	.0001381
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	210	.0004666
c	150mm dia	RM	160	.0005263
d	200mm dia	RM	50	.0002481
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:	--		

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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
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, 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 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	3,322	.1253113

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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
A2302	Extra over ST NO. A2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and providing and applying 2 coats of Zinc Ethyl silicate primer of total DFT 50-60 micron including touch-up painting etc all complete.	MT	3,322	.0240335
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	.003764
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	.0040865
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% $\pm 2\%$) 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	.0114618
B2305	Providing Finish coat of Two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% $\pm 2\%$) 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 ΔE) 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	.0124435
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.	--		

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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	Minimum galvanisation of 610 g/sqm	MT	36	.0031886
b	Minimum galvanisation of 900 g/sqm	MT	1	.0000988
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.	MT	77	.0052481
2309.0	Extra over above ST NO. A 2301/ 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 primer all complete.	MT	15	.0002629
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	1,320	.0000969
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	33,710	.0026906
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-alignment 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	21	.0002017

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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
2314.0	Addition to, alterations in and/or modification of Erection Marks including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:	--		
a	In erected position	MT	16	.0004074
b	In fabrication yard	MT	6	.0001252
c	Erection and alignment of gratings of part a and b.	MT	10	.0001519
2315.0	Re-erection of dismantled fabricated structural steel members including carriage of modified Erection Marks from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members(weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	16	.000243
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 ± 50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
a	20 Tons	EACH	3	.0000456
b	25 Tons	EACH	3	.0000509
c	40 Tons	EACH	3	.0000544

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
d	50 Tons	EACH	3	.0000579
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	.0009319
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.	MT	25	.002362
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.	MT	8	.0008493
2323.0	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	25	.0000739
2324.0	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	25	.0000242
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	.0000066
2326.0	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	25	.0000198
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	.0000183
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	.0000045

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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
2334.0	Providing and fixing stainless steel (SS-409) handrails with balustrades etc all complete.	KG	20	.0000062
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	2,125	.0001063
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, tesing etc all complete.	CUM	610	.0003525
2403.0	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	125	.0001479
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	370	.0008789

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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
2405.0	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size(IRC 19 - grading -1), stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	450	.0011436
A2405	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 binding 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	515	.0013088
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	410	.0011035
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	.0002796
AA2414	Providing & laying edge protection on edges with M-25 GRADE PCC BLOCKS etc all complete..	CUM	210	.0015347
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	60	.0000324
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	.0000195

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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
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	.0000041
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	150	.0000728
B2415	Supply and laying 300mm 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	115	.0000807
C2415	Supply and laying 500mm 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	110	.0002147
2416.0	Dismantling of existing road consisting of premix carpet, kerb stone/ brick on edge, bitumen macadem course, WBM, prepairing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 km etc all complete.	SQM	200	.000018
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	90	.0003495
A2419	Providing and laying Reinforced cement concrete of grade M35 with minimum cement content of 400 kg/m ³ 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	1,350	.0061046

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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
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	.0000385
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	345	.0014826
A2423	Providing and fixing separation Membrane of impermeable plastic sheeting of 125 microns thick laid flat without creases etc. all complete	SQM	2,500	.0002207
--	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	4	.0002382
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 or Fe-500 EQR 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 shall be supplied by BHEL free of cost for incorporation in permanent works.	MT	85	.0012732
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	.0002382
--	MISCELLANEOUS	--		

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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
--	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	30	.0000517
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	.0000259
--	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	1,015	.0000454
--	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	.0000023
--	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	.0019704
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	1,250	.003214
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	15	.0000386
2433.0	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15-2002 A etc all complete as per specification, drawing and as directed by Engineer.	SQM	10	.0000009
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	.0000045

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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
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	.0000796
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	.0000023
--	2500 PILING	--		
--	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	.0013435
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	4	.0035826
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	.0001219

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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
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	.0001829
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	.0001219
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 8 m length below cut off level	EACH	1,805	.0667756
b	Pile with 600 mm diameter and 10 m length below cut off level	EACH	1,473	.0582477
c	Pile with 450 mm diameter and 8 m length below cut off level	EACH	6	.0001953

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
d	Pile with 450 mm diameter and 10 m length below cut off level	EACH	3	.0001019
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 8 m length below cut off level	EACH	12	.000575
b	Pile with 600 mm diameter and 10 m length below cut off level	EACH	12	.0006303
c	Pile with 450 mm diameter and 8 m length below cut off level	EACH	3	.0001196
d	Pile with 450 mm diameter and 10 m length below cut off level	EACH	3	.0001273
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 8 m length below cut off level	RM	1,815	.0075119
b	Pile with 600 mm diameter and 10 m length below cut off level	RM	1,484	.006142
c	Pile with 450 mm diameter and 8 m length below cut off level	RM	12	.0000344

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
d	Pile with 450 mm diameter and 10 m length below cut off level	RM	6	.0000172
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 8 m length below cut off level	RM	960	.0037035
b	Pile with 600 mm diameter and 10 m length below cut off level	RM	742	.0028625
c	Pile with 450 mm diameter and 8 m length below cut off level	RM	6	.000013
d	Pile with 450 mm diameter and 10 m length below cut off level	RM	3	.0000065
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 etc all complete for the following.	--		
a	For 600 mm diameter pile	RM	2,487	.0273011
b	For 450 mm diameter pile	RM	11	.0001146
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 etc all complete for the following.	--		
a	For 600 mm diameter pile	RM	6,771	.0817618
b	For 450 mm diameter pile	RM	15	.0001719
TA2510	For test pile installation - Extra over ST.No.T2504 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.	--		

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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	For 600 mm diameter pile	RM	50	.00059
b	For 450 mm diameter pile	RM	50	.000544
TAA2 510	For test pile installation -Extra over ST.No.A2504 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.	--		
a	For 600 mm diameter pile	RM	50	.000649
b	For 450 mm diameter pile	RM	50	.0005984
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 T2504 a&b	EACH	12	.0015676
--	450 mm diameter pile in T2504 c&d	EACH	3	.0003752
b	For lateral load test	--		
--	600 mm diameter pile in T2504 a&b	EACH	12	.00067
--	450 mm diameter pile in T2504 c&d	EACH	3	.0001469

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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
c	For tension/uplift test	--		
--	600 mm diameter pile in T2504 a&b	EACH	12	.0007405
--	450 mm diameter pile in T2504 c&d	EACH	3	.0001616
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	1	.0000811
iii	600 mm diameter pile	EACH	27	.0025566
b	For lateral load test	--		
i	450 mm diameter pile	EACH	1	.000049
iii	600 mm diameter pile	EACH	27	.0015074
A2513	Carrying out low strain pile integrity test on 450mm/ 600mm diameter pile in A2504 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	4,302	.0157677
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.	--		

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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
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	300	.0000077
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	.0000247
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	.0005654
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.	--		
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	300	.0000032

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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
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	.0008732
TOTAL Weightage				1.0