

BOQ FOR CIVIL & STRUCTURAL WORKS INCLUDING GRADING AND LEVELLING FOR 2X350MW PIPAVAV CCPP						
ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
	Part - A Civil and Structural Works					
100	EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION, DRAWINGS AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:					
101	Earth work in excavation upto 2m depth 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 all types of soils 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	70612			
102	Earth work in excavation upto 2m depth 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 hard rock 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	34594			
103	Earth work in excavation for depth exceeding 2m but not exceeding 4m below ground level for foundation, trenches, pipe lines, storm water drains etc including 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 all types of soils 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	17747			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
104	Earth work in excavation for depth exceeding 2m but not exceeding 4m below ground level for foundation, trenches, pipe lines, storm water drains etc including 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 hard rock 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	31635			
105	Earth work in excavation for depth exceeding 4m but not exceeding 6m below ground level for foundation, trenches, pipe lines, storm water drains etc including 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 all types of soils 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	2610			
106	Earth work in excavation for depth exceeding 4m but not exceeding 6m below ground level for foundation, trenches, pipe lines, storm water drains etc including 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 hard rock 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	6591			
107	Earth work in excavation for depth exceeding 6m but not exceeding 8m below ground level for foundation, trenches, pipe lines, storm water drains etc including 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 all types of soils 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	50			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
108	Earth work in excavation for depth exceeding 6m but not exceeding 8m below ground level for foundation, trenches, pipe lines, storm water drains etc including 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 hard rock 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	3058			
110	Earth work in excavation for depth exceeding 8m but not exceeding 10m below ground level for foundation, trenches, pipe lines, storm water drains etc including 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 hard rock 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	807			
116	DISPOAL OF SURPLUS EARTH					
a	Extra over item nos. 101 to 110 for disposal of surplus excavated earth/rock beyond an initial lead of 1km and upto a maximum lead of 2 Km. or part thereof	CUM	25000			
b	Extra over item nos. 101 to 110 for disposal of surplus excavated earth/rock beyond an initial lead of 1km and upto a maximum lead of 3 Km. or part thereof	CUM	25000			
c	Extra over item nos. 101 to 110 for disposal of surplus excavated earth/rock beyond an initial lead of 1km and upto a maximum lead of 4 Km. or part thereof	CUM	15000			
d	Extra over item nos. 101 to 110 for disposal of surplus excavated earth/rock beyond an initial lead of 1km and upto a maximum lead of 5 Km. or part thereof	CUM	5000			
e	Extra over item nos. 101 to 110 for disposal of surplus excavated earth/rock beyond an initial lead of 1km and upto a maximum lead of 10 Km. or part thereof	CUM	3515			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
117	Providing and injecting chemical emulsion (1 part chemicals + 20 parts water = 1% emulsion) for preconstructional anti termite/weed treatment with chemicals conforming to IS 8963 and creating a chemical barrier under and around the column pits, wall trenches, basement excavation, backfill, top surface of plinth filling, junction of the wall along external perimeter of building floor together with plinth protection, expansion joints, surrounding of pipes and conduits etc complete as per specification and as directed by Engineer-in-charge. The anti -termite treatment shall conform to IS:6316 and other relevant standards. For treating the bottom surface and sides of excavation, emulsion @ 5 liters/sqm of surface area & for treating the backfills around columns, walls etc, emulsion @ 7.5 liters/sqm of the surface shall be used and treatment shall be done in stages following the compaction of earth in layers. (plinth area of building at ground floor only shall be measured for payment).	SQM	4500			
118	Back filling around foundations in plinths etc to proper grade and level with selected soil within a lead beyond 1 Km but not exceeding 5Km from available excavated materials (from stock pile) including re-excavating loose thickness, watering and ramming/compacting in layers of 15cm thickness to atleast 90% of its maximum dry density by manual/mechanical means, dressing etc complete including transportation.	CUM	16067			
118a	Back filling around foundations and plinths trenches, drains etc to proper grade and level with selected excavated soil directly from excavation area within a lead of 1Km including watering and ramming/compacting in layers of 15cm thickness to atleast 90% of its maximum dry density by manual/ mechanical means, dressing etc complete including transportation.	CUM	27885			
118b	Back filling around foundations in plinths, trenches, drains etc to proper grade and level with selected good soil from compulsorily excavated earth within a lead of 1 Km (from stock pile) 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	16790			
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	50			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
119e	Providing, laying and compacting 50mm thick layer using crushed stones (12 mm & down graded) mixed with 8 to 10 % by volume of hot bitumen of grade 80/100 etc all complete as per specification and as directed by the engineer-in-charge.	SQM	250			
125	Providing and laying rubble soling with specified sizes of approved quality hard rock rubble or hand broken hard metal of sizes ranging from 63mm and down , 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	8533			
200	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:					
202	Plain Cement Concrete of grade M10/1:3:6 as levelling course , under water retaining structures, equipment foundations, under foundations/floors etc all complete.	CUM	11014			
205	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 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 using of 43/53 grade Sulphate Resisting Cement conforming to relevant IS Code.	CUM	31878			
207	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size in superstructure 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 using Ordinary Port Land cement of 43/53 grade.	CUM	13453			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
208	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size for foundation, super structure of T.G. Block at all heights/depths from finished ground floor level including addition of suitable plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation etc. all complete. using Ordinary Port Land cement of 43/53 grade. Bidder offer shall be inclusive of conducting UPV test. UPV test shall be carried out for the top deck of all machine foundations and TG substructure to ascertain the homogeneity and integrity of concrete. In addition, additional cubes (@ 1cube per 150Cum of concrete subject to a min. of 6 cube) shall be taken to carry out UPV testing on the cubes to serve as reference UPV values. UPV test shall be carriedout as per IS 13311 (Part-I). Refer tech spec. NO. TCE :4916A-H-500-001, SHEET 02 OF 15, PAGE 978 OF 1036. In case of any defects, the contractor shall rectify the defects suitably using approved contd	CUM	3750			
	contd.....cement/epoxy groute etc. without any extra cost.					
209	Extra over item no. 205, 207 & 208 for temperature control of fresh concrete (temperature not exceeding 23deg. C) with addition of crushed ice in mixing water etc complete.	CUM	1000			
210	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size in precast works like roof slabs etc 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 .	CUM	5			
211	Concrete of grade M-20 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size in precast works like trench covers etc 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 . using Ordinary Port Land cement of 43/53 grade. Trench cover will not weigh more than 65Kgs. and shall be provided with lifting hooks.	CUM	25			
212	Concrete of Grade M-20 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size plinth protection using Ordinary Port Land cement of 43/53 grade.	CUM	7205			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
215	Breaking existing concrete work at any level including cutting reinforcements, 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	5			
216	Providing and encasing of structural steel member with concrete grade M20 , work around flanges, webs etc and filling the gap. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc complete as per specification and as directed by Engineer using Ordinary Port Land cement of 43/53 grade.	CUM	35			
300	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:					
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	52619			
302	Fairface form work (using commercial laminated plywood with steel/wooden frame)below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc for exposed concrete works.	SQM	6843			
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	37939			
304	Fairface form work (using commercial laminated plywood with steel/wooden frame) above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc for all heights.	SQM	69688			
305	Extra over item no.301, 302, 303, 304 for curved form work for beams, walls, trenches etc as per specification.	SQM	100			
306	Fairface Formwork for TG superstructure (above raft top level) including necessary design & drawing for staging and scaffolding arrangement as per the approved drawing at all levels complete (staging arrangement including design & drawing to be submitted by the bidder for approval before execution for TG top deck). No steel materials shall be supplied by BHEL for fabrication of staging.	SQM	2250			

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307	Providing and removing formwork in Pockets/block outs and openings (below 0.1 sqm contact surface area with concrete) at all elevations including cutting, formations all shapes for foundation bolts, embedments, etc all complete.					
i)	Up to 300 mm depth	Each	500			
ii)	From 301 mm to 600 mm depth	Each	250			
iii)	From 601 mm to 1000 mm depth	Each	100			
400	REINFORCEMENTS					
401	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 mild steel reinforcements supplied by BHEL free of cost confirming to HCR - M Grade Fe - 500 including cost of binding wire, labour, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. Only HCR -M Grade FE - 500, reinforcement steel shall be supplied by BHEL free of cost.	MT	6			
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 Tor steel reinforcements (TMT) supplied by BHEL free of cost, confirming to HCR -M Grade FE - 500 including cost of binding wire, labour, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. Only HCR -M Grade FE - 500, reinforcement steel shall be supplied by BHEL free of cost.	MT	4791			
500	WATER PROOFING AS PER SPECIFICATIONS.					
501	Providing and mixing approved water proofing compound in concrete or cement mortar for works wherever specified or directed as per specification/ manufacturer's instructions, testing of samples for water proofing etc complete.	KG	75019			
502 (a)	Providing and fixing Poly Urethane based roof water proofing treatment using high solid content liquid applied elastomeric water proofing membrane 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 relavent specification in section -D. Wearing course of 25mm thick 1:2:4 concrte and grading underbed with 25mm thick 1:4 cement mortor shall be paid separately under item no.504 and Item no. 503 respectively.	SQM	10265			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
502 (b)	Providing and laying 50mm thick foam concrete layer as per IS:6598 on roof for thermal insulation all complete as per drawing and specification.	SQM	10265			
503	Providing and grading under bed over roof slab, floors to achieve the specified slope with 1:4 cement mortar plaster (by volume) of average 25mm thickness at all elevations including all labour, material, equipment, handling, preperation of surface, transportation, batching, mixing, placing, leveling, curing, testing etc. complete as per specification, drawing and instruction of engineer.	SQM	10265			
504	Providing and laying protective wearing course of 25 mm thick PCC (1:2:4) over PU based elastomeric water proofing membrane 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	10265			
505	Providing & laying 22mm thick chequered cement tiles 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	20			
508	Screed concrete 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6mm nominal size on the roof at any level or thickness to maintain the required grade complete.	CUM	435			
509	Screed concrete 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size in manholes .all complete as per drawing and specification.	CUM	10			
510	Providing minimum two coats of bituminous paint on concrete surfaces in contact with soil in foundations of grade 85/25 confirming to IS 702 @ 1.7 kg/sqm.	SQM	59117			
600	SUPPLYING & 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:					
601	12mm thick joints.	SQM	43			
602	20mm thick joints.	SQM	18			
603	25mm thick joints.	SQM	33			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
700	M.S. EMBEDMENTS					
701	Supplying , fabricating and fixing of embedments, MS inserts , 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	87.5			
702	Supply , fabrication, transportation, delivery at site and erection, installation and alignment of MS Foundation bolts (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	24			
703	Transportation from BHEL stores , delivery at work spot and erection, installation and alignment of embedments, MS inserts, pipe sleeves , rails, guide rails, angle pieces, anchor bolts, foundation bolts 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	21			
800	GROUTING AS PER SPECIFICATION FOR THE FOLLOWING:					
802	Providing and grouting of pocket holes , pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with mix 1:1:2 (one part Cement : 1part Sand : 2 parts of 6mm down graded stone chips) at any elevation including roughening surface, cleaning, ramming, curing etc complete (non-shrink hand grout using approved admixture) as per specification and as directed by the Engineer.	CUM	5			
801	Providing and laying non shrink flowbale grout of grade M35 using 6mm down graded stone chips and approved admixture(Non shrink cum plasticizer admixture) for grouting of pocket holes, pipe sleeves of any shape and size under base plates after erection and alignment of necessary structural steel work, machinery at any elevation including roughening surface, cleaning, ramming, curing etc complete as per specification and as directed by the Engineer.	CUM	5			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
803	Providing and grouting of pocket holes , pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with mix 1:1 (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	20			
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 ConbextraGP-2`Fosroc`/`Pidigrout10/Pagel or equivalent all complete as per specifications. (Cost of all material and clearing the pocket by compressed air shall be in the scope of the contractor).	CUM	10			
900	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:					
901	Providing and fixing 40mm thick solid core flush door shutters (single or double) 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. 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	SQM	47.5			
902	Providing and fixing steel windows of fixed type with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision. Glazing shall be of 6mm thick toughened safety glass 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 . Rate shall be inclusive of Glazing and Painting.	SQM	577			
903	Providing and fixing steel openable windows/ventilators with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision. Glazing shall be of 4mm thick float glass 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. Rate shall be inclusive of Glazing and Painting.	SQM	465			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
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. Glazing shall be clear float glass of 6.0mm thickness 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. Rate shall be inclusive of glazing.	SQM	1000			
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. Glazing shall be clear float glass of 5/ 6 mm thickness including snap fit type beading, concealed screws, fixtures, etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. Rate shall be inclusive of Glazing .	SQM	330			
906	Providing and fixing steel single or double door shutters. Shutters shall be 45mm thick flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on 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. Frame shall be of Pressed steel frame & shall be paid seperately under Item No.914. Finish paint shall match to structural painting as per item no. 2304	SQM	125			
907	Providing and fixing steel single or double shutter doors. Shutters shall be of 18 gauge M.S. sheets and shall present a flush surface on the outside. The inside shall be stiffened with semitubular edge and central stiffening rail which shall convey the lock. Complete with fixtures, Godrej make Mortice lock with handle on both sides, primer & finish painting as per specification. Frame shall be of Pressed steel frame & shall be paid seperately under Item No.914. Finish paint shall match to structural painting as per item no. 2304	SQM	5			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
908	Providing and fixing fire proof steel door shutters (single or double shutter) conforming to IS:3614 (part-1 & part-2). Shutters shall be minimum 60mm thick flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers with mineral wool insulation, primer and epoxy based painting including door frame, all fittings complete as per specification. relevant IS code and shall be TAC approved with minimum 2 hours fire rating.	SQM	10			
909	Providing and fixing anodized extruded aluminium doors (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. Glazing shall be clear float glass of 6mm thickness 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 (Frames shall be measured and paid under separate item).Rate shall be inclusive of Glazing.	SQM	10			
910	Providing and fixing in position anodised aluminium frame for doors, windows, ventilators having minimum 3mm wall thickness as per IS:1285 and elctro 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.	Kg	260			
910a	Providing and fixing anodized aluminium work in doors, windows, ventilators and partitions etc with extruded standard tubular and other sections including all fittings and fixtures and accessories of aproved make confirming to IS:733 and IS:1285, anodised and alectrocoloyr 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 preperation 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).	Kg	440			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
911	Providing and fixing aluminium glazed partition with single glazing . Aluminium sections shall be of extruded sections of INDAL or approved equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Glazing shall be clear float glass of min. 5.5mm thickness conforming to IS 2835 including snap fit type beading, concealed screws, hold fast, fixtures, Godrej make Mortice lock with handle on both sides, necessary fillingup of gaps at the junctions, at top, bottom and sides, etc complete. Aluminium section shall be smooth, rust free, straight, mitred & jointed mechanically wherever required. Rate shall be inclusive of glazing.	SQM	250			
912	Providing and fixing aluminium glazed partition with double glazing . Aluminium sections shall be of extruded sections of INDAL or approved equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Double glazing shall consist of two 6mm thick clear toughened light tinted safety glass confirming to IS : 2553 ,hermetically sealed and seperated by 12mm thick gap for thermal insulation. including colour anodised aluminium beading, concealed screws, hold fast, fixtures, PVC/neoprene gasket, necessary fillingup of gaps at the junctions, at top, bottom and sides, etc complete. Aluminium section shall be smooth, rust free, straight, mitred & jointed mechanically wherever required. Minimum anodising thickness shall be 15micron. Rate shall be inclusive of glazing.	SQM	150			
913	Providing and fixing of over head hydraulic door closers of 'Yal' make or equivalent approved quality as directed by Engineer.	Each	25			
914	Providing and fixing pressed steel frames fabricated using 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, finish paint etc complete as per specifications. Finish paint shall match to structural painting as per item no. 2304	KG	505			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
915	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 specification and of approved make - Mechanically operated . The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.	SQM	245			
916	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 specification and of approved make - Hand operated . The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.	SQM	50			
917	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 specification and of approved make - Electrically operated . The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.	SQM	127			
918	Providing and fixing in position PVC Door of Syntex make or approved equivalent in toilet as per specifications and as directed by Engineer.	SQM	5			
1000	BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, SCAFFOLDING ETC COMPLETE AS PER SPECIFICATIONS, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:					

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
1001	Providing brick work in cement mortar 1:6 (1 part cement: 6 parts coarse sand) in walls, chambers etc of 230mm & above in thickness at all depths, places and positions below plinth 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	262			
1002	Providing brick work in cement mortar 1:6 (1 cement : 6 coarse sand) in walls, chambers etc at all heights, places and position above plinth 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. Rate shall be inclusive of 6 mm Dia. MS Bars.	CUM	2815			
1003	Providing 115mm thick brick work in cement mortar 1:4 (1 cement : 4 coarse sand) in partition walls, chambers etc 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. Rate shall be inclusive of 6 mm Dia. MS Bars.	SQM	1800			
1005	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. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc complete as per specification.	CUM	20			
1006	Making openings in existing finished brick wall or partition wall 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	850			
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			
1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS, LABOUR, SHUTTERING, CENTERING, CURING ETC COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS OR AS DIRECTED BY ENGINEER FOR THE FOLLOWING:					

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
1101	Damp Proof Course 50mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied before & after the DPC as per specification.	SQM	1340			
1200	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:					
1201	Providing 18mm thick plaster in two layers (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 on outside the brick walls finished to a smooth finish as per specification including providing 3mmx3mm size grooves at junctions of two dissimilar materials.	SQM	13267			
1202	Providing 12mm thick plaster in cement mortar 1:6 inside the brick walls with smooth finish on the even side of the wall as per specification.	SQM	14533			
1202A	Providing 18mm thick plaster in cement mortar 1:6 inside the brick walls with smooth finish on the uneven side of the wall as per specification.	SQM	2000			
1203	Providing 6mm thick plaster in cement mortar 1:4 on ceiling with smooth finish as per specification.	SQM	26568			
1204	Providing 15mm thick neat plaster in drains/culverts as per specification.	SQM	21100			
1207	Providing Plaster of Paris 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	SQM	11694			
1300	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:					
1303	Two or more coats of distempering with oil bound washable distemper 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)	SQM	9938			
1304	Two or more coats of dry distempering of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	29768			
1304a	Providing and applying Granular finish (vineratex) of 2mm thick of approved make and colour over External plain-faced cement plaster at all elevations for various buildings including material, labour, scaffolding, curing etc complete as per drawing and specification.	SQM	6234			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
1305	Providing two coats of Acrylic emulsion paint 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.	SQM	1250			
1306	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 primer etc all complete as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level.	SQM	900			
1306(A)	Providing and applying 2 or more coats of chlorinated rubber based paint 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.	SQM	2120			
1309	Two or more coats of synthetic enamel paint 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	718			
1400	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:					
1401	Providing and laying 50mm thick heavy duty I.P.S flooring with metallic hardener pigmented topping using 12mm thick uniform graded treated iron particles in flooring 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	725			
1401 (A)	Providing and laying 50mm thick heavy duty I.P.S flooring with non - metallic hardener pigmented topping 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	12010			
1402	Providing and laying 50mm thick heavy duty cement concrete with metallic hardener pigmented topping using 12 mm thick uniform graded treated iron particles in skirting and dado 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	115			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
1402 (A)	Providing and laying 50mm thick heavy duty cement concrete with non-metallic hardener pigmented topping using 12 mm thick uniform graded treated iron particles in skirting and dado 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	555			
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum) of size 300mmX300mmX22mm thick of approved shade as per IS 1237, laid in floors 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. Overall thickness shall be 50mm including concrete underbed 1:2:4 which shall be paid under item no. 508.	SQM	6250			
1404	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum) of size 300mmX300mmX22mm thick of approved shade as per IS 1237, laid in skirting and dado , 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.	SQM	400			
1406	Providing and laying 50mm overall thickness Terrazo Tiles (of size 250x250x20mm) finish in floors , landings, treads and risers including an under layer of 30mm thk cement concrete 1:1.5:3 by volume. Tiles shall have topping of 5mm thick with marble chips of size 1mm to 10mm nominal size laid in white, grey cement or mixture or both in proportion 1:1.5 with white marble powder 3:1 in proportion mixed dry in cement including pigments rubbing/grinding, polishing etc including 40mmX3mm aluminum strips all complete as per specification.	SQM	320			
1407	Providing and laying 25mm thick Terrazo Tiles finish in skirting/dado projecting 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	40			
1408	Providing and fixing Acid / Alkali resistant vitreous tile lining of following thickness confirming to IS:4457 in flooring/Dado 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.					

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
a)	For Flooring 25 mm thick	SQM	1375			
b)	For Dado 20 mm thick	SQM	200			
1409	Providing and laying polished Kota stone 25mm thick in flooring including an 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.	SQM	500			
1410	Providing and laying polished Kota stone 25mm thick in skirting projecting 6mm from adjacent plaster all complete .	SQM	10			
1413	Providing and laying polished Granite stone of approved colour and texture 25mm thick 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 .	SQM	1000			
1414	Providing and laying polished Granite stone 25mm thick in skirting and dado including pigments, curing, grinding, granite polishing etc complete.	SQM	25			
1415	Providing and laying 7.5mm thick vitrified ceramic tiles of polished variety of following size from reputed manufacturer (Kajaria/Johnson or equivalent) complete as per specification.					
a	400mmx400mm	SQM	150			
b	600mmx600mm	SQM	150			
1416	Providing and laying 7.5mm thick vitrified ceramic tiles of unpolished variety of following size from reputed manufacturer (Kajaria/Johnson or equivalent) complete as per specification.					
a	400mmx400mm	SQM	700			
b	600mmx600mm	SQM	700			
1417	Providing and laying 7mm thick vitrified ceramic tiles of polished variety of size 300mmx300mm from reputed manufacturer for skirting and dado up to specified height complete as per specification.	SQM	25			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
1418	Providing and laying 7mm thick vitrified ceramic tiles of unpolished variety of size 300mmx300mm from reputed manufacturer for skirting and dado up to specified height complete as per specification.	SQM	100			
1419	Providing and laying granite stone slab of 20mm thickness single piece for wash basin slab of black or approved colour with cutting and opening complete.	SQM	150			
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of size 300mmx300mmx7mm thick of reputed manufacturer of approved finish shade and colour.	SQM	400			
1423	Providing and fixing White glazed tiles of size 150mmx150mm and 5.5mm to 6mm thick in dado , 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.	SQM	100			
1424	Providing and laying Heavy Duty Ceramic Tiles (Matt Finish) of size 300mmx300mm and 7mm thick 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	1500			
1425	Providing and laying 2mm thick antistatic PVC floor as per IS : 3462 and laid as per IS :5318 over concrete under bed of 50 mm (I.P.S. flooring which shall be paid seperately under item no. 1401A) of approved shade including all labour, material etc all complete as per drawing and as directed by Engineer.	SQM	255			
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	1750			
1500	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:					

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
1501	Designing, providing and fixing permanently colour coated galvanised MS troughed metal sheet decking 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 0.8mm with minimum trough depth of 38mm 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	6935			
	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 sealant 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.					
1502	Design, supply and erection of thermally insulated sandwiched metal cladding 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 Polyfluro Vinyl Coating (PVF2) of Dry Film Thickness (DFT) 20 microns (minimum) 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 -	SQM	15005			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
	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.					
1600	PROVIDING AND FIXING FALSE CEILING INCLUDING SUPPLY OF CEILING MATERIAL, SUSPENSION SYSTEM AND ALL OTHER MATERIALS REQUIRED FOR THE WORK INCLUDING POLISHING/ PAINTINGS, LABOUR ETC ALL COMPLETE AS PER SPECIFICATION, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:					
1602	Providing under deck insulation 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	1350			
1603	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour and Luxalon 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. MS channel grid shall be paid under structural item 2301 & required materials shall be supplied by BHEL free of cost.	SQM	1250			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
1605	Providing and Fixing 12.5mm thick Gypsum board (600mm x 600 mm) plain false ceiling tiles 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. Acrylic emulsion paint shall be paid separately under item no. 1305	SQM	750			
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 100mm diameter- Class 3 as per IS:4985 .Medium quality as per IS:4985 .	RM	1400			
1704	UPVC down take pipes of 150/160mm diameter- Class 3 as per IS:4985 .Medium quality as per IS:4985.	RM	1895			
1800	MISCELLANEOUS					
1801	Providing and fixing PVC water stops - 225mm wide 8mm thick	RM	750			
1802	Providing and fixing in position 25mm wide and 25mm thick blown bitumen in expansion joints as per specification. Grade of bitumen shall be 80/20	RM	35			
1803	Supplying and installation of 25mm thick vibration damping resistoflex or approved equivalent pads around foundation of vibrating equipment and other locations as directed by the Engineer including cost of all materials labour equipment etc complete as per drawing and specifications.	SQM	30			
1804	Providing and fixing bitumen impregnated fibre joint filling board conforming to IS : 1834 of 25mm thickness 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. PVC water bar shall be paid separately under relevant items (Item no. 1801).	RM	100			
1805	Supplying and laying of rounded gravels 40mm thick in transformer yards, switch yard floors etc as directed by Engineer.	CUM	200			
1808	Providing and fixing G.I strips minimum 1.5mm thick and 150mm wide unless specified otherwise in water retaining structures including galvanising as per relevant I.S. codes and as per specifications.	RM	100			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
1809	Providing and fixing aluminium strips minimum 18SWG and 300mm wide unless specified otherwise with minimum lap of 50mm length all complete as per specification.	RM	70			
1811	Taking delivery from BHEL stores, loading, transporation to work site, unloading of earthing mats/rods , cutting to length, welding and laying etc complete as per specification and as directed by Engineer. Earthwork excavation & backfilling shall be paid separately under relevant items. Earthing rod shall be issued by BHEL free of cost.	MT	334			
1812	Design, supply, fabrication, installation of truly levelled and aligned 400mm high cavity flooring comprising of 35mm thick Nova teak or approved equivalent make superparticle board of size 610mm x 610mm floor panels 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 alluminium alloy adjustable head attachment at top and welded to 100mmx100mmx8mm base plate, pedestal fixed to floor by means of expension 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	150			
1813	Designing, providing and fixing of Heavy duty galvanised friction anchor fasteners of Hilti/Equivalent make of 16mm diameter 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	20			
1814	Designing, providing and fixing of Heavy duty galvanised friction anchor fasteners of Hilti/Equivalent make of 20mm diameter 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	20			
1815	Designing, providing and fixing of Heavy duty galvanised chemical anchor fasteners of Hilti/Equivalent make of 12mm diameter and appropriate length in concrete (minimum grade M20) to take direct tension of minimum 1MT including anchor fastener, materials, equipment, labour, scaffolding complete as per direction of Engineer.	Each	20			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
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. (Only rails & guide rails shall be supplied by BHEL free of cost)	MT	45			
1819	Providing and fixing LDPE pipes in cable duct banks, openings in RCC work at all elevations of following sizes including cutting, fixing and levelling in position as per drawings, specifications all complete.					
i)	100 mm diameter	RM	100			
ii)	150 mm diameter	RM	100			
iii)	200 mm diameter	RM	100			
2000	FENCING AND GATES.					
2001	Supplying and fixing G.I. barbed (2 PLY) wire in fencing @ 150mm c/c (specing between the runs) and two diagonal ties between the post 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. Earthwork & concrete for post foundation shall be paid separately under relevant item and MS angle shall be supplied by BHEL free of charge.	SQM	500			
2002	Providing and fixing M.S gates formed out of tubular section conforming to IS 1161 as per specifications complete. Rate shall be inclusive of painting & paint specification shall confirm to structural item no. 2304. Earthwork and concrete shall be paid separately under relevant item.	MT	3			
2003	Supplying and erecting in position 2.4m high PVC coated gavanised chain linked fencing 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 confirming to IS 298 at top of chain link fencing shall be provided with 4 stands of height of 600 mm including all accesories 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 galvanised MS Angle section of minimum 75 x 75 x6 mm size 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.....contd.	SQM	2000			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
	contd... Earthwork excavation & concreteing for foundation shall be paid separately under relevant item and MS angle/channel for post shall be supplied by BHEL free of charge. Rate shall be inclusive of fabrication, Galvanizing & fixing of steel posts.					
2100	WATER SUPPLY					
2101	Providing and fixing in position tested heavy duty chromium plated brass long neck bib cocks including sockets, union, nut etc complete - 15mm nominal bore.	Each	41			
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc complete as directed by Engineer - 15mm nominal bore.	Each	41			
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 25mm nominal bore.	Each	24			
2104	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 50mm nominal bore.	Each	22			
2105	Providing and fixing GI pipes Medium Grade (Class-B) complete with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete - 15mm nominal bore.	RM	500			
2106	Providing and fixing GI pipes Medium Grade (Class-B) complete with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete - 20mm nominal bore.	RM	450			
2107	Providing and fixing GI pipes Medium Grade (Class-B) complete with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete - 25mm nominal bore.	RM	400			
2108	Providing and fixing GI pipes Medium Grade (Class-B) complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete (for external work) - 15mm nominal bore.	RM	250			
2109	Providing and fixing GI pipes Medium Grade (Class-B) complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete (for external work) - 20mm nominal bore.	RM	250			
2110	Providing and fixing GI pipes Medium Grade (Class-B) complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete (for external work) - 25mm nominal bore.	RM	250			
2111	Providing and fixing GI pipes Medium Grade (Class-B) complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete (for external work) - 50mm nominal bore.	RM	250			
2112	Providing and fixing 610mmx453mmx6mm thick mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets etc complete with CP screws as per specification.	Each	25			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
2117	Providing and fixing electric operated hand dryer with photo voltaic control all complete as per specification.	Each	4			
2113	Providing and fixing 610mmx127mmx6mm thick clear glass with C.P Guard rails and mounted on C.P. brackets etc complete as per specification.	Each	25			
2114	Providing and fixing 20mm diameter chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete as per specification.	Each	25			
2115	Providing and fixing C.P. soap holder mounted with C.P. screws etc complete as per specification.	Each	35			
2116	Providing and fixing C.P. liquid soap dispenser . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc complete as per specification.	Each	35			
2117	Providing & fixing P.V.C. water tank of 1000 litres 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	10			
2118	Providing & fixing P.V.C. water tank of 2000 litres 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	20			
2118A	Providing & fixing P.V.C. water tank of 5000 litres 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	10			
2200	SANITARY WORKS					
2201	Supply and fixing 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. 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	30			
2203	Providing and fixing Stainless steel kitchen sink (750mm) all complete as per specification.	Each	4			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
2202	Providing and fixing approved vitreous china acid/alkali resistant laboratory sink of size 600mmx400mmx200mm conforming to IS 2556(Part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 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 as per specification.	Each	7			
2203	Providing and fixing colour glazed vitreous china European type water closet western Type WC 390mm high as per IS : 2556 (Part 2) 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	5			
2205	Providing and fixing wall type glazed vitreous china urinals 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	35			
2206	Supply, laying and jointing 75mm diameter heavy duty cast iron pipes 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	250			
2207	Supply, laying and jointing 100mm diameter heavy duty cast iron pipes 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	195			
2208	Supply, laying and jointing 150mm diameter heavy duty cast iron pipes 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			
2209 A	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 complete - 200mm diameter as per specification.	RM	750			
2209 B	Supply, laying and jointing 75mm diameter Sand Cl pipe with lead joints conforming to IS:1239 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	50			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
2209 C	Supply, laying and jointing 75mm diameter UPVC pipe conforming to class 3 of IS:4985 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	50			
2210	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 complete - 300mm diameter as per specification.	RM	500			
2211	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 complete - 450mm diameter as per specification.	RM	250			
2212	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 complete - 600mm diameter as per specification.	RM	450			
2213	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 complete - 800mm diameter as per specification.	RM	450			
2214	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture all complete as per specifications.	Each	27			
2215	Providing and fixing circular heavy duty C.I. manhole heavy duty cover of 600mm diameter with frame all complete as per specification.	Each	27			
2216	Providing and fixing square mouth S.W Gully trap 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 - 100mmx100mm P or S Type .	Each	15			
2217	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300x300mm (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 - 150mmx100mm P or S Type .	Each	18			
2218	Providing and fixing square mouth S.W Gully trap 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 - 150mmx150mm P or S Type .	Each	16			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
2219	Construction of road/yard gullies in 250mm thick brickwork - 750mm deep with cement concrete M-20 grade foundation, including reinforcement, 12mm cement mortar (1:3) plastering both inside and outside, M.S. rungs @ 250mm c/c including C.I. Grating along with frames as per IS standards including necessary earthwork in excavation, backfilling etc complete as per drawings/specifications.	Each	9			
2220	Providing and fixing C.I. floor traps with C.P jalli complete as per specification.	Each	52			
2221	Providing and installing approved brand single tap water cooler of 80 L cooling capacity complete in all respect.	Each	5			
2222	Providing and installing approved brand single tap water cooler of 150 L cooling capacity complete in all respect.	Each	10			
2300	STRUCTURAL STEEL WORKS 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 (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) of structural steel made from mild steel conforming to IS:2062, chequered plate conforming to IS: 3052 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..... contd					

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
	contd..... 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, 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.... contd					
	contd.... surface preparation by sand blasting as per specification. The surface shall be cleaned to grade ST -2 as per SIS 05 -5900 or as per IS : 1477 (Part - 1) , 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 (mechanical and non-destructive as specified under technical specification Section-D), preparation of fabrication drawings and its approval , 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	MT	6743			
b)	Erection, alignment, welding	MT	6743			
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)	MT	6743			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
2307	Supplying, fabrication, transportation, erection and alignment of factory made electroforged gratings 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	142			
2308 (a)	Extra over above Item No. 2307 for finishing the fabricated grating unit with hot dipped galvanisation @900gm/Sqm over blast cleaned steel surface as per specification,drawing and instruction of Engineer instead of painting	MT	100			
2308 (b)	Extra over above Item No. 2301 for finishing the fabricated Chequered plate with hot dipped galvanisation @900gm/Sqm over blast cleaned steel surface as per specification,drawing and instruction of Engineer instead of primer painting	MT	25			
2309	i) Supplying 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 39mm diameter and upto 300mm long including hot dip galvanizing at the rate of minimum 500gm/sqm to an average of 550gm/sqm for structural steel work complete as per specification, drawings and instructions of the Engineer.	Quintal	55			
	ii) Supply and fixing in position of high strength friction Grip(HSFG) 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 39mm diameter and upto 300 mm long including hot dip galvanizing at the rate of minimum 610gm/sqm to an average of 750gm/sqm for structural steel work complete as per specification, drawings and instructions of the Engineer.	Quintal	80			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
2311	Addition to alterations in and/or modification of "Erection Marks" either in erected position or in the shop including cutting of parts, gouging 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) all complete as per specifications, drawings and instructions of the Engineer.					
	i) In erected position	MT	6			
	ii) In fabrication yard	MT	6			
2313	Design, supply, fabrication, erection of stoplog gates in CW Pumps as per specification with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel (for guide channel and roller bearing plate), brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc 750 gms/sqm., following by an application of etching primer and dipping in black bitumen as per B.S. 3416, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc., all complete as per specifications and approved drawings. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head. (only weight of structural steel including embedments shall be considered for payment purpose)	MT	45			
2314	Supplying, fabricating, erecting in position and testing / examining bolted and / or welded structural steel work at all levels for stationary screens made out of rolled sections and / or plates including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc as 750 gms./sqm. followed by application of an etching primer and dipping in black bitumen as per BS 3416, complete as per drawing and directed.	MT	40			
2317	Providing and fixing in position of PTFE type sliding bearings of reputed make, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of +/- 50mm including all taxes, duties, transportations, installation, drilling, bolting, erecting, aligning etc., complete as per specification, drawings and instructions of the Engineer for the following: (Vertical load carrying capacity of individual bearing shall vary from 10MT to 60MT as specified in the construction drawings)					

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
a)	10MT vertical load Capacity	Each	10			
b)	20MT vertical load Capacity	Each	2			
c)	40MT vertical load Capacity	Each	2			
2319	Conducting radiography test (Test shall be conducted in accordance with American National standard ANSI /AWS D1.1-92) on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	RM	100			
2320	Conducting ultrasonic test on welds (Test shall be carried out in accordance with American National Standard ANSI/AWS D1.1-92 chapter 6:Part c) wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	RM	75			
2321	Conducting magnetic particle test on welds (Test shall be carried out in accordance with American National Standard ANSI/AWS D1.1-92 chapter 6:Part c) wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	RM	75			
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	10			
2400	ROAD WORK					
2401	Preparation of sub grade by excavating earth to required depth for all types of soil, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead of 1KM all complete as per specification.	CUM	25500			
2402	Supplying and filling with selected good earth/murum/conglomerated earth mixed with gravels of approved quality under pavement and shoulders etc. (from contractor's own borrow area) in compacted layers of maximum depth 200mm (in two layers each compacted thickness 100mm) including watering, rolling/consolidating and dressing etc to required camber including excavation, loading, transportation, unloading, royalties, testing complete.	CUM	13575			
2403	Providing, stacking and laying granular morrum laid for shoulder including watering, compaction with road roller to required level etc complete as per specification.	CUM	1125			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
2404	Providing and Laying water bound macadam base/sub base course in layers of required thickness with stone aggregate 90mm to 40mm size , including binding materials (murrum), screening of aggregates, sorting, spreading to template and consolidation with road roller . Rate shall be inclusive of cost of all material, labour etc. complete.	CUM	3600			
2405	Providing and Laying water bound macadam base/sub base course in layers of required thickness with stone aggregate 63 mm to 40mm size , including binding materials (murrum), screening of aggregates, sorting, spreading to template and consolidation with road roller . Rate shall be inclusive of cost of all material, labour etc. complete.	CUM	3150			
2406	Providing and Laying water bound macadam base/sub base course in layers of required thickness with stone aggregate 50 mm to 20mm size , including binding materials (murrum), screening of aggregates, sorting, spreading to template and consolidation with road roller . Rate shall be inclusive of cost of all material, labour etc. complete.	CUM	1350			
2407	Providing and applying Tack coat of low viscosity liquid bitumen of a suitable approved grade confirming to IS 73, 217 or 454 as applicable @ 10 kg/10sqm for an untreated WBM surface including scraping, cleaning with compressed air etc complete.	SQM	18000			
2408	Providing, mixing and laying of compacted 75 thick Bituminous Macadam Course . Bitumen shall be of a suitable grade complying with IS 73 and aggregates, binder material as specified in specification including hot mixing, hot laying, rolling all complete.	SQM	18000			
2409	Providing and laying 25mm thick premix carpet surfacing with 2.25cum and 1.12 cum of stone chippings of size 12.5mm and 10mm respectively per 100 sqm with hot bitumen @ 52 kg. and 56 kg. per cu.m. of 12.5mm & 10mm size stone chippings respectively including a tack coat with hot bitumen @ 1.00 kg. per sq.m. of road surface including consolidation with road roller etc all complete with bitumen heated and then mixed with solvent at the rate of 70gms per kg of bitumen including cost of all material, labour all complete as per specification, drawings and instructions of the Engineer.	SQM	36000			
2410	Providing and applying liquid seal coat comprising of an application of a layer of bituminous binder at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling as per specification all complete.	SQM	36000			
2411	Providing and laying edge protection on both edges of black topping using brick on edge (bricks with crushing strength of 75kg/Sqcm) with full brick width (230mm) etc all complete as per drawings and specifications.	RM	2750			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
2412	Supply and laying (400mm x 150mm X 350mm deep) precast concrete kerb stone of shape as per detailed drawing including fixing in 13mm thick cement mortar 1:2 in joints, finishing of joints with neat cement paste, making drainage opening where required etc complete as per specifications.	RM	1000			
2413	Supply and laying 150mm diameter R.C.C NP-2 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing in 13mm thick cement mortar, finishing of joints with neat cement paste complete as per specifications.	RM	500			
2415	Providing 25mm thick premix carpet on existing/damaged road surfaces by spreading of 2.25cum and 1.12 cum of stone chippings of size 12.5mm and 10mm respectively per 100 sqm with hot bitumen @ 52 kg and 56 kg per cum of 12.5mm & 10mm size stone chippings respectively including a tack coat with hot bitumen @ 1kg/sqm of road surface including consolidation with road roller etc all complete with bitumen heated and then mixed with solvent at the rate of 70 gm/kg of bitumen including cost of all material, labour, cleaning, repairing damaged carpet, WBM, sub grade/sub base,to the required thickness wherever required,consolidation with road roller etc all complete as per specification and as directed by Engineer.	SQM	2100			
2416	Providing services of Pit less weigh bridge of 100MT weighing capacity of size 20m X 3.5m on built,own and operate basis at 2 X 350MW Pipavav CCPP as per Technical Specification provided elsewhere in the tender for an overall contract period of 28 Months that includes 2 Months installation period and 26 Months operation period.	L.S.	1			
	TOTAL OF PART - A					
PART- B GRADING & LEVELLING						
1	Earth work in stripping 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 fillling.	SQM	173000			
2	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 in all types of soil 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 poclairn etc but does not require chiselling or blasting.	CUM	30000			

ST. NO	Description of Items	Unit	Quantity	Rate In Fig (Rs)	Rate In Words	Amount
3	Earth work in excavation upto any depth for levelling and gradingand disposal within a lead of 1km..... in all types of rock which can be excavated by means of blasting but does not require chiselling.	CUM	90000			
4	Earth work in excavation upto any depth for levelling and gradingand disposal within a lead of 1km..... in all types of rock which can be excavated by means of chiselling .	CUM	30000			
4a)	Disposal of surplus excavated earth (including rock) beyond an initial lead of 1km and upto a lead of 2km	CUM	20000			
b)	Disposal of surplus excavated earth (including rock) beyond an initial lead of 1km and upto a lead of 3km	CUM	25000			
c)	Disposal of surplus excavated earth (including rock) beyond an initial lead of 1km and upto a lead of 4km	CUM	25000			
d)	Disposal of surplus excavated earth (including rock) beyond an initial lead of 1km and upto a lead of 5km	CUM	20000			
6	Earth work in filling for levelling and grading using selected excavated earth (obtained from compulsory excavation inside the project site within a lead of 1 Km) 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.	CUM	36000			
7	Earth work in filling for levelling and grading using borrowed good earth (borrowed good earth to be arranged by the contractor at his own cost) 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. Rate shall be inclusive of all T&Ps, labour, excavation, loading, transportation, unloading, spreading, royalty, fee etc.	CUM	100200			
8	Providing, stacking and laying 300mm thick boulder pitching on the slopes of earth fill/cut with approved quality of rock fragments	CUM	2000			
	TOTAL OF PART - B					
	Grand Total (A+B)					