

# TENDER SPECIFICATION

NO: BHE/PW/PUR/PIPVG-CVL BAL/PKG-I/1179

BALANCE CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS AT POWER HOUSE, BFP, DG, WORKSHOP, CONTROL & FACILITY AND COMPRESSOR BUILDING INCLUDING FLOORING, WATER PROOFING, SIDE CLADDING, INTERNAL & EXTERNAL PAINTING ETC. COMPLETE.

AT

2X350MW CCPP, GPPCL PIPAVAV, DISTT. AMRELI GUJARAT

## VOLUME :II – PRICE BID-1179



BHARAT HEAVY ELECTRICALS LIMITED

(A GOVERNMENT OF INDIA UNDERTAKING)

POWER SECTOR - WESTERN REGION

SHREEMOHINI COMPLEX

345, KINGSWAY - NAGPUR 440 001

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**T E N D E R   S P E C I F I C A T I O N**

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**2X350MW CAPP, GPPCL PIPAVAV, DISTT. AMRELI GUJARAT**

EARNEST MONEY DEPOSIT: Please see Notice Inviting Tender.

LAST DATE FOR:                    Please see Notice Inviting Tender.

TENDER SUBMISSION:

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING **VOLUME-I-Tech Bid**, **VOLUME- II-Price Bid** AND **VOLUME-IBCD Rev-01 Rev-01** and **Volume-IIB-Tech bid** and **Volume-IE\_Tech Bid** ARE

M/s. ....

PLEASE NOTE:

THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date:

**BHEL PSWR NAGPUR**  
**VOL-II-PRICE BID-1179**  
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**Name of Work: Balance Civil, Structural, Architectural and Land Grading and Levelling works for Main Power Block comprising GT, GTG, STG & HRSG at GPPC, Kovaya (Gujarat).**

ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
100	<b>EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION, DRAWINGS AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
101	Earth work in excavation <b>upto 2m depth</b> below ground level for foundation, trenches, pipe lines, storm water drains etc including setting out, clearing & grubbing, removal of debris, dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for <b>all types of soils</b> including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe pneumatic rock breaker attachment with poclain/excavator etc but does not require chiselling or blasting.	CUM	6400			
102	Earth work in excavation <b>upto 2m depth</b> below ground level for foundation, trenches, pipe lines, storm water drains etc including setting out, clearing & grubbing, removal of debris, dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for <b>hard rock</b> requiring blasting/controlled blasting and/or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer.	CUM	2286			
118b	Back filling around foundations in plinths, trenches, drains etc to proper grade and level with <b>selected good soil from compulsorily excavated earth within a lead of 1 Km (from stock pile)</b> free from shingle, salts, organic materials, roots, sod or any other foreign substance including re-excavating loose thickness, watering and ramming in layers of 15cm thickness compacted to 75% of relative density for non cohesive soil and 90% of its maximum dry density for cohesive soils by manual/mechanical means, dressing etc complete.	CUM	9085			
119	Supplying and filling sand under floors, in foundation and plinths including cost of sand, transporting for all leads, loading, unloading, spreading in layers in 25cm loose thickness at all depths, watering, compaction with mechanised compaction machine or manually to acheive a minimum 80% of relative density, dressing and levelling etc complete.	CUM	670			
125	Providing and laying rubble soling with specified sizes of approved quality hard rock rubble or hand broken hard metal of sizes ranging from <b>63mm and down</b> , at all position and depths below or above finished ground floor level, below foundations, below flooring, and for providing hard standing etc in one layer of approximately 225 mm thickness, hand packing, filling in interestices with sand including watering, thoroughly compacting the layer all complete as per specification and the direction of the Engineer .	CUM	1400			
200	<b>PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING AND CURING, (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) ETC COMPLETE AT ALL ELEVATIONS AS PER DRAWING, SPECIFICATIONS UNLESS SPECIFIED OTHERWISE AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
202	Plain Cement Concrete of grade M10/1:3:6 as <b>levelling course</b> , under water retaining structures, equipment foundations, under foundations/floors etc all complete.	CUM	922			

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205	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size <b>in foundations/substructure, grade slab, cable duct,paving, drains, under floors</b> 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 using <b>Sulphate Resisting Cement conforming to relevant IS Code.</b>	CUM	490			
207	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size <b>in superstructure</b> at all heights from finished floor level at any level, shape, position or thickness complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete <b>using Ordinary Port Land cement of 43/53 grade.</b>	CUM	567			
211	Concrete of grade M-20 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size <b>in precast works like trench covers etc</b> including formwork/moulds for thicknesses varying from 50mm to 250mm including transportation, erection, fixing in position at all elevations and use of plasticizer wherever required all complete but excluding the cost of reinforcement <b>.using Ordinary Port Land cement of 43/53 grade. Trench cover will not weigh more than 65Kgs. and shall be provided with lifting hooks.</b>	CUM	112			
212	Concrete of Grade M-20 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size <b>plinth protection using Ordinary Port Land cement of 43/53 grade.</b>	CUM	50			
215	Breaking existing concrete work at any level including <b>cutting reinforcements</b> , removing the rubbish within a lead of 1Km including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, all complete and as directed by Engineer.	CUM	10			
300	<b>SUPPLYING, FIXING AND REMOVING FORMWORK AT ANY ELEVATION INCLUDING ALL LABOUR, MATERIAL, SCAFFOLDING COMPLETE INCLUDING POCKETS ETC AS PER SPECIFICATIONS AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
301	Ordinary form work (reasonably good steel/plywood surface)below finished ground floor level for foundations, footings, bases of columns, walls, columns pilasters, beams, mass concrete, trenches etc.	SQM	296			
302	Fairface form work with good quality water proof plywood of required thickness and smooth surface below finished ground floor level for foundations, footings, bases of columns, walls, columns pilasters, beams, mass concrete, trenches etc. including all material scaffolding etc.	SQM	892			
303	Ordinary form work(reasonably good steel/plywood surface) above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc for all heights.	SQM	100			
304	Fairface form work with good quality water proof plywood of required thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies etc for all heights including all material scaffolding etc.	SQM	1000			

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305	Extra over item no. 302 & 304 for curved form work for beams, columns walls, trenches etc as per specification.	SQM	1000			
<b>400</b>	<b>REINFORCEMENTS</b>					
402	Taking delivery of steel from BHEL stores/store yard, loading, transporting and unloading at site, straightening, cutting, bending, placing in position at any level, binding in position of <b>Tor steel reinforcements (TMT) supplied by BHEL free of cost, confirming to HCR -M Grade FE - 500</b> including cost of binding wire, labour, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. <b>Only HCR -M Grade FE - 500, reinforcement steel shall be supplied by BHEL free of cost.</b>	MT	50			
<b>500</b>	<b>WATER PROOFING AS PER SPECIFICATIONS.</b>					
502 (a)	Providing and fixing <b>Poly Urethane based</b> roof water proofing treatment using high solid content liquid applied <b>elastomeric water proofing membrane</b> with separate wearing course as per ASTM C-836 & C-898. Thickness of the membrane shall be 1.5mm. This treatment shall includes application of polymerised mortar over sloped roof to achieve a smooth surface and a primer coat as per relevant specification in section -D. <b>Wearing course of 25mm thick 1:2:4 concrete and grading underbed with 25mm thick 1:4 cement mortar shall be paid separately under item no.504 and Item no. 503 respectively.</b>	SQM	7920			
504	Providing and laying <b>protective wearing course of 25 mm thick PCC (1:2:4) over PU based elastomeric water proofing membrane</b> with 6 mm down aggregate laid in 1200mm square panels alternatively cast reinforced with 0.56 mm diameter galvanised chicken wire mesh with a gap of 6 mm between two adjacent panels, gaps shall be filled with silicon sealant for expansion and contraction all complete with labour, material, equipment and as per specification/drawing and to the satisfaction of engineer in charge.	SQM	6632			
505	Providing & laying <b>22mm thick chequered cement tiles</b> as per IS 13801 including 18mm thick cement mortar (1:4) bedding inclusive of provision of thermal expansion for each roofing tiles filled with polysulphide joints sealant (water proofing paid elsewhere)	SQM	1072.000			
508	Providing and laying screed concrete 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6mm nominal size <b>on the base of RCC tanks, manholes and on the roof</b> of various buildings at any level or thickness to maintain the required grade complete.	CUM	237			
<b>600</b>	<b>SUPPLYING &amp; INSTALLATION OF PREMOULDED JOINT FILLER IN BETWEEN EQUIPMENT FOUNDATIONS, MAT FOUNDATIONS, PILE CAPS, WALLS, BASEMENT SLABS ETC COMPLETE INCLUDING LABOUR, EQUIPMENT AND MATERIALS, SEALING OF JOINTS INCLUDING COST OF SEALING COMPOUND (POLYSULFIDE BASE SEALANT AS PER IS:12118) ETC COMPLETE AS PER SPECIFICATIONS AND DRAWINGS OR AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
601	12mm thick joints.	SQM	44			
<b>700</b>	<b>M.S. EMBEDMENTS</b>					

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
701	Supplying, fabricating and fixing of <b>embedments, MS inserts</b> , pipe sleeves, guide rails, angle pieces, rungs of various diameters, plates of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, cutting, drilling, scaffolding and setting complete as per specifications, drawings and as directed by Engineer.	MT	20			
702	Supply, fabrication, transportation, delivery at site and erection, installation and alignment of <b>MS Foundation bolts</b> ( Grade-1 of IS: 432 & IS: 2062) assembly in concrete along with nuts, locknuts ( IS: 1363, IS: 1364 & IS: 3138), washers, anchor plates, stiffener plates, protective tapes etc. upto & inclusive of 50mm diameter and upto 2000mm long, for columns including pipe sleeves, templates wherever necessary etc. all complete as per specifications and directed by the Engineer.	MT	2			
703	Transportation from BHEL stores, delivery at work spot and erection, installation and alignment of <b>embedments, MS inserts, pipe sleeves</b> , rails, guide rails, angle pieces, anchor bolts, <b>foundation bolts</b> of various diameters, plates of dimensions as required including cost of all labour, equipment, material, loading, unloading, templates etc. all complete as per specifications, drawings and as directed by Engineer.	MT	20			
800	<b>GROUTING AS PER SPECIFICATION FOR THE FOLLOWING:</b>					
803	Providing and <b>grouting of pocket holes</b> , pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with <b>mix 1:1</b> (1 part cement : 1part sand) at any elevation including roughening surface, cleaning, ramming, curing etc complete (non-shrink flowable grout as per specification using approved admixture) as per specification and as directed by the Engineer.	CUM	2			
804	Providing and grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection and alignment if necessary, structural steel work, machinery at any elevations including roughening surface, cleaning, ramming, curing, etc with <b>ConbextraGP-2' Fosroc'</b> Pidigrout10/Pagel or equivalent all complete as per specifications. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	13			
900	<b>DOORS, WINDOWS, VENTILATORS, LOUVERS, ROOF VENTILATORS, ROLLING SHUTTERS, PARTITIONS ETC COMPLETE INCLUDING FRAMING, KICK PLATES, STOPPERS AS PER SPECIFICATION, DRAWINGS AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
901	Providing and fixing <b>40mm thick solid core flush door shutters (single or double)</b> with commercial faces and hard board edges. Core of solid core doors shall be of block board or wood particle board of approved make including all fixtures, Godrej make Mortice lock with handle on both sides, shop painting/polishing as per specification all complete including test certificates. <b>Frames shall be pressed steel frame and shall be paid seperately under Item No.914. Finish paint of steel frame shall match to structural painting as per item no. 2304</b>	SQM	34			

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902	Providing and fixing steel windows of fixed type with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision. <b>Glazing shall be of 6mm thick toughened safety glass</b> panes including all fittings, metal beadings, hold fasts, primer & finish painting as per specification all complete. Finish paint shall match to structural painting as per item no. 2304 . <b>Rate shall be inclusive of Glazing and Painting.</b>	SQM	740			
903	Providing and fixing steel openable windows/ventilators with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision. <b>Glazing shall be of 4mm thick float glass</b> panes including all fittings, metal beadings, hold fasts, primer & finish painting as per specification all complete. Finish paint shall match to structural painting as per item no. 2304. <b>Rate shall be inclusive of Glazing and Painting.</b>	SQM	158			
904	Providing and fixing anodized extruded aluminium windows (single or double shutter) including aluminium frame conforming to IS:1948, IS:1949 fabricated from extruded sections of INDAL/JINDAL or approved equivalent having minimum 1.5mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. <b>Glazing shall be clear float glass of 6.0mm thickness</b> including snap fit type beading, concealed screws, fixtures, Godrej make Mortice lock with handle on both sides etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. <b>Rate shall be inclusive of glazing.</b>	SQM	1064			
905	Providing and fixing anodized extruded aluminium ventilators including frames conforming to IS:1948, IS:1949 fabricated from extruded sections of INDAL or approved equivalent having minimum 1.5mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. <b>Glazing shall be clear float glass of 5/ 6 mm thickness</b> including snap fit type beading, concealed screws, fixtures, etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. <b>Rate shall be inclusive of Glazing .</b>	SQM	130			
906	Providing and fixing steel single or double door shutters. Shutters shall be <b>45mm thick flush design</b> comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including all fittings, Godrej make Mortice lock with handle on both sides, primer & finish painting complete as per specification. The doors shall be made sound proof by filling the inside void with mineral wool. <b>Frame shall be of Pressed steel frame &amp; shall be paid seperately under Item No.914. Finish paint shall match to structural painting as per item no. 2304</b>	SQM	135			
909	Providing and fixing <b>anodized extruded aluminium doors</b> (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of INDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. <b>Glazing shall be clear float glass of 6mm thickness</b> including snap fit type beading, concealed screws, fixtures, Godrej make Mortice lock with handle on both sides etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required <b>(Frames shall be measured and paid under separate item).Rate shall be inclusive of Glazing.</b>	SQM	138			

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910	Providing and fixing in position <b>anodised aluminium frame</b> for doors, windows, ventilators having minimum 3mm wall thickness as per IS:1285 and electro colour coating of minimum 15 micron thickness including holdfast, filling up of gaps at junctions, at top, bottom and sides etc all complete as per specification.	<b>Kg</b>	295			
910a	Providing and fixing anodized <b>aluminium work in doors, windows, ventilators and partitions etc</b> with extruded standard tubular and other sections including all fittings and fixtures and accessories of approved make confirming to IS:733 and IS:1285, anodised and electrocoloyr dyed to required shape according to IS:1868 (minimum anodic coating of grade AC15), fixed with roll plucks, expansion fasteners, screws or with fixing clips including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bimetallic protection etc including preparation of working drawings, aluminium cleat angles, aluminium snap-on-beading for glazing/paneling with all fittings and fixtures (like tower bolts, handles, door stoppers with rubber shoes, "L" drops, stays, floor springs, hydraulic door closers etc), C.P. brass/ stainless steel screws, providing and fixing hinges/pivots, and making provisions for fixing of fittings where ever required including the cost of PVC/neoprene gas fits all complete as per drawings, specifications and instruction of engineer (glazing and paneling to be measured else where).	<b>Kg</b>	590			
913	Providing and fixing of <b>over head hydraulic door closers</b> of 'Yal' make or equivalent approved quality as directed by Engineer.	<b>Each</b>	20			
914	Providing and fixing <b>pressed steel frames fabricated using 16 gauge M.S</b> sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars, finish paint etc complete as per specifications. Finish paint shall match to structural painting as per item no. 2304	<b>KG</b>	50			
915	Providing and fixing in position <b>rolling shutter</b> 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 specification and of approved make - <b>Mechanically operated</b> . The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.	<b>SQM</b>	100			
917	Providing and fixing in position <b>rolling shutter</b> 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 specification and of approved make - <b>Electrically operated</b> . The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.	<b>SQM</b>	454			
918	Providing and fixing in position <b>PVC Door</b> of Syntex make or approved equivalent in toilet as per specifications and as directed by Engineer.	<b>SQM</b>	115			

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1000	<b>BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, SCAFFOLDING ETC COMPLETE AS PER SPECIFICATIONS, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
1001	Providing <b>brick work in cement mortar 1:6</b> (1 part cement: 6 parts coarse sand) in walls, chambers etc of 230mm & above in thickness at all depths, places and positions <b>below plinth</b> including raking out joints, curing, scaffolding etc. all complete excluding plastering and painting, using bricks of class designation 5 (crushing strength of 5N/sq.mm) quality of nominal dimensions as per specification.	CUM	3149			
1002	Providing <b>brick work in cement mortar 1:6</b> (1 cement : 6 coarse sand) in walls, chambers etc at all heights, places and position <b>above plinth</b> including raking out joints, curing, scaffolding, providing 2 nos. 6mm dia. MS bars at every sixth layer including cutting, bending, placing, tying/welding of reinforcement bar etc complete but excluding plastering and painting, using bricks of class designation 5 (crushing strength of 5N/sq.mm) quality of nominal dimensions as per specification. <b>Rate shall be inclusive of 6 mm Dia. MS Bars.</b>	CUM	5			
1003	Providing <b>115mm thick brick work</b> in cement mortar 1:4 (1 cement : 4 coarse sand) <b>in partition walls, chambers etc</b> at all heights, places and position above or below plinth/graded level including providing 2 nos. 6mm dia. MS bars at every third layer, raking out joints, curing, scaffolding etc. all complete using bricks of class designation 5 (crushing strength of 5N/sq.mm) quality of nominal dimensions as per specification. <b>Rate shall be inclusive of 6 mm Dia. MS Bars.</b>	SQM	10			
1005	Providing and <b>encasing of structural steel member</b> with <b>masonry work</b> around flanges, webs etc and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc complete as per specification.	CUM	5			
1006	Making <b>openings</b> in existing finished <b>brick wall or partition wall</b> including making good the broken edges/surface with cement mortar, fixing steel /precast concrete section as lintel (steel/ precast concrete section to be paid separately under Item ST no.701/ 211 respectively), painting, finishing to match with existing finishing, scaffolding/ staging works, gas cutting of reinforcement/structural work, cleaning and removing of all debris within 1Km lead etc. all complete and as directed by Engineer.	SQM	10			
1007	Dismantling existing brick work at all level including stacking and removing the debris within a lead of 1Km., including transportation, loading, unloading, etc all complete and as directed by Engineer.	CUM	10			
1200	<b>CEMENT MORTAR PLASTER INCLUDING MAKING GROOVES WHEREVER REQUIRED, ALL MATERIALS, SCAFFOLDING, CURING ETC COMPLETE AS PER SPECIFICATION, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
1201	Providing <b>18mm thick plaster</b> in two layers ( <b>with an under layer 12 mm thick in cement mortar 1:6 and top 6 mm thick layer in cement mortar 1:4. The top 6mm layer shall be mixed with water proofing compound</b> on <b>outside</b> the brick walls finished to a smooth finish as per specification including providing 3mmx3mm size grooves at junctions of two dissimilar materials.	SQM	2923			

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1202	Providing <b>12mm thick plaster in cement mortar 1:6 inside</b> the brick walls with smooth finish on the even side of the wall as per specification.	<b>SQM</b>	10797			
1203	Providing <b>6mm thick plaster in cement mortar 1:4 on ceiling</b> with smooth finish as per specification.	<b>SQM</b>	6107			
1204	Providing <b>15mm thick plaster in drains/culverts</b> as per specification with neat cement paste finish.	<b>SQM</b>	2000			
1207	Providing <b>Plaster of Paris</b> 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	<b>SQM</b>	21553			
1300	<b>FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACES, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, SCAFFOLDING ETC ALL COMPLETE AS PER SPECIFICATION, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
1303	Providing and applying Two or more coats of <b>distemping with oil bound washable distemper</b> as per IS:428 of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete over P.O.P. (P.O.P. shall be paid separately)	<b>SQM</b>	40089			
1304	Providing and applying Two or more coats of <b>dry distemping</b> of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	<b>SQM</b>	20348			
1304a	Providing and applying <b>Granular finish (vineratex) of 2mm thick of approved make and colour over External plain-faced cement plaster</b> at all elevations for various buildings including material, labour, scaffolding, curing etc complete as per drawing and specification.	<b>SQM</b>	3251			
1305	Providing two coats of <b>Acrylic emulsion paint</b> of approved brand and manufacture to give an even shade including 2mm thick plaster of paris (WHICH SHALL BE PAID SEPERATELY IN ITEM NO. 1207) punning, one coat of solvent thinnable cement primer of approved shade & quality of Berger make complete as per specifications.	<b>SQM</b>	5763			
1306	Providing and applying 2 or more coats of <b>acid/alkali resistant paint</b> of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer etc all complete as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level.	<b>SQM</b>	100			
1306(A)	Providing and applying 2 or more coats of <b>chlorinated rubber based paint</b> of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer etc all complete as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level.	<b>SQM</b>	100			

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
1309	Providing and applying Two or more coats of <b>synthetic enamel paint</b> of Berger 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	700			
1400	<b>FLOORING AND SKIRTING INCLUDING BASE LAYER AND ALL MATERIALS, LABOUR, CURING, POLISHING ETC COMPLETE IN ALL RESPECTS AS SHOWN ON DRAWINGS, SPECIFICATIONS AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:</b>					
1401	Providing and laying 50mm thick <b>heavy duty I.P.S flooring with metallic hardener pigmented topping</b> using 12mm thick uniform graded treated iron particles <b>in flooring</b> including an under layer of 38mm thick cement concrete mix 1:2:4 (1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded).	SQM	8365			
1401 (A)	Providing and laying 50mm thick <b>heavy duty I.P.S flooring with non - metallic hardener pigmented topping</b> including an under layer of cement concrete mix 1:2:4 (1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded).	SQM	6785			
1402	Providing and laying 50mm thick <b>heavy duty cement concrete with metallic hardener</b> pigmented topping using 12 mm thick uniform graded treated iron particles <b>in skirting and dado</b> including under layer of 38mm thick cement concrete mix 1:2:4 (1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded) and top layer of 12mm thick metallic concrete complete.	SQM	1055			
1402 (A)	Providing and laying 50mm thick <b>heavy duty cement concrete with non-metallic hardener</b> pigmented topping using 12 mm thick uniform graded treated iron particles <b>in skirting and dado</b> including under layer of 38mm thick cement concrete mix 1:2:4 (1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded) and top layer of 12mm thick metallic concrete complete.	SQM	892			
1403	Providing and laying precast <b>polished heavy duty cement concrete tiles (Carborundum )</b> of size 300mmX300mmX22mm thick of approved shade as per IS 1237, <b>laid in floors</b> jointed with neat cement slurry with pigment to match the shade of the tiles including rubbing and polishing complete with laying as per IS 1443. <b>Overall thickness shall be 50mm including concrete underbed 1:2:4 which shall be paid under item no. 508.</b>	SQM	2980			
1407	Providing and laying 25mm <b>thick Terrazo Tiles finish in skirting/dado projecting</b> out 6mm from adjacent plaster/finish as per specification all complete and topping of 12mm thk with marble chips of size 1mm to 10mm nominal size laid in white grey or mixture of both in proportion 1:1.5 with white marble powder 3:1 in proportion mixed dry in cement including pigments rubbed/grinding, polishing etc. including 40X3 mm aluminum strips all complete as per specification.	SQM	175			

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1408	Providing and fixing <b>Acid / Alkali resistant vitreous tile</b> lining of following thickness confirming to IS:4457 in <b>flooring/Dado</b> and shall be laid over bitumastic lining of minimum 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 including preparation of surface, application of bitumen primer, curing etc all complete as per specification and direction of Engineer. Min. size of tiles shall be 100x200mm.					
a)	For Flooring 25 mm thick	<b>SQM</b>	31			
b)	For Dado 20 mm thick	<b>SQM</b>	139			
1409	Providing and laying <b>polished Kota stone</b> 25mm thick in <b>flooring including an</b> under bed of average 30mm thick with 1 part cement : 2 part sand : 4 part stonechip by volume and brought to proper level. The kota stone slabs/tiles shall be min. size 600mm x 600mm and laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc complete.	<b>SQM</b>	23			
1413	Providing and laying <b>polished Granite stone</b> of approved colour and texture <b>25mm thick</b> in flooring including an under bed of average 30mm thick with 1 part cement : 2 part sand : 4 parts stonechip by volume and brought to proper level. The minimum size of tiles shall be 600mm X 600mm. 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 spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc complete .	<b>SQM</b>	2			
1415	Providing and laying <b>7.5mm thick vitrified ceramic tiles of polished variety</b> of following size from reputed manufacturer (Kajaria/Johnson or equivalent) complete as per specification.					
a	400mmx400mm	<b>SQM</b>	273			
b	600mmx600mm	<b>SQM</b>	595			
1417	Providing and laying <b>7mm thick vitrified ceramic tiles of polished</b> variety of size 300mmx300mm from reputed manufacturer <b>for skirting and dado</b> up to specified height complete as per specification.	<b>SQM</b>	998			
1419	Providing and laying <b>granite stone slab</b> of 20mm thickness single piece for wash basin slab of black or approved colour with cutting and opening complete.	<b>SQM</b>	481			
1420	Providing and laying <b>Heavy Duty dust pressed Ceramic Tiles</b> of size 300mmx300mmx7mm thick of reputed manufacturer of approved finish shade and colour.	<b>SQM</b>	50			
1423	Providing and fixing <b>White glazed tiles of size 150mmx150mm and 5.5mm to 6mm thick in dado</b> , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for underbed plaster shall consist of 1part cement and 3 parts coarse sand by weight, fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry, including pigments, curing etc all complete.	<b>SQM</b>	115			

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
1424	Providing and laying <b>Heavy Duty Ceramic Tiles (Matt Finish) of size 300mmx300mm and 7mm thick</b> of reputed manufacturer (Kajaria, 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 layer of 20mm thick consisting of 1 part of lime putty:1 part surkhi:2 parts coarse sand by weight complete as per specification including all material, labour etc all complete.	SQM	635			
1427	Providing Epoxy coating on operating floor (RCC floor) in 2 (Two ) coats of 150 micron thickness each as per manufacturers recommendation and specification.	SQM	150			
1500	<b>PROVIDING AND ERECTING ROOFING/SIDE CLADDING INCLUDING LAPS, SCAFFOLDING HOOKS, WASHERS, CORNER PIECES, ETC INCLUDING COST OF ALL MATERIAL, LABOUR, EQUIPMENT, CLEATS, SHEETING RUNNER, RAILS MILD STEEL WIND TIES (HORIZONTAL/VERTICAL) AND ANY OTHER STEEL WORKS ETC AT ALL ELEVATIONS COMPLETE AS PER SPECIFICATION (Section-D), DRAWING AND AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING:</b>					
1501	Designing, providing and fixing permanently colour coated galvanised <b>MS troughed metal sheet decking</b> plate over roof purlins as per relevant IS code IS :14246 and shall confirm to class 3 for durability and specification. Thickness of deck plate shall be minimum <b>0.8mm with minimum trough depth of 38mm</b> and shall serve as permanent shuttering to the cast-in-situ roof slab 125mm thick measured over crest of metal decking and shall have adequate strength to support weight of green concrete and imposed loads during construction spanning between purlins(maximum span between purlins is 1750mm) as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc complete as per engineers approval and specification. (height of trough required as per design should be included in the cost) .The galvanised surface shall be permanently colour coated with silicon modified polyester paint of DFT 20 microns (minimum) with minimum rate of galvanizing of 275gm of Zinc/Sqm.... contd	SQM	1452			
	contd... M.S. Trough decking plate shall be connected to the top surface of the purlin, top chord of truss with self tapping self drilling white zinc plated heat treated high carbon steel screws of minimum 5.6mm diameter at spacing of 390mm c/c in the trough and sealing it with epoxy sealent including -all material, labour, tools etc complete. In addition shear connector of 16mm diameter and minimum 75mm long mild steel studs at spacing 520mm c/c shall be fixed on top cord of purlin passing through the metal decking. (Note: Leak proofing of the metal decking and concrete system shall be demonstrated by the contractor) Measurement shall be of the plan area of roof covered by MS trough metal decking.					

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
1502	Design, supply and erection of thermally insulated <b>sandwiched metal cladding</b> for external walls with outer sheeting having troughed zinc-aluminium alloy coated (both sides) M.S. sheet having 0.6mm minimum thickness (or high tensile steel sheet of 0.5mm minimum thickness) shall be used on external face (outer face) of cladding system. Weight of coating shall not be less than 150gm/sq.m. The outer side (exposed face) shall be permanently colour coated with <b>Polyfluro Vinyl Coating (PVF2) of Dry Film Thickness (DFT) 20 microns (minimum)</b> over primer. Inner side of external sheet shall be provided with suitable pre-coating of minimum 7 microns. Galvanised M.S. sheets of minimum 0.6mm thickness shall be used as inner liner (internal face) of cladding system. The exposed face shall be permanently colour coated with silicon modified polyester paint of DFT 20 microns (minimum) over primer. Inner face of external sheet shall be provided with suitable pre-coating of minimum 7 microns. The rate of galvanising shall not be less than 150gm/sq.m. The permanent colour coated sheet shall meet the general -requirements of IS : 14246 and shall conform to class 3 for the durability. Inner sheet shall be fixed directly to side runners and Z spacers made out of atleast 2mm thick galvanized steel sheet of grade 375 as per IS : 277. Inner sheet shall be fixed at the rate not more than 0.75 m center to center to hold the insulation and external sheeting. The insulation shall be of bonded mineral wool of minimum thickness 50 mm conforming to IS : 8183, having a density of 32 Kg/cum for glass wool & 48 Kg/cum for rock wool.	SQM	2000			
1602	Providing <b>under deck insulation</b> comprising of 50mm thick resin bonded mineral wool insulation mat conforming to IS 8183 . This mat shall be backed with 0.05mm thick Aluminium foil and 24G x 25mm wire mesh netting. These shall be fixed to ceiling or wall as the case may be with 100x50x6mm slotted mild steel plate welded to MS plate insert embedded in the soffits of the slab at 600mm c/c and 14G steel wire drawn through slots and to fixed to wire netting all complete as per specification and drawings.	SQM	165			
1603	Providing, fixing and laying <b>permanently colour coated aluminium false ceiling</b> of approved colour and <b>Luxalon</b> make or approved equivalent (Type-84C, Interior i.e. 84mm wide 12.5mm deep close type plain panels) with corrosion resistant aluminium alloy (AA5050) panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels complete as per specification section D. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc . Suitable M.S. channel (minimum MC 100) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. <b>MS channel grid shall be paid under structural item 2301 &amp; required materials shall be supplied by BHEL free of cost.</b>	SQM	360			
1605	Providing and Fixing <b>12.5mm thick Gypsum board (600mm x 600 mm) plain false ceiling tiles</b> of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener, adjustable hangers etc (The suspension system shall consist of 6mm diameter galvanised steel rods suspended from ceiling supporting alluminium grid of 38 x 25 x 1.5 mm and cross tie of 25 x 25 x1.5 mm and alluminium angle of 25 x 25 x 1.5mm) including one coat of primer & two or more coats of acrylic emulsion paint of approved colour to give an even shade all complete with smooth finish as per specifications, drawings and as directed by Engineer. <b>Acrylic emulsion paint shall be paid separately under item no. 1305</b>	SQM	500			

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
1700	PROVIDING AND FIXING RAIN WATER DOWN TAKE PIPES INCLUDING 2 COATS OF APPROVED PAINT OVER A PRIMARY COAT, ALL SPECIALS AND ACCESSORIES ETC COMPLETE AS PER SPECIFICATION FOR THE FOLLOWING:					
1702	UPVC down take pipes of <b>100mm</b> diameter- Class 3 as per IS:4985 .Medium quality as per IS:4985 .	RM	884			
1704	UPVC down take pipes of <b>150/160mm</b> diameter- Class 3 as per IS:4985 .Medium quality as per IS:4985.	RM	200			
<b>1800</b>	<b>MISCELLANEOUS</b>					
1801	Providing and fixing <b>PVC water stops - 225mm wide 8mm thick</b>	RM	100			
1802	Providing and fixing in position <b>25mm wide and 25mm thick blown bitumen in expansion joints</b> as per specification. Grade of bitumen shall be 80/20	RM	600			
1804	Providing and fixing <b>bitumen impregnated fibre joint filling board conforming to IS : 1834 of 25mm thickness</b> fillers along with PVC water bar etc for expansion joint in water retaining structures all complete as per specifications, drawing and as directed by Engineer. <b>PVC water bar shall be paid separately under relevant items (Item no. 1801).</b>	RM	450			
1805	Supplying and laying of rounded gravels <b>40mm thick in transformer yards, switch yard floors</b> etc as directed by Engineer.	CUM	170			
1811	Taking delivery from BHEL stores, loading, transportation to work site, unloading of <b>earthing mats/rods</b> , cutting to length, welding and laying etc complete as per specification and as directed by Engineer. <b>Earthwork excavation &amp; backfilling shall be paid separately under relevant items. Earthing rod shall be issued by BHEL free of cost.</b>	MT	9			
1812	Design, supply, fabrication, installation of truly levelled and aligned <b>1000mm high cavity flooring</b> comprising of 35mm thick <b>Nova teak</b> or approved equivalent make superparticle board of size <b>610mm x 610mm floor panels</b> having 2mm thick anti-static PVC sheet on top, 2mm thick hard PVC strip lipping on edges and 26G aluminium sheet fixed with araldite on underside including cutting of panels where required for cables etc with supporting system comprising of 25mm diameter galvanised MS threaded rod and pressure die cast zinc aluminium alloy adjustable head attachment at top and welded to 100mmx100mmx8mm base plate, pedestal fixed to floor by means of expansion fasteners to existing floor at a distance of 610mm center to center bothways etc all complete as per specification and as directed by Engineer.	SQM	100			

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
1813	Designing, providing and fixing of <b>Heavy duty galvanised friction anchor fasteners of Hilti/Equivalent make of 16mm diameter</b> and appropriate length in concrete (minimum grade M20) to take direct tension of minimum 1.8MT including anchor fasteners, materials, equipment, labour, scaffolding complete as per direction of Engineer.	Each	10			
1814	Designing, providing and fixing of <b>Heavy duty galvanised friction anchor fasteners of Hilti/Equivalent make of 20mm diameter</b> and appropriate length in concrete (minimum grade M20) to take direct tension of minimum 2.5MT including anchor fastener, materials, equipment, labour, scaffolding complete as per direction of Engineer.	Each	3			
1817	Taking delivery of steel from BHEL stores/store yard and fixing transformer rails including guide rails in concrete including jointing of rails, anchoring lugs etc complete as per specification. <b>(Only rails &amp; guide rails shall be supplied by BHEL free of cost)</b>	MT	12			
2000	<b>FENCING AND GATES.</b>					
2001	Supplying and fixing <b>G.I. barbed (2 PLY) wire in fencing @ 150mm c/c (spacing between the runs) and two diagonal ties between the post</b> including fabrication & fixing of mild steel posts, clips, anchors, one coat of redoxide zinc chromate primer and two coats of approved aluminium paint etc complete as per specification Section D, drawing and as directed by the Engineer. <b>Earthwork &amp; concrete for post foundation shall be paid separately under relevant item and MS angle shall be supplied by BHEL free of charge.</b>	SQM	50			
2002	Providing and fixing <b>M.S gates formed out of tubular section conforming to IS 1161</b> as per specifications complete. Rate shall be inclusive of painting & paint specification shall confirm to structural item no. 2304. <b>Earthwork and concrete shall be paid separately under relevant item.</b>	MT	1			
2003	Supplying and erecting in position 2.4m high <b>PVC coated galvanised chain linked fencing</b> of minimum 8gauge (including PVC coating) of mesh size 50mm. The diameter of the steel wire for chain link fencing excluding PVC coating shall not be less than 12gauge. GI barbed wire fencing conforming to IS 298 at top of chain link fencing shall be provided with 4 stands of height of 600 mm including all accessories as per specification all complete. GI Barbed wire shall be of 12G high tensile spring steel wire & shall be provided for the entire length of fencing. Also 50mm x 6mm galvanised MS flats shall be provided at every fifth post sandwiching the fencing with post using GI Nuts and Bolts. Fencing post shall be fabricated out of <b>galvanised MS Angle section of minimum 75 x 75 x 6 mm size</b> and shall be spaced at a maximum spacing of 2.5m with struts made up of galvanised MS Angle at every fifth fencing post in addition to those at bends . <b>Earthwork excavation &amp; concreteing for foundation shall be paid separately under relevant item and MS angle/channel for post shall be supplied by BHEL free of charge.</b> Rate shall be inclusive of fabrication, Galvanizing & fixing of steel posts.	SQM	90			
2100	<b>WATER SUPPLY</b>					

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
2101	Providing and fixing in position tested heavy duty <b>chromium</b> plated brass long neck <b>bib cocks</b> including sockets, union, nut etc complete - <b>15mm</b> nominal bore.	Each	28			
2102	Providing and fixing in position heavy duty <b>brass stop cock</b> of approved quality including all specials etc complete as directed by Engineer - <b>15mm</b> nominal bore.	Each	56			
2103	Providing and fixing in position heavy duty <b>brass full way valve</b> with wheel of approved quality <b>25mm</b> nominal bore.	Each	14			
2106	Providing and fixing <b>GI pipes Medium Grade (Class-B) complete</b> with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete - <b>20mm</b> nominal bore.	RM	400			
2107	Providing and fixing <b>GI pipes Medium Grade (Class-B) complete</b> with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete - <b>25mm</b> nominal bore.	RM	300			
2109	Providing and fixing <b>GI pipes Medium Grade (Class-B) complete</b> with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete <b>(for external work)</b> - <b>20mm</b> nominal bore.	RM	300			
2110	Providing and fixing <b>GI pipes Medium Grade (Class-B) complete</b> with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete <b>(for external work)</b> - <b>25mm</b> nominal bore.	RM	360			
2112	Providing and fixing <b>610mmx453mmx6mm thick mirror</b> from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets etc complete with CP screws as per specification.	Each	60			
2117	Providing and fixing electric operated hand dryer with photo voltaic control all complete as per specification.	Each	32			
2113	Providing and fixing 610mmx127mmx6mm thick clear glass with <b>C.P Guard rails</b> and mounted on C.P. brackets etc complete as per specification.	Each	60			
2114	Providing and fixing 20mm diameter chromium plated M.S. pipes wall mounted <b>towel rod</b> with C.P. Brackets etc all complete as per specification.	Each	60			
2115	Providing and fixing <b>C.P. soap holder</b> mounted with C.P. screws etc complete as per specification.	Each	36			

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2117	Providing & fixing <b>P.V.C. water tank of 1000 litres</b> capacity (Syntex or approved equivalent make) in position. The work to include making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete as per specification and at all heights and levels.	Each	9			
2118	Providing & fixing <b>P.V.C. water tank of 2000 litres</b> capacity (Syntex or approved equivalent make) in position. The work to include making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete as per specification at all heights and levels.	Each	7			
2118A	Providing & fixing <b>P.V.C. water tank of 5000 litres</b> capacity (Syntex or approved equivalent make) in position. The work to include making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete as per specification at all heights and levels.	Each	1			
2200	<b>SANITARY WORKS</b>					
2201	Supply and fixing <b>vitreous china Wash Basin(oval shape) size 600mmx450mm as per IS :2556 to be fixed on concrete platform finished with 12mm thick polished granite stone.</b> 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 waste of standard pattern, 32mm diameter chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, cutting and making good the walls where required etc complete as per specifications. Polished granite stone shall be paid separately under relevant items.	Each	44			
2203	Providing and fixing <b>Stainless steel kitchen sink (750mm)</b> all complete as per specification.	Each	12			
2203	Providing and fixing colour <b>glazed vitreous china European type water closet western Type WC 390mm high as per IS : 2556 (Part 2)</b> with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre glazed vitreous china flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc complete as per specification and directed by Engineer.	Each	12			
2204	Providing and fixing white WC(Indian Type) orissa pattern (580 x 440mm) as per IS :2556(Part-3) with all fittings including low level flushing cistern of 10 litre capacity.	Each	9			
2205	Providing and fixing <b>wall type glazed vitreous china urinals</b> with photovoltaic control flushing system as per IS : 2556 (Part -6 ,sec.1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings all complete as per specifications.	Each	41			
2206	Supply, laying and jointing <b>75mm diameter heavy duty cast iron pipes</b> including bends, branches and all other necessary fittings, lead caulking, a coat of bituminous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	300			

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
2207	Supply, laying and jointing <b>100mm diameter heavy duty cast iron pipes</b> including bends, branches and all other necessary fittings, lead caulking, a coat of bituminous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	200			
2208	Supply, laying and jointing <b>150mm diameter heavy duty cast iron pipes</b> including bends, branches and all other necessary fittings, lead caulking, a coat of bituminous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	50			
2209 A	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - <b>200mm diameter</b> as per specification.	RM	90			
2209 C	Supply, laying and jointing <b>75mm diameter UPVC pipe conforming to class 3 of IS:4985</b> including bends, branches and all other necessary fittings, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	330			
2210	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - <b>300mm diameter</b> as per specification.	RM	120			
2211	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - <b>450mm diameter</b> as per specification.	RM	60			
2212	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - <b>600mm diameter</b> as per specification.	RM	60			
2213	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - <b>800mm diameter</b> as per specification.	RM	40			
2214	Providing and fixing <b>C.I Manhole heavy duty cover of size 600mmx450mm</b> including frame from reputed manufacture all complete as per specifications.	Each	28			
2216	Providing and fixing <b>square mouth S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300mmx300mm (inside), the weight of cover to be not less than 4.53Kg and frame to be not less than 2.72Kg as per drawing and specifications etc all complete size - <b>100mmx100mm P or S Type</b> .	Each	21			
2220	Providing and fixing <b>C.I. floor traps with C.P jalli</b> complete as per specification.	Each	45			

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
2221	Providing and installing approved brand single tap <b>water cooler</b> of <b>80 L</b> cooling capacity complete in all respect.	Each	7			
2222	Providing and installing approved brand single tap <b>water cooler</b> of <b>150 L</b> cooling capacity complete in all respect.	Each	12			
2300	<b>STRUCTURAL STEEL WORKS</b> all items for fabrication should include supply of fabrication drawings, painting with a coat of primer and also inclusive of all necessary quality test to the satisfaction of engineer/customer for the following:					
2301	Taking delivery of materials from BHEL store/store yard, loading , transportation, unloading at site, Fabrication, erection, alignment, welding, primer painting ( <b>primer coat shall consist of one coat of epoxy resin based zinc phosphate primer having minimum total DFT of 100 microns out of which one coat of 50 micron to be applied at fabrication yard and the other coat of 50 micron after erection</b> ) of <b>structural steel</b> made from mild steel conforming to IS:2062, <b>chequered plate conforming to IS: 3052</b> and mild steel rounds, at all elevations involving rolled sections (including mild steel rounds), built up sections fabricated out of plates, rolled sections and combination of plates and rolled sections, in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, shear connectors, 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, diaphragm, steel frame grid over false ceiling, walkway platforms. ladders, stairs, stringers, treads, landings, toeplates, MS Rungs, insert plates, edge angles, embedments, lugs, posts, stays, louvers, lacings, gusset plates, safety chains for walkways adjacent to crane girders etc, collection of steel from stores, transportation, straightening, making cutting plan, cutting, bending, rolling, grinding, drilling, bolting, erection bolts & nuts (weight erection bolts & nuts not payable, Supply of permanent bolt of grade C mild steel bolts & nuts to be paid separately under ST NO. 2309 (i)), assembly, edge preparation, preheating(& use of low hydrogen/ radiogenic electrodes as per specification), post heating, testing of welders, inspection of welds contd..					
	contd..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 (Scaffolding, Access ladders, Working Platforms etc.), setting column bases, <b>surface preparation by shot blasting as per specification using abrasive materials as copper slag . The surface shall be cleaned to grade ST - 2 as per SIS 05 -5900 or as per IS :1477 (Part - 1)</b> , touch-up painting, dismantling and removal of all temporary structures (weight of temporary structures not payable) complete with all labour, material, electrodes and other consumables, equipment, testing ( <b>mechanical and non-destructive as specified under technical specification Section-D</b> ), <b>preparation of fabrication drawings and its approval</b> , joint design calculations and all other general and special requirements, all other activities required for completion of the work including return of surplus/ waste steel materials to store etc as per specification, drawings and instructions of the Engineer.					
a)	Fabrication (80% shall be paid against fabrication & 20% against shot blasting & shop coat of primer painting)	MT	210			

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
b)	Erection, alignment, welding	MT	210			
2304	Providing and application of finishing coat of polyurethane of min. DFT of 25 microns over top coat of epoxy paint suitably pigmented of approved shade and colour with glossy finish and DFT of 75 microns over intermediate coat of epoxy resin based paint pigmented with titanium dioxide with min. DFT of 100 microns over steel sections already having primer coats (as per ST NO. 2301) at all elevations to achieve an even shade with all materials, labour, equipment, handling, including protection and cleaning, scaffolding etc. complete as per specification, drawings and instructions of the Engineer. (Note: Intermediate, top and finishing coat paints shall be from same manufacturer and the paints shall have compatibility with one another) Total thickness of Paint including primer-300microns.	MT	1910			
2307	Supplying, fabrication, transportation, erection and alignment of factory made <b>electroforged gratings</b> with steel conforming to IS:2062 at all elevations including preparation of design drawings and fabrication drawings in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads, fixing clamps etc complete with other fittings and fixtures including all taxes, duties, transportation, packing, grinding, drilling, bolting (supply of permanent grade 'C' mild steel bolts and nuts to be paid separately under ST NO. 2309(i)), all welding, edge preparation, blast cleaning of steel surfaces to near white metal surface (Sa 2.5) followed by primer coat consisting of 2 coats of 35microns each coat of zinc-phosphate in phenolic alkyd medium . One coat to be applied at shop and the other after erection and two coats of approved colour, enamel finish paint, testing, complete as per specifications, drawings and instructions of the Engineer.	MT	10			
2308 (a)	Extra over above <b>Item No. 2307</b> for finishing the <b>fabricated grating unit</b> with hot dipped galvanisation @900gm/Sqm over blast cleaned steel surface as per specification, drawing and instruction of Engineer <b>instead of painting</b>	MT	10			
2308 (b)	Extra over above <b>Item No. 2301</b> for finishing the <b>fabricated Chequered plate</b> with hot dipped galvanisation @900gm/Sqm over blast cleaned steel surface as per specification, drawing and instruction of Engineer <b>instead of primer painting.</b>	MT	5			
2322	Supply, fabrication & erection of Galvanized Pipe hand railing of required diameter & thickness as per drawing & specification. Pipe shall be of medium grade conforming to IS 1161.	MT	5			
<b>TOTAL OF PART - A</b>						
<b>PART- B GRADING &amp; LEVELLING</b>						
141	Earth work in <b>stripping</b> of top soil upto a minimum depth of 0.30m below natural ground level so as to exclude all debris, grass, vegetation, disposal of excavated stuff within a lead of 1km including surface preparation by compacting the whole area with power roller (8 - 10T capacity) to receive further filling.	SQM	10000			

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ITEM NO.	DESCRIPTION OF WORK	UNIT	QTY	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)
143	Earth work in excavation upto any depth for levelling and grading and transporting the excavated earth within a lead of 1km wherever filling is required for land grading <b>in all types of soil</b> including ash, laterite, moorum, weathered rock, decomposed rock etc which can be excavated by means of crow bar, pick axe, and pneumatic rock breaker attachment with poclair etc but does not require chiselling or blasting.	<b>CUM</b>	10000			
144	Earth work in excavation upto any depth for levelling and grading .....and disposal within a lead of 1km..... <b>in all types of rock</b> which can be excavated <b>by means of blasting</b> but does not require chiselling.	<b>CUM</b>	2000			
145	Earth work in filling for levelling and grading <b>using selected excavated earth (obtained from compulsory excavation inside the project site within a lead of 1 Km)</b> on prepared surface obtained by compacting with mechanical means including setting out, filling in horizontal layers not exceeding 250mm compacted thickness, spreading, sorting, breaking clods, watering, compaction with proper moisture content to achieve a minimum 95% of maximum dry density (standard Proctor density), dewatering (if required), testing, approaches, finishing to required lines, grades and slopes, levelling etc complete as per specification, drawing and as directed by the engineer.	<b>CUM</b>	5000			
147	Providing, stacking and laying 300mm thick <b>boulder pitching</b> on the slopes of earth fill/cut with approved quality of rock fragments.	<b>CUM</b>	2000			
<b>TOTAL OF PART - B (In Rs)</b>						
<b>Grand Total (A+B) ( In Rs )</b>						
<b>Grand Total (A+B) in Words Rs.....</b>						