

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHEL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))

**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
	<b>100</b>	<b>EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION AND DRAWINGS</b>				
	101	<b>Excavation</b> including providing cofferdams, shoring, strutting, sheeting, bracing, draining and pumping out water, clearing all grass, vegetation etc. including trimming of excavation bottom, staking, levelling, grading etc. of excavated materials all complete as per specifications, drawings and instructions of the engineer, including a lead up to 100 meters and <b>a lift up to 2.0 meters.</b>				
1	i)	In <b>all types of soils</b> including ash, morrum, laterite	CUM	40943		
	102	Extra over item 101 above, for all types of soil/rock, <b>for additional lifts</b> beyond the initial lift of 2 meters (included in item 1 above) all complete as per specifications, drawings and instructions of the engineer for the following lifts:				
	i)	In all types of soils				
2	a	beyond 2 m and upto 4 m	CUM	29473		
3	b	beyond 4 m and upto 7 m	CUM	9000		
4	c	beyond 7 m and upto 10 m	CUM	4000		
5	d	beyond 10 m and upto 15 m	CUM	2000		
6	103	Extra over item 101 above for excavation below ground water table including <b>lowering of ground water table</b> to maintain dry working conditions for all activities up to filling/testing, water proofing all complete as per specifications, drawings and instructions of the engineer.	CUM	131194		
	104	Extra over item 101 above for <b>carriage of all types of excavated materials</b> beyond the initial lead of 100 m (included in item 1 above) all complete as per specifications, drawings and instructions of the engineer for the following leads				
7	i)	Carriage beyond initial lead of 100 m but not exceeding 500 m	CUM	12000		
8	ii)	Carriage beyond initial lead of 500 m but not exceeding 2 Km	CUM	12000		
9	iii)	Carriage beyond initial lead of 2 Km but not exceeding 5 Km	CUM	3803		
10	iv)	Carriage beyond initial lead of 5 Km but not exceeding 10 Km	CUM	14758		
	105	<b>Filling using selected excavated materials</b> in trenches, plinths, sides of foundations and other underground structures, pipes, are levelling etc. in layers not exceeding 150 mm thickness including lead upto 100 m and all lifts and including loading from stock pile, carting, unloading, filling, watering and compacting/ramming each layer, all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
11	i)	Ordinary manual compaction	CUM	1155		
12	ii)	90% Standard Proctor density	CUM	16144		
13	iii)	95% Standard Proctor density	CUM	2595		
	106	<b>Filling using selected materials</b> in trenches, plinths, sides of foundations, in the space below the grade level slab and other under ground structures, pipes etc. in layers not exceeding 150 mm in thickness including all lifts and including excavating, loading, unloading, carting, filling, watering and compacting/ramming each layer, all complete as per specifications, drawings and as directed by the engineer for the following works				
	i)	With <b>selected soil</b> brought from borow areas arranged by contractor, including royalties, fees etc. or <b>ash</b> obtained from the ash pond for all leads and compacted to following densities				

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					<b>In figures</b>	<b>In figures</b>
14	a	Ordinary manual compaction	CUM	83		
15	b	90% Standard Proctor density	CUM	3888		
16	c	95% Standard Proctor density	CUM	2362		
17	ii)	With <b>selected sand</b> brought from quarries/river bed arranged by contractor, and compacting to 80% relative density etc. for all leads	CUM	13137		
18	iii)	With non expansive material having permissible concentration of Sulphates and chlorides approved by the owner arranged by the bidder.	CUM	1440		
19	107	<b>Filling</b> in trenches, plinths, area paving and other underground structures <b>with stone</b> (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer-in-charge.	CUM	7856		
20	108	<b>Filling</b> in transformer pits etc. , with clean 40 mm nominal size <b>stone aggregate</b> including all labour, materials, royalties, equipments etc. complete as per instructions of engineer in charge.	CUM	1901		
21	108A	Providing and laying <b>C.N.S.</b> material, in layers, well compacted with 95% proctor density, with all materials(from 1 to 4 K.M.) tools, labours etc., and complete	<b>CUM</b>	52050		
22	109	<b>Bulldozing earth</b> for grading of ground including removable of vegetation complete including disposal of debris upto 5 kms.	CUM	1000		
	<b>200</b>	<b>PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING AND CURING, (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) COMPLETE AS PER DRAWING AND SPECIFICATIONS UNLESS SPECIFIED OTHERWISE FOR THE FOLLOWING ( OPC and PPC Cement will be issued as FOC item ):</b>				
23	201	<b>Concrete of grade M7.5</b> as <b>filling course</b> at any level below finished floor level, under and around foundations/floors, mass dumps etc with 40 mm nominal size graded aggregate.	CUM	625		
24	202	Concrete of <b>grade M10</b> as <b>levelling course</b> , under and around foundations/floors etc.	CUM	2258		
25	202A	Concrete of grade <b>M-20</b> in <b>foundations, under floors</b> etc complete.	<b>CUM</b>	16953		
26	202B	Concrete of <b>grade M15</b> (1 part cement, 2 part sand, 4 parts of 12.5 mm graded aggregate by volume) as <b>under bed</b> to floors etc complete.	CUM	36		
27	203	Concrete of grade <b>M-25</b> in <b>foundations, under floors</b> etc complete.	CUM	7411		
28	203A	Concrete of grade <b>M-30</b> in foundations, under floors etc complete.	CUM	15000		
29	204	Concrete of grade <b>M-25</b> in <b>superstructure</b> from finished floor level complete at height:	CUM	9041		
30	204A	Concrete of grade <b>M-25</b> in <b>superstructure</b> from finished floor level complete at height: with <b>membrane curing</b>	CUM	2348		
31	204B	Concrete of grade <b>M-30</b> in superstructure from finished floor level complete at height: with membrane curing	CUM	1200		
32	205	Concrete of grade <b>M-25</b> in <b>T.G. Block</b> and machine foundations at all heights from finished floor level <b>except top deck</b> supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103-latest to achieve a slump more than 125mm in concrete as per manufacturer's recommendation.	<b>CUM</b>	<b>1000</b>		

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					<b>In figures</b>	<b>In figures</b>
33	206	Concrete of grade <b>M-30</b> in TG and other machine foundation sub structures including addition of suitable plasticizer conforming to IS 9103-latest to achieve a slump more than 125mm in concrete as per manufacturer's recommendation.	CUM	3520		
34	206A	Concrete of grade <b>M-30</b> in mills and other machine foundations super structure including addition of suitable plasticizer conforming to IS 9103-latest to achieve a slump more than 125mm in concrete as per manufacturer's recommendation.	<b>CUM</b>	1300		
35	206B	Concrete of grade <b>M-35</b> in top deck including addition of suitable plasticizer conforming to IS 9103-latest to achieve a slump more than 125mm in concrete as per manufacturer's recommendation.	<b>CUM</b>	1400		
36	207	<b>Screed concrete</b> 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness complete.	CUM	1089		
37	208	Concrete of grade <b>M-25</b> in precast works like roof slabs/trench covers etc.including formwork/moulds for thicknesses varying from 75mm to 250mm including transportation, erection and fixing in position etc. complete.	CUM	459		
	209	Concrete of grade <b>M30</b> in water retaining/conveying structures/overhead tanks etc including addition of suitable plasticizer cum waterproofing cement additives conforming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and subsequent reduction in cement content upto a maximum 10% complete and conforming to limits of permeability as per IS 2545 as per specification with 20 mm nominal size graded aggregate.				
	i)	Below Ground Level including providing with minimum two coats of bituminous painting of grade 85/25 @ 1.7 Kg/sqm for water/damp proofing conforming to IS 702 on soil face.				
38	ii)	Above Ground Level	CUM	495		
39	iii)	Water proofing shall be provided for liquid retaining/ carrying structures and basement type structures (requiring dry working condition). Dense and durable concrete with water cement ratio not more than 0.45 shall be used. Plasticiser/super plasticiser cum water proofing compound shall be added to the concrete. All the construction / expansion joints shall be properly treated with PVC water bar and/or chemical injection grouting as per IS:6494. As applicable internal/external surface of such structures shall be provided with acrylic based polymer modified cementitious composite coating system for critical structures. For liquid carrying / retaining structures, minimum two coats of such coating shall be applied. For external application wherever the surface is in contact with the earth, fine silica/quartz sand of 0.6 mm nominal size shall be added in the coating mix for better abrasion resistance and total nominal structures minimum two coats of bitumen 1.5mm.	SQM	1768		
40	210	Concrete of <b>Grade M-15</b> in paving, plinth protection, pipe encasing etc. complete.	CUM	135		
41	211	<b>Breaking existing concrete</b> work at any level including reinforced concrete, removing the rubbish within a lead of 1Km., including transportation, loading, unloading, etc. all complete as directed by Engineer	CUM	75		
42	212	Cutting and <b>making openings</b> in existing concrete work including cutting of reinforcement, making good all surfaces, complete as per engineer in charge.	CUM	22		
43	213	Minimum Two coats of hot bitumen painting, below ground level, of grade 85/25 @ 1.7 Kg/sqm/coat for water/damp proofing conforming to IS:702 on soil face with anti-stripping compound.	SQM	10000		

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					<b>In figures</b>	<b>In figures</b>
44	214	<b>Chipping of concrete</b> in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement	CUM	416		
45	215	Extra over St. No. 206B above, for <b>controlling of temperature</b> of freshly laid concrete to less than 25 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc., all complete as per specification, drawing and instruction of engineer in charge.	CUM	1290		
	216	Ultra-sonic Pulse Velocity (UPV) Testing of Machine Deck				
46	216A	TG deck	NO	1		
47	216B	Fan / Mill Foundations	NO	20		
	<b>300</b>	<b>SUPPLYING, FIXING AND REMOVING FORMWORK AT ANY ELEVATIONS, AS PER SPECIFICATIONS AND INCLUDING ALL LABOUR MATERIAL, SCAFFOLDINGS COMPLETE INCLUDING POCKETS ETC. FOR THE FOLLOWING:</b>				
48	301	<b>Ordinary form work below finished ground floor level</b> for foundations, footings, bases of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	2888		
49	302	<b>Fairface form work below finished ground floor level</b> for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. for exposed concrete works.	SQM	18457		
50	303	<b>Ordinary form work above finished ground floor level</b> for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	270		
51	304	<b>Fairface form work above finished ground floor level</b> for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	64912		
52	305	<b>Formwork for TG</b> superstructure-fairface. (above finished floor level)	SQM	5025		
53	306	Providing, fixing and removing <b>formwork in block-outs/pockets</b> and openings (below 0.1 sqm contact surface area with concrete) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.				
54	i)	Upto 300 mm depth	Nos.	84		
55	ii)	From 301 mm upto 600 mm depth	Nos.	88		
56	iii)	From 601 mm upto 1000 mm depth	Nos.	50		
	<b>400</b>	<b>REINFORCEMENTS ( TMT will be issued as FOC item ):</b>				
57	401	Providing, straightening cutting, bending, placing in position at any level, binding of <b>mild steel reinforcements</b> including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings.	MT	13		
58	402	Providing, straightening, cutting, bending, placing at any level, binding in position <b>high yield strength steel reinforcements</b> including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings.	MT	3471		
59	403	Providing, straightening, cutting, bending, placing at any level, binding in position <b>high yield strength steel reinforcements in brickwork</b> including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings.	MT	1		

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					<b>In figures</b>	<b>In figures</b>
	<b>500</b>	<b>WATER PROOFING AS PER SPECIFICATIONS. (Contractor has to furnish a guarantee for material and workmanship for a minimum period of 20 years.)</b>				
60	501	Providing and laying roof water treatment with high solid content liquid applied elastomeric <b>water proofing membrane</b> with separate wearing course as per ASTM C-898 . Thickness of membrane shall be min 1.5 mm. Treatment shall include application of polymerized mastic over roof achieving a smooth surface. Wearing course on the top of membrane shall consist of 25 mm thick PCC (1:2:4) cast in panels of maximum size 1.2 X 1.2 m and reinforced with 0.56 mm dia galvanised chicken wire mesh and sealing of joints using sealing compound / elastomeric water proofing membrane complete complete as directed by engineer in charge.	SQM	15998		
61	502	Providing and laying <b>chequered concrete tiles</b> for pathways of size 200 X 200 and minimum thickness 22 mm confirming to IS 13801 over water proofing membrane including cement mortar bedding. (water proofing membrane paid else where)	SQM	620		
62	503	Providing and laying <b>pressed precast concrete tiles</b> over water proofing of minimum size 600 X 600 and minimum thickness 20 mm conforming to IS 13801 including 22 mm thick cement mortar (1:4) bedding inclusive of provision for thermal expansion for each roofing tile filled with polysulfide joint sealant. (water proofing paid else where)	SQM	12573		
63	504	Providing and <b>mixing</b> approved <b>water proofing compound</b> 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	678		
	<b>600</b>	<b>SUPPLYING &amp; INSTALLATION OF JOINT FILLER AND SEALING COMPOUND:</b>				
64	601	Supplying & installation of <b>bitumin impregnated fibre board</b> confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin, labour, material, equipments etc all complete at all levels as per specification, drawings and instruction of engineer in charge:				
65	a	12mm thick joints.	SQM	3		
66	b	20mm thick joints.	SQM	4		
67	c	25mm thick joints.	SQM	964		
68	d	50mm thick joints.	SQM	1024		
69	602	Supplying and filling in position hot applied <b>bitumin sealing compound</b> (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints at all levels including application of primer, labour, material, equipments etc. all complete as per specification/drawing, instruction of engineer in charge.	Kg	746		
	<b>700</b>	<b>M.S. EMBEDMENTS</b>				
70	701	<b>Supply, fabricating and fixing of embedments,</b> MS inserts, pipe sleeves, guide rails, angle pieces, foundation bolts, anchor bolts, rungs of various diameters, plates of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, rivetting, 'bolting, cutting, drilling, scaffolding and setting as per specifications and drawings.	MT	232		
71	701A	<b>Fabricating and fixing of embedments,</b> MS inserts, pipe sleeves, guide rails, angle pieces, foundation bolts, anchor bolts, rungs of various diameters, plates of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, rivetting, 'bolting, cutting, drilling, scaffolding and setting as per specifications and drawings. <b>( Steel will be issued as FOC item )</b>	MT	15		

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					<b>In figures</b>	<b>In figures</b>
72	702	Fixing of <b>embedments, MS inserts, pipe sleeves, rails, guide rail</b> s angle pieces, anchor bolts of various diameters, plates of dimensions as required including cost of all labour, materials and equipment for fixing in position, scaffolding and setting in position, transportation from stores within the plant boundary to work spot, loading, unloading etc. complete as per specifications and drawings.	MT	120		
73	703	Supply , fabricating, transporting, erecting and installing at all elevations miscellaneous steel/PVC pipes, expansion fasteners in concrete/brickwall, for all kind of works, including the cost of labour, material and equipment, setting material in concrete, layout, scaffolding, handling at site, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete as per drawings and specifications and instructions of engineer.				
74	i	MS pipes of all diameters	Quintal	111		
75	ii	PVC conduits of all sizes	Quintal	47		
76	iii	Expansion fasteners (galvanised) of HILTI make or equivalent of safe tension capacity as specified below:				
77		250 kg	Each	1000		
78		500 kg	Each	1000		
79		750 kg	Each	600		
80	704	Supply , , Fabrication, erection, installation and alignment of <b>MS foundation bolt</b> assembly in concrete along with nuts, lock nuts, anchor plates, stiffner plates, protective tape etc. upto and including 80 mm dia, 3000 mm long including furnishing of labour, materials, equipments, welding, cutting, grinding, threading, drilling etc. all complete as per specification, drawing and instruction of the engineer.	MT	19		
81	705	Transporting from stores, Placing, locking and releasing of vibration isolation spring modules over foundations at all elevations including transportation from stores, leveling, alignment all complete under the supervision of supplier, as per drawing and instructions of engineer in charge (VIS to be supplied by BHEL free of cost).	NO	155		
	<b>800</b>	<b>GROUTING AS PER SPECIFICATION FOR THE FOLLOWING: ( OPC and PPC Cement will be issued as FOC item ):</b>				
82	801	Providing & <b>grouting cement slurry mix</b> at any elevation/depth with pressure pump for <b>water retaining concrete structures</b> , including fixing nozzles, cost of approved cement, admixture, curing, etc all complete as per specification and as directed by the Engineer.	SQM	5		
83	802	Providing & <b>grouting</b> of pocket holes, pipe sleeves of any shape and size under base plate after erection, and alignment if necessary, of <b>heavy machinery</b> at any elevations including roughening surface, cleaning, ramming, curing, etc with <b>ConbextraGPX-2 of 'Fosroc' or equivalent</b> all complete as per specifications. <b>(Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).</b>	CUM	31		
84	803	Providing & <b>grouting</b> of pocket holes, pipe sleeves of any shape and size under base plate after erection, and alignment if necessary, of <b>main structural steel work</b> at any elevations including roughening surface, cleaning, ramming, curing, etc with <b>ConbextraGP-1 or equivalent</b> all complete as per specifications. <b>(Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).</b>	CUM	22		
85	804	Providing & <b>grouting</b> of pocket holes, pipe sleeves of any shape and size under base plate after erection and alignment if necessary, of <b>secondary structures, machinery and pipe supporting structures</b> at any elevations including roughening surface, cleaning, ramming, curing, etc with <b>1:1:2 cement - sand - 6 mm down stonechips</b> all complete as per specifications. <b>(Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).</b>	CUM	6		

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					<b>In figures</b>	<b>In figures</b>
86	900	<b>DOORS, WINDOWS, VENTILATORS, LOUVERS, ROOF VENTILATORS, ROLLING SHUTTERS, PARTIONS ETC. COMPLETE AT ALL ELEVATION INCLUDING FRAMING, KICK PLATES, STOPPERS AS PER SPECIFICATION AND DRAWINGS (all steel doors, windows and rolling shutters etc.shall be painted with two coat of red oxide zinc primer and finished with two coats of synthetic enamel paint confirming to IS2074)</b>				
87	901	Providing and fixing <b>factory made prelaminated particle board</b> of minimum 25 mm thickness (MDF exterior grade) door including hollow extruded section of minimum 3 mm thickness as manufactured by INDAL or equivalent with electrocolor coating of minimum 15 microns thickness including all fixtures complete.	SQM	203		
88	902	Providing and fixing openable/fixe <b>d steel windows and ventilators</b> with steel sections as per IS:1361 including wire mesh, painting with minimum 2 coats of synthetic enamel paint on primer complete.	SQM	1460		
89	903	Providing and fixing <b>steel single or double door</b> shutters. Shutters shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers side, top, bottom edges of shutter shall be of pressed steel channels of 1.2mm thk voids to be filled with mineral wool (48 kg/cum density) including all fittings like tower bolts, handles, stoppers, aldrops etc. and painting with minimum 2 coats of synthetic enamel paint on primer complete.	SQM	176		
90	904	Providing and fixing <b>fire proof steel doors</b> (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and rein- forced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	118		
91	905	Providing and fixing <b>single or double shutter anodized aluminium doors</b> with electrocolor coating of minimum 15 microns thickness including concealed screws, hold fast, fixtures etc. Hollow extruded section of minimum 3 mm thickness as manufactured by INDAL or equivalent shall be used for shutter frame. Provision shall be made for glazing <b>5.5 mm thick float glass</b> or flat transparent sheet glass.	KG	982		
92	906	Providing and fixing <b>fire proof steel doors</b> (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 3 Hrs.	KG	483		
93	907	Providing and fixing <b>aluminium glazed partition</b> with electro color coating of minimum 15 microns thickness including glass beading, concealed screws, hold fasts etc. Hollow extruded section of minimum 3 mm thickness as manufactured by INDAL or equivalent shall be used for shutter frame. Provision shall be made for double glazing of two <b>6.0mm thick clear toughened safety glass</b> hermetically sealed and separated by 12 mm thk gap for thermal insulation.	KG	1440		
94	908	Providing and fixing <b>aluminium glazed partition</b> with electro color coating of minimum 15 microns thickness including glass beading, concealed screws, hold fasts etc. Hollow extruded section of minimum 3 mm thickness as manufactured by INDAL or equivalent shall be used for shutter frame. Provision shall be made for single glazing of <b>5.5 mm thick float glass</b> or flat transparent sheet glass confirming to IS:2835.	KG	715		

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95	909	Providing and fixing anodised <b>aluminium openable glazed windows</b> with electro color coating of minimum 15 micron thickness including snap fit type beading, concealed screws, hold fasts etc. Hollow extruded section of minimum 3 mm thickness as manufactured by INDAL or equivalent shall be used for shutter frame. Provision shall be made for glazing of <b>4mm thick ground glass</b> complete.	KG	565		
96	910	Providing and fixing anodised <b>aluminium openable glazed windows</b> with electro color coating of minimum 15 micron thickness including snap fit type beading, concealed screws, hold fasts etc. Hollow extruded section of minimum 3 mm thickness as manufactured by INDAL or equivalent shall be used for shutter frame. Provision shall be made for glazing of <b>4mm thick plain sheet glass</b> complete.	KG	696		
97	911	Providing and fixing <b>aluminium ventilators/windows</b> with electro color coating of minimum 15 micron thickness including snap fit type beading, concealed screws, hold fasts etc. Hollow extruded section of minimum 3 mm thickness as manufactured by INDAL or equivalent shall be used for shutter frame. Provision shall be made for 6 mm thick fire and u/v resistant (suitable for use at 100 degree centigrade temprature) <b>Multiwall Polycarbonate plain or tinted sheet</b> .	KG	8400		
98	912	Providing and fixing anodised <b>aluminium openable/fixed glazed windows</b> with electro color coating of minimum 15 micron thickness including snap fit type beading, concealed screws, hold fasts etc. Hollow extruded section of minimum 3 mm thickness as manufactured by INDAL or equivalent shall be used for shutter frame. Provision shall be made for glazing of <b>6mm thick wired glass</b> complete.	KG	2208		
99	913	Providing and fixing anodised <b>aluminium fixed glazed skylights/north light</b> with clear coating of minimum 15 micron thickness with provision for 6 mm thick <b>multiwall polycarbonate plain or tinted sheet</b> , fire and U.V. resistant complete with leak proofing.	KG	2430		
100	913A	Providing and fixing <b>anodised aluminium work</b> of Indal, Hindalco or other equivalent approved make for doors, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metallc protection etc.	KGS	39510		
101		including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).				
102	914	Providing and fixing anodised <b>aluminium louvers</b> with clear coating of minimum 15 micron thickness including snap fit type beading, concealed screws, hold fasts etc. complete as per specifications.	SQM	8		
103	915	Providing and fixing of <b>over head hydraulic door closers</b> of approved make & quality as directed by Engineer.	Nos	208		
104	916	Providing and fixing <b>floor mounted Hydraulic door closer</b> of approved make & quality as directed by engineer	Nos	14		
105	917	Providing and fixing pressed <b>steel frames</b> fabricated from 1.6 mm thk gauge M.S sheet mortised, reinforced strikes, hold fasts, adjustable floor anchors, floor tiles/weather bars etc. complete as per specifications.	KG	3510		
106	918	Providing and fixing frames of hollow extruded <b>Aluminum alloy tubes</b> of minimum 3 mm wall thickness as manufactured by INDAL or equivalent hold fasts, adjustable floor anchors, floor tiles/weather bars etc. complete as per specifications..	KG	1750		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHDL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))

**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
107	919	Providing and fixing in position <b>rolling shutters</b> of approved make as per IS 6248, made of 80x1.25mm M.S laths 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, 3coats of approved enamel paint etc., all complete as per specification- <b>Mechanically operated.</b>	SQM	200		
108	920	Providing and fixing in position <b>rolling shutters</b> of approved make as per IS 6248, made of 80x1.25mm M.S laths 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, 3coats of approved enamel paint etc., all complete as per specification- <b>Hand operated.</b>	SQM	60		
109	921	Providing and fixing in position <b>rolling shutters</b> of approved make as per IS 6248, made of 80x1.25mm M.S laths 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, 3 coats of approved enamel paint etc., all complete as per specification- <b>Electrically operated.</b>	SQM	328		
110	922	Providing anodised <b>aluminium Grills</b> in Windows of approved design.	Kg	712		
111	923	Providing and fixing <b>glazing</b> in aluminium doors/partitions complete with glass panes of <b>5.5 mm thick float glass or flat transparent sheet glass</b> of reputed manufacturer. Measurement shall be of glazing area in between extruded main sections.	SQM	84		
112	924	Providing and fixing <b>glazing</b> in aluminium doors complete with glass panes of <b>6 mm thick float glass</b> of reputed manufacturer. Measurement shall be of glazing area in between extruded main sections.	SQM	652		
113	925	Providing and fixing <b>glazing</b> in aluminium partitions complete with glass panes of <b>two 6.0mm thick clear toughened safety glass</b> hermetically sealed and separated by <b>12 mm thk gap</b> for thermal insulation of reputed manufacturer. Measurement shall be of glazing area in between extruded main sections.	SQM	738		
114	926	Providing and fixing <b>glazing</b> in aluminium / steel windows complete with glass panes of <b>4mm thick sheet glass</b> of reputed manufacturer. Measurement shall be of glazing area in between extruded main sections.	SQM	150		
115	927	Providing and fixing <b>glazing</b> in aluminium windows complete with glass panes of <b>4mm thick float glass</b> of reputed manufacturer. Measurement shall be of glazing area in between extruded main sections.	SQM	1080		
116	928	Providing and fixing <b>glazing</b> in aluminium windows complete with glass panes of <b>6mm thick wired glass</b> of reputed manufacturer. Measurement shall be of glazing area in between extruded main sections.	SQM	1419		
117	929	Providing and fixing <b>glazing</b> in aluminium windows/ventilators, water proof Sky light/North light complete with 6 mm thick fire and u/v resistant (suitable for use at 100 degree centigrade temprature) <b>Multiwall Polycarbonate plain or tinted sheet</b> for preventing solar radiations complete with aluminium beading and sealed at ends as per manufacturers recommendations. Measurement shall be of glazing area in between extruded main sections.	SQM	250		
118	930	Providing and fixing <b>glazing</b> in aluminium windows complete with glass panes of <b>4mm thick groundglass</b> of reputed manufacturer. Measurement shall be of glazing area in between extruded main sections.	SQM	139		
119	931	6 mm thick polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	8		
120	932	Providing, fitting and fixing heavy duty minimum six lever mortised <b>lock</b> of godrej or equivalent make with handles or knobs to single and double leaf door (wooden/steel/aluminium) with duplicate set of keys and masterkeyed locks, openable from one side by the key and from the other side by the handle etc. all complete as per drawing, specification and instruction of	NOS	124		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHDL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))

**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
121	933	Providing and fixing factory made prelaminated particle board (MDF ext gr) <b>doors</b> incl all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	104		
	<b>1000</b>	<b>BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR ETC. COMPLETE, AS PER SPECIFICATIONS. ( OPC and PPC Cement will be issued as FOC item for plastering / mortar ):</b>				
122	1001	Providing <b>brick work</b> in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions <b>below plinth</b> including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.				
123	i)	Using <b>fly ash lime bricks</b> confirming to IS 12894 with crushing strength of 75 kg/cm2	CUM	579		
124	ii)	Using <b>clay ash bricks</b> shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%	CUM	349		
125	iii)	Using <b>ordinary bricks</b> of class designation 5 of nominal dimension	CUM	245		
126	iv)	Using locally available <b>first class bricks</b> of required crushing strength of nominal dimension approved by engineer in charge/customer.	CUM	9		
127	1002	Providing <b>brick work</b> in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position <b>above plinth</b> including raking out joints, curing, scaffolding etc complete excluding plastering and painting.				
128	i)	Using <b>fly ash lime bricks</b> confirming to IS 12894 with crushing strength of 75 kg/cm2	CUM	4638		
129	ii)	Using <b>clay ash bricks</b> shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%	CUM	3633		
130	iii)	Using <b>ordinary bricks</b> of class designation 5 of nominal dimension	CUM	1020		
131	iv)	Using locally available <b>first class bricks</b> of required crushing strength of nominal dimension approved by engineer in charge/customer.	CUM	63		
132	1003	<b>Ruled pointing</b> in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	115		
133	1004	Providing <b>brick work</b> in cement mortar <b>1:4</b> (1 cement 4 coarse sand) in <b>partition walls</b> , chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing H.B. wetting at every third layer, raking out joints, curing, scaffolding etc complete using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 and clay ash bricks shall be as per IS 13757, minimum percentage of fly ash shall be 25%, excluding plastering and painting as per specification.				
134	i)	Using <b>fly ash lime bricks</b> confirming to IS 12894 with crushing strength of 75 kg/cm2	SQM	964		
135	ii)	Using <b>clay ash bricks</b> shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%	SQM	952		
136	iii)	Using <b>ordinary bricks</b> of class designation 5 of nominal dimension	SQM	1833		
137	iv)	Using locally available <b>first class bricks</b> of required crushing strength of nominal dimension approved by engineer in charge/customer.	SQM	12		
138	1005	Providing <b>brick soling</b> spreading of earth, ramming, watering including 12mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item). <b>Using brick on edge.</b>				

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHEL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))

**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
139	i)	Using <b>fly ash lime bricks</b> confirming to IS 12894 with crushing strength of 75 kg/cm2	SQM	82		
140	ii)	Using <b>clay ash bricks</b> shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%	SQM	2		
141	iii)	Using <b>ordinary bricks</b> of class designation 5 of nominal dimension	SQM	2		
142	1006	Providing <b>brick soling</b> including spreading of earth, ramming, watering including 12mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item.)- <b>Using flat bricks.</b>		50		
143	i)	Using <b>fly ash lime bricks</b> confirming to IS 12894 with crushing strength of 75 kg/cm2	SQM	46		
144	ii)	Using <b>clay ash bricks</b> shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%	SQM	7		
145	iii)	Using <b>ordinary bricks</b> of class designation 7.5 of nominal dimension	SQM	18		
146	1007	Providing <b>brick soling</b> including 12mm thick <b>cushion of sand</b> excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects.- <b>Using bricks on edge.</b>		25		
147	i)	Using <b>fly ash lime bricks</b> confirming to IS 12894 with crushing strength of 75 kg/cm2	SQM	30		
148	ii)	Using <b>clay ash bricks</b> shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%	SQM	1		
149	iii)	Using <b>ordinary bricks</b> of class designation 5 of nominal dimension	SQM	4		
150	1008	<b>Breaking</b> of existing brick <b>work</b> at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.				
151	1009	<b>Breaking</b> of existing brick <b>partition wall</b> at all levels including plastering, cutting of reinforcement, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	330		
152	1010	Providing and <b>encasing</b> of structural steel member with <b>masonry work</b> around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with checken wire mesh with 50mm lap etc. complete as per specification.	CUM	100		
153	1011	Providing and laying 75 mm thick bed of <b>dry brick aggregate</b> including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM			
154	1012	<b>Making openings</b> in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	4		
155	1013	Supply and placing in position <b>mild steel wire fabric</b> of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc. complete.	SQM	828		
156	1014	Providing and filling brick bats in soak pits.	CUM	20		
157	1415	Providing and laying flat brick paving including 40 mm thick sand underbed	SQM	81		
	<b>1100</b>	<b>DAMP PROOF COURSE INCLUDING ALL MATERIALS LABOUR, SHUTTERING, CENTERING, CURING ETC., COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS. ( OPC and PPC Cement will be issued as FOC item ):</b>				

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**( ( TENDER NO :BH/EL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ) )**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
158	1101	<b>Damp Proof Course</b> 50mm thk. 1:1.5:3 concrete (10mm down aggregate) with 2% of approved admixture of water proofing compound. Hot bitumen @ 1.7Kg./sqm shall be applied before & after the DPC as per specification.	SQM	450		
	<b>1200</b>	<b>CEMENT MORTOR PLASTER INCLUDING ALL MATERIALS SCAFFOLDING, CURING ETC. COMPLETE AS PER SPECIFICATION : ( OPC and PPC Cement will be issued as FOC item ):</b>				
159	1201	Providing <b>12 mm thick</b> plaster in cement mortar <b>1:6</b> on walls, finished to a <b>smooth finish</b> as per specification.	SQM	31800		
160	1202	Providing <b>12 mm thick</b> plaster in cement mortar <b>1:6</b> on walls, with a <b>rough finish</b> as per specification.	SQM	8500		
161	1203	Providing <b>12 mm thick</b> plaster in cement mortar <b>1:6</b> on walls with a paste of <b>neat cement</b> @1kg/sqm and rubbed smooth with trowel as per specification.	SQM	11219		
162	1204	Providing <b>18 mm</b> thick plaster in cement mortar <b>1:6</b> on walls finished to a <b>wooden float/smooth/rough finish</b> as per specification.	SQM	32122		
163	1205	Providing <b>6mm</b> thick plaster in cement mortar <b>1:4 on ceilings</b> finished to a smooth finish as per specification.	SQM	29458		
164	1206	Providing and making <b>decorative plaster</b> of all types and design on walls, ceilings, arcs, columns with various thickness upto 18 mm including finishing all complete.	SQM	360		
165	1207	Providing <b>Plaster of Paris</b> 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	SQM	35557		
166	1208	Providing <b>screed/grading plaster</b> of average 20 mm thickness in ratio 1:6 nominal by volume including finishing smooth and even etc. all complete at all levels above or below grade level.	SQM	12570		
167	1209	Providing and making <b>decorative interior plaster</b> of heritage finish over existing plastered surface of all types and design on walls, ceilings, arcs, columns including finishing all complete.	SQM	180		
168	1210	Forming groove of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	360		
169	1211	Providing <b>drip course</b> on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	975		
170	1212	Providing and laying <b>encasement to box type steel beams</b> at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over galvanised hexagonal chicken wire of 0.9 mm wire diameter and 19 mm mesh size as per IS3150 including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (rate shall include the cost of GI chicken wire mesh)	SQM	1845		
	<b>1300</b>	<b>FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACES, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, SCAFFOLDING ETC. ALL COMPLETE</b>				

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHSL/ NR/SCT/ANPARA D  
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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
171	1301	Two or more coats of <b>exterior masonry paint</b> (water or solvent base) of special resins, adhesives and additives mixed with fine, hard stone aggregate and finest available pigment. The paint shall be applied on a coat of primer over dried, prepared plaster surface as manufacturers guidlines. The final finished coating shall be fungus resistant, UV resistant, water repellent, alkali resistant and extremely durable with color fastness as per specification.	SQM	1577		
172	1302	Two or more coats of <b>white wash/ colour wash</b> as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	20411		
173	1303	Providing and applying two or more coats of <b>oil bound destemper</b> as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline including plaster of paris punning minimum 2 mm.	SQM	51947		
174	1304	Providing and applying 2 or more coats of <b>acid/alkali paint</b> of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	1908		
175	1305	Two or more coats of <b>fire resistant transparent paint</b> as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications.	SQM	600		
176	1306	Two or more coats of <b>oil resistant paints</b> epoxy based and ammine cured, 150 micron over primer of approved grade and manufacture to give an even shade.	SQM	444		
177	1307	Providing and applying two or more coats of <b>acrylic emulsion paint</b> as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline including plaster of paris punning minimum 2 mm.	SQM	2628		
178	1308	Providing and supplying <b>terracota tiles</b> of thickness 6 to 8mm over the wall as per approved and of approved size, colour and make as per specification and drawings.	SQM	155		
179	1309	Providing and applying <b>resin bonded granular textured finish, for external applications</b> shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	14796		
180	1309A	Providing and applying 2 or more coats of <b>weather paint</b> of Asian make or approved equilent make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	SQM	700		
	<b>1400</b>	<b>FLOORING AND SKIRTING INCLUDING BASE LAYER AND ALL MATERIALS, LABOUR, CURING, POLISHING, FINISHING, EXPANSION JOINTS, GROOVES, ETC. COMPLETE IN ALL RESPECTS AS SHOWN ON DRAWINGS AND DESCRIBED IN SPECIFICATIONS. ( OPC and PPC Cement will be issued as FOC item for plaster / mortar ) ):</b>				
181	1401	Providing and laying 50 mm thick <b>heavy duty cement concrete flooring</b> with <b>metallic hardener pigmented topping</b> of 12 mm thick uniform graded treated iron particles <b>in flooring</b> . 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	48103		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BH/EL/ NR/SCT/ANPARA D  
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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
182	1402	Providing and laying 50 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 12 mm thick uniform graded treated iron particles <b>in skirting and dado</b> . 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	400		
183	1403	Providing and laying precast <b>polished heavy duty cement concrete tiles (Carborundum )</b> of size 300X300X25 thick of approved shade as per IS 1237, <b>laid in floors and landings</b> , jointed with neat cement slurry with pigment to match the shade of the tiles including rubbing and polishing complete with laying as per IS 1443.	SQM	800		
184	1404	Providing and laying precast <b>polished heavy duty cement concrete tiles (Carborundum )</b> of size 300X300X25 thick of approved shade as per IS 1237, <b>laid in skirting and dado</b> , jointed with neat cement slurry with pigment to match the shade of the tiles including rubbing and polishing complete with laying as per IS 1443.	SQM	40		
185	1405	Providing and laying interlocking <b>M30 concrete blocks</b> of thickness 60 mm as paving of approved colour and pattern and should be laid on the subbase and bedding as per specifications and recommendations of manufacturer.	SQM	600		
186	1406	Providing and laying removable <b>metallic false flooring</b> system with nominal height of 600 mm, comprising of special grade steel panels ( of size 600 X 600 mm). 1.2 mm thick die formed to shape having 1 mm thick top MS sheet spot welded together to form a composite steel panel, sitting on aluminium diecasted heads and mounted on steel pedestals of adjustable height and supporting 1.2 mm thick channel frame work. The top finish shall be 2 mm thick antistatic pre colour coated metal sheet or high pressure laminate. Cavity area below the false flooring shall be made dust proof by using Polyurethane paint.	SQM	60		
187	1407	Providing & fixing <b>chemical resistant (Acid &amp; Alkali) Tiles</b> as per IS 4860 of minimum thickness <b>38 mm thick in flooring/Dado</b> . The tiles shall be abrasion resistant and durable. The potassium silicate 6 mm thick mortar as per IS 4832 used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic as per IS 9510 and IS 412 complete as per specification.	SQM	938		
188	1408	Providing & fixing <b>chemical resistant (Acid &amp; Alkali) Tiles</b> as per IS 4457 of minimum thickness <b>20 mm thick in flooring/Dado</b> of battery room. The tiles shall be abrasion resistant and durable. The potassium silicate as per IS 4832, 6 mm thick mortar used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic complete as per IS 9510 and IS 412 and as per specification.	SQM	392		
189	1409	Providing & fixing <b>chemical resistant (Acid &amp; Alkali) bricks</b> (75 mm thk) as per IS 4860 in the <b>floor</b> of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing ( epoxy/furane/CNSL ) and acid curing shall be done complete as per specification.	SQM	200		

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SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
190	1410	Providing & fixing <b>chemical resistant (Acid &amp; Alkali) bricks</b> (115 mm thk) as per IS 4860 in the <b>walls</b> of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing ( epoxy/furane/CNSL ) and acid curing shall be done complete as per specification.	SQM	270		
191	1411	Providing <b>epoxy coating</b> 150 micron <b>over epoxy primer</b> over MS Grating/Chequered plate/any other steel structure complete as per engineer in charge.	SQM	6		
192	1412	Providing and laying <b>polished Kota stone</b> 20 mm thk in <b>flooring</b> . Under bed shall average 30mm thk of 1 part cement,2 part sand : 4 parts stonechip by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. complete.	SQM	4065		
193	1413	Providing <b>polished Kota stone</b> 20 mm thk in <b>skirting</b> projecting 6mm from adjacent plaster all complete .	SQM	276		
194	1414	Providing and laying <b>polished Granite stone</b> of approved color and texture <b>20 mm thk</b> in flooring. Under bed shall average 30mm thk of 1 part cement,2 part sand : 4 parts stonechip by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. complete .	SQM	175		
195	1415	Providing and laying <b>polished Granite stone 20 thk</b> in <b>skirting and dado</b> including pigments, curing, grinding, granite polishing etc. complete.	SQM	186		
196	1416	Providing and laying 7 mm thk <b>vitrified ceramic tiles of polished variety</b> of size 450x450 from reputed manufacturer, complete as per specification.	SQM	1686		
197	1416A	Providing and laying 7 mm thk vitrified ceramic tiles of polished variety of size 600x600 from reputed manufacturer, complete as per specification.	SQM	400		
198	1417	Providing and laying 7 mm thk <b>vitrified ceramic tiles of unpolished variety</b> of size 300x300 from reputed manufacturer, complete as per specification.	SQM	1100		
199	1418	Providing and laying <b>7 mm thk vitrified ceramic tiles of polished variety</b> of size 300x300 from reputed manufacturer, <b>for skirting and dado</b> up to specified height complete as per specification.	SQM	580		
200	1419	Providing and laying <b>7 mm thk vitrified ceramic tiles of unpolished variety</b> of size 300x300 from reputed manufacturer, <b>for skirting and dado</b> up to specified height complete as per specification.	SQM	655		
201	1420	Providing and laying <b>granite stone slab</b> of 12mm thickness single piece for wash basin slab of black or approved colour with cutting and opening complete.	SQM	70		
202	1421	Providing and laying <b>Heavy Duty dust pressed Ceramic Tiles</b> of size 300x300x7mm thick of reputed manufacturer of approved finish shade and colour.	SQM	674		
203	1422	Providing and laying <b>colored Ceramic Tiles</b> 5mm thick of reputed manufacturer of approved finish shade and colour.	SQM	900		
204	1423	Providing and laying 50 mm thick heavy duty <b>cement concrete flooring</b> with cement concrete mix 1:2:4 ( 1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded ) including polishing	SQM	6310		
205	1415	Providing and laying 50 mm thk IPS flooring all complete.	SQM	60		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHSL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))

**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
206	1424	Supplying and spreading of <b>non metallic granular aggregate</b> of approved size over finished concrete flooring (finished concrete floor measured else where).	MT	13		
207	1425	Providing and laying of <b>PVC flooring</b> of minimum thickness 2 mm anti static flexible tiles as per IS 3462 and IS 5318.	SQM	120		
208	1426	Providing and laying <b>non-woven type carpet</b> (unitex or equivalent) which shall be laid as manufacturers recomendations in matching grains including anti fungus and anti termite treatment complete.	SQM	480		
209	1427	Providing and laying <b>cinder filling</b> in the toilets complete as directed by engineer in charge.	CUM			
210	1428	Providing and fixing <b>dividing strips</b> in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.				
211	i)	Glass strips 40 mm wide and minimum 6 mm thick.	RM	60		
212	ii)	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	60		
213	1429	Providing and laying <b>polished Marble</b> slabs 20 mm thk in <b>staircase landing/skirting and corridors</b> over minimum 20 mm thick underbed of 1 part lime putty, 1 part surkhi and 2 parts coarse sand by weight mixed with sufficient water to form a stiff workable mass. The marble slabs shall be 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, making corners, granite polishing etc. complete.	SQM	985		
	<b>1500</b>	<b>PROVIDING AND ERECTING ROOFING/SIDE CLADDING INCLUDING LAPS, SCAFFOLDING HOOKS, WASHERS, CORNER PIECES, ETC. COST OF ALL MATERIAL, LABOUR, EQUIPMENT, CLEATS, SHEETING RUNNER, RAILS MILD STEEL WIND TIES (HORIZONTAL/VERTICAL) AND ANY OTHER STEEL WORKS ETC. COMPLETE FOR THE FOLLOWING:</b>				
214	1501	Designing, providing and fixing permanently color coated (on exposed face) <b>galvanized M.S. trough metal sheet decking plate</b> of approved color over roof purlins for In-situ roof slab as per IS 14246. Thickness of deck plate shall be minimum <b>0.8mm</b> and minimum trough depth of 38 mm with minimum yield strength of 250 Mpa. Silicon modified polyester paint shall be used for permanent coating over galvanized surface with minimum rate of galvanization 275 gm/sqm or minimum 0.8mm of high tensile steel (minimum yields strength 350 MPa) coated with zinc aluminium alloy (zincalume) (coating not less than 150 gm./sqm). DFT of permanent color coating shall be 20 microns. It shall serve as permanent shuttering for roof slab 50 mm thk measured over crest of metal decking and 25 mm thick layer of screed concrete and a layer of 25mm thick wearing course mortar over it. It should have adequate strength to support weight of green concrete and imposed load during concreting as well as in service condition of 150 Kg/sqm with purlin spacing of around 1400 mm.	SQM	6690		
215	1503	Design supply & erection of permanent colour coated <b>thermally insulated sandwiched metal cladding</b> for external walls with troughed galvanised MS sheeting of 0.6mm thickness and 275 g/sqm of galvanisation or Hi tensile steel (350 Mpa) 0.5 mm thick, coated with zinc aluminium alloy @ 150 g/sqm. Outer exposed face shall have silicon modified polyester coating of DFT 20 microns over primer having life span sustenance against weathering action, inner sheeting shall have 7 micron of precoating. sandwiched Insulation of minimum 50mm thick bonded mineral wool blanket conforming to IS 8183 (minimum density of 32 kg/cum for glass wool and 48 kg/cum for rock wool or 40-45 Kg/cum for polyuretene foam (fire retardants and non-toxic) confirming to IS 12436 , cladding shall be fixed to supports/rails by concealed fixing system with corrosion resistant self tapping/self drilling type fasteners provided with suitable cap. Flashing shall have the same material and minimum overlap of 100 mm.	SQM	6945		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**( ( TENDER NO :BH/EL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ) )**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
216	1504	Design supply & erection of permanent colour coated <b>non insulated metal cladding</b> for external walls with troughed galvanized MS sheeting of 0.6mm thickness and 275 g/sqm of galvanization or Hi tensile steel (350 Mpa) 0.5 mm thick, coated with zinc aluminium alloy @ 150 g/sqm. Outer exposed face shall have silicon modified polyester coating of DFT 20 microns over primer having life span sustenance against weathering action, inner side shall be coated with same paint of minimum DFT 20 microns over primer. Cladding shall be fixed to supports/rails by concealed fixing system with corrosion resistant self tapping/self drilling type fasteners provided with suitable cap. Flashing shall have the same material and minimum overlap of 100 mm. The sheets shall meet the requirement of IS:14246 and shall conform to class 3 formdurability.	SQM	8769		
217	1505	Design supply & erection of permanent colour coated troughed <b>non insulated metal cladding</b> for external walls with galvanized MS sheet of 0.6mm thickness and 275 g/sqm of galvanization or Hi tensile steel (350 Mpa) 0.5 mm thick, coated with zinc aluminium alloy @ 150 g/sqm. Outer exposed face shall have silicon modified polyester coating of DFT 20 microns over primer having life span sustenance against weathering action, inner side shall be coated with same paint of minimum DFT 20 microns over primer. Cladding shall be fixed to supports/rails by concealed fixing system with corrosion resistant self tapping/self drilling type fasteners provided with suitable cap. Flashing shall have the same material and minimum overlap of 100 mm. The sheets shall meet the requirement of IS:14246 and shall conform to class 3 formdurability.	SQM	1409		
218	1506	Providing and fixing 50 mm thick <b>insulation of rockwool</b> (Rockloyd-300 or equivalent) of density 48 KG/cum conforming to IS 8183 including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position as per manufacturers recommendations, all labour, material, scaffolding, equipment etc all complete as per specification, drawing and instructions of engineer in charge.	SQM	1409		
219	1507	Providing corrugated G.I. Sheets in roofs, cladding at all elevations with minimum 150mm overlapping , 8 dia. G.I. Hook bolts or J bolts and nuts at 305 mm c/c with G.I. Bitumen washers including cutting of sheets for opening etc. all complete.	MT	60		
220	1508	Providing and fixing self tapping <b>self drilling shear connectors</b> of 16mm dia and minimum 75 mm projected length above purfin of mild steel studs passing through metal decking as per relevant IS codes and specification.	QUINTALS	15		
221	1509	Providing and fixing <b>insulation of resin bonded mineral wool</b> of specified thickness (25/50 mm nominal) conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturers recommendations, all labour, material, scaffolding, equipment etc all complete as per specification, drawing and instructions of engineer in charge.	CUM	51		
222	1510	Providing and installing <b>under deck insulation</b> using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips, all labour, material, scaffolding, equipment etc (but excluding cost of insulation) all compete as per specification, drawing and instructions of engineer in charge.	SQM	700		
	<b>1600</b>	<b>PROVIDING AND FIXING FALSE CEILING INCLUDING SUPPLY OF CEILING MATERIAL, WORKING LAYOUT DRAWINGS AND DETAILS, SUSPENSION SYSTEM AND ALL OTHER MATERIALS REQUIRED FOR THE WORK INCLUDING MAKING RECESS FOR LIGHT FIXTURES, ALUMINIUM DIFUSERS, FIRE ALARMS ETC., POLISHING/PAINTINGS, LABOUR ETC., ALL COMPLETE AS PER SPECIFICATION.</b>				

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHEL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))

**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
223	1601	Providing, fixing and laying light weight <b>mineral fiber tile false ceiling</b> of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.	SQM	710		
224	1602	Providing, fixing and laying <b>regular edge light weight mineral fibre tiles</b> of size 600 X 600 or 600x1200 with minimum thickness 15mm. Exposed surface shall be semiperforated (fine fissured) with nominal depth of perforation as 4mm. Material shall have 95% RH with fire performance class 0/calss 1(as per IS:476) with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners and 24x30 or 24x25 cross runners. 24mm exposed flange shall be permanently colour coated. 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags shall be laid on top of false ciling panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc	SQM	660		
225	1603	Providing, fixing and laying <b>glass reinforced gypsum (GRG) ceiling tiles</b> of size 600 X 600 or 600x1200 with minimum thickness 15mm. Exposed surface shall be semiperforated (fine fissured) with nominal depth of perforation as 4mm. Material shall have 95% RH with fire performance class 0/calss 1 (as per IS:476) with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners and 24x30 or 24x25 cross runners. 24mm exposed flange shall be permanently colour coated. 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags shall be laid on top of false ciling panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.	SQM	1800		
226	1604	Aluminium panel (coil coated) lineal/panel ceiling system shall consist of rolled formed, coli coated aluminium precoated magnesium alloy (Al-Mg AA 5050) carrier and panels of minimum 0.9mm and 0.5mm respectively. The ceiling system shall be of approved pattern. The system be complete with edge cover profile, special panels, carrier splice, etc. The carrier shall be suspended from roof by 4mm diameter galvanised steel wire hangers having special height adjustment clips made from spring steel at maximum spacing of 1.2m c/c bothways. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc. ( SUITABLE STRUCTRAL PLATFORM GRID MADE UP OF MS CHANNELS / BEAMS / ANGLES shall also be provided above the False Ceiling level for movement of personnel to facilitate maintenance ( Materials for structural paltform grid made up of Ms Channels/ BEams / Angles shall be supplied by BHEL and shall be paid under SL Item No 2301)	SQM	1250		
	<b>1700</b>	<b>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.</b>				
227	1701	<b>MS</b> (ERW) down take pipes as per specification of following dia.				
228	i)	100 mm dia	RM	187		
229	ii)	150 mm dia	RM	1980		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHDL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))

**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
230	iii)	200 mm dia	RM	780		
	<b>1800</b>	<b>MISCELLANEOUS</b>				
231	1801	Providing and fixing <b>PVC water stops</b> 225mm wide, 6 mm thick.	RM	650		
232	1802	Supplying and installation of <b>25mm thick vibration damping, resilient pads</b> around foundation of vibrating equipment and other locations as directed by the Engineer-in-charge including cost of all materials labour equipment etc. complete as per drawing and specifications.	SQM	50		
233	1803	Providing and laying 100 mm thk. <b>anticorrosive insulating bituminastic layer</b> laid to slope using special grade Bitumen and filter materials like compacted crushed stone chips, screenings, fine gravel, clean sand or similar material and rolled or compacted complete as per drawings below fuel oil tanks and at such other places as directed by the Engineer and as per specifications.	SQM	90		
234	1804	Providing and fixing <b>G.I strips</b> minimum 1.5mm thk and 150mm wide unless specified otherwise in water retaining structure. Galvanising as per relevant I.S. codes and as per specifications.	RM	180		
235	1805	Providing and fixing <b>aluminium strips</b> minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including aluminium screws, rawl plugs all complete as per specification.	RM	30		
236	1806	Preparation of detail fabrication drawing, supply, fabrication of <b>structural steel</b> (rolled section, built up section or combination), delivery at site, transportation, work in columns, girders, beams ,gantry girders, trusses, purlins, bracings, cleats, shear connectors, chequered plates, gratings, hand rails and other fittings including cutting, grinding, machining (where ever applicable), drilling, bolting (including MS or HSFG bolts and nuts), welding, reheating of welded joints, use of hydrogen/radiographic electrodes, shop coat of paint and touch of paints and final painting including all <b>Non Destructive Tests</b> complete.	MT	2		
237	1807	Providing, laying and fixing <b>transformer rails</b> including guide rails in concrete including joining of rails. Anchoring lugs etc. complete as per specification.	MT	65		
238	1808	Laying of <b>earthing mats/rods</b> including transportation from yard stores, loading, unloading, cutting to length, welding etc. complete as per specification and as directed by Engineer-in-charge.	MT	28		
239	1808A	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	25		
240	1808B	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	25		
241	1808C	Construction of below ground earthing system earth electrodes as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items.)	NO	50		
242	1808D	Construction of below ground earthing system -Earth connection and riser pig tails as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items.)	NO	250		
243	1809	Providing and fixing <b>weep holes</b> in Drains consisting of 100 mm dia LDPE pipe sleeves along with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening along with 300 X 300 mm sq., 300 mm deep, 40 mm aggregates to cover fabric mesh mouth complete as directed by engineer in charge.	Nos.	19200		
244	1810	Providing and fixing <b>GI rungs</b> in concrete/brick walls at all elevations including @ zinc coating shall not be less than 900 g/sqm. all complete.	KG	1515		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHDL/ NR/SCT/ANPARA D  
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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
245	1811	Design, supply, fabrication, erection of <b>stoplog gates in CW Pumps</b> 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, 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	166		
246	1812	Supplying, fabricating, erecting in position and testing / examining bolted and / or welded structural steel work at all levels for <b>stationary screens</b> 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	15		
247	1814	Providing and fixing <b>LDPE pipes</b> 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.				
248		i) 100 mm dia	RM	660		
249		ii) 150 mm dia	RM	495		
250		iii) 200 mm dia	RM	495		
251	1815	Providing and fixing <b>PVC pressure release valve</b> of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall all complete as per specification, drawing and instruction of engineer in charge.	Nos	225		
	<b>2000</b>	<b>FENCING AND GATES.</b>				
252	2001	Supplying and erecting in position 2.4 m high <b>PVC coated gavanised chain linked fencing</b> of minimum 8 gauge (including PVC coating ) of mesh size 75 mm and galvanised concertina. The diameter of the steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing conforming to IS 298 at top of chain link fencing shall be provided with 4 stands of height of 600 mm including all accesories as per specification all complete.	SQM	1300		
253	2002	Supplying and fixing <b>G.I. barbed wire in fencing</b> including G.I clips etc. complete as per specification	MT	4		
254	2003	Supply, fabrication and installing in position and testing galvanised <b>MS Gates</b> out of channels, joists, angles, flats, plates, pipes & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, ball bearing arrangements, castor wheels,etc. all complete as per drawing, specification and as directed by Engineer-in-charge with 600mm high GI barbed wire fencing at top all complete.	MT	3		
	<b>2100</b>	<b>WATER SUPPLY</b>				
255	2101	Providing and fixing in position tested heavy duty type <b>chromium plated brass long neck bib cocks</b> including sockets, union, nut etc. complete <b>15mm nominal bore.</b>	NO.	106		
256	2102	Providing and fixing in <b>position heavy duty brass stop cock</b> of approved quality including all specials etc. complete as directed by Engineer <b>15mm nominal bore.</b>	NO.	84		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHEL/ NR/SCT/ANPARA D  
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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
257	2103	Providing and fixing in position heavy duty <b>brass full way valve</b> with wheel of approved quality <b>25mm nominal bore</b> .	NO.	37		
258	2104	Providing and fixing in position heavy duty <b>brass full way valve</b> with wheel of approved quality <b>50mm nominal bore</b> .	NO.	27		
259	2105	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc. complete (internal work) <b>15 mm nominal bore</b> .	RM	440		
260	2106	Providing and fixing <b>GI pipes</b> complete with GI fittings a clamps including cutting and making good the walls etc. complete (internal work) <b>20 mm nominal bore</b> .	RM	203		
261	2107	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc.complete (internal work) <b>25 mm nominal bore (N.B)</b> .	RM	238		
262	2108	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc. complete ( external work) <b>15mm nominal bore (N.B)</b> .	RM	158		
263	2109	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete ( external work) <b>20mm nominal bore (N.B)</b> .	RM	146		
264	2110	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete ( external work) <b>25mm nominal bore (N.B)</b> .	RM	144		
265	2111	Providing and fixing <b>GI pipes</b> complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete ( external work) <b>50mm nominal bore (N.B)</b> .	RM	132		
266	2112	Providing and fixing <b>610mmx453mmx6mm thk mirror</b> from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets etc. complete with CP screws as per specification.	NO.	88		
267	2113	Providing and fixing <b>610mmx127mmx6mm thk clear glass</b> with <b>C.P Guard rails</b> and mounted on C.P. brackets etc. complete as per specification.	NO.	87		
268	2114	Providing and fixing <b>20mm dia</b> chromium plated M.S. pipes wall mounted <b>towel rod</b> with C.P. brackets etc. all complete as per specification.	NO.	51		
269	2115	Providing and fixing <b>C.P. soap holder</b> mounted with C.P. screws etc.complete as per specification.	NO.	91		
270	2116	Providing and fixing <b>C.P. liquid soap dispenser</b> . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc.complete as per specification.	NO.	91		
271	2117	Providing and fixing glazed vitreous wall mounted <b>paper holder</b> with suitable cover cum cutter fitted with CP screws etc. complete as per specification	NO.	53		
272	2118	Providing and fixing <b>chromium plated brass shower</b> rose with 15 or 20 mm inlet all complete.	No.	28		
273	2119	Providing & fixing <b>P.V.C. water tank</b> (Syntex or equivalent) in position of <b>2000 litres</b> capacity. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	11		
274	2120	Providing and fixing in position in the base slab of water retaining structures <b>non return valves</b> of 90mm diameter non metallic PRV pipe and 160mm diameter OD perforated PVC housing pipe 430mm long including graded gravel filters as per IS:4558-1995 and as shown in the drawings all complete.	Nos.	10		
275	2121	Providing and fixing approved <b>stainless steel sink with integrated drainboard</b> complete including painting the fittings, cutting and making good the wall where required as per specification.The work to be complete as per specifications, drawings and direction of engineer	Nos.	4		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BH/EL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))

**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
	<b>2200</b>	<b>SANITARY WORKS</b>				
276	2201	Supply and fixing <b>vitreous china wash basin</b> size 600x450 with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, cutting and making good the walls where required etc. complete as per specifications	NO.	90		
277	2202	Providing and fixing approved <b>vitreous china acid/alkali resistant laboratory sink</b> of size 600x450x200mm with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass bottle trap with necessary union complete including painting the fittings, cutting and making good the wall where required as per specification.	NO.	8		
278	2203	Providing and fixing colour <b>European type water closet</b> with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre glazed stone water flushing cistern with valveless fittings, necessary C.P connections etc. complete as per	NO.	31		
279	2204	Providing and fixing <b>glazed vitreous china pan</b> with foot rests and high level 12.5 litre C.I flushing cistern with valveless fittings, necessary C.P connections, foot rests shall be made of white glazed vitreous china with chequered surface allcomplete with cistern painting, C.I brackets etc. as per specification.	NO.	48		
280	2205	Providing and fixing wall type <b>glazed vitreous china urinals</b> with C.I automatic flushing cistern approximately once every five minutes for every four urinals (max.) with flush pipes, lead pipes, gratings, CP bottle traps and necessary C.P fittings all complete as per specifications.	NO.	72		
281	2206	Supply, laying and jointing <b>75mm dia heavy duty cast iron pipes</b> including bends, branches and all other necessary fittings, lead cocking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	258		
282	2207	Supply, laying and jointing <b>100mm dia heavy duty cast iron pipes</b> including bends, branches and all other necessary fittings, lead caulking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	256		
283	2208	Supply, laying and jointing <b>150mm dia heavy duty cast iron pipes</b> including bends, branches and all other necessary fittings, a coat of bitumenous paint, M.S holder bats/clam lead caulking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	173		
284	2209	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>300mm dia</b> , as per specifications.	RM	80		
285	2210	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>400mm dia</b> , as per specifications.	RM	208		
286	2211	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>600mm dia</b> , as per specifications.	RM	200		
287	2212	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>800mm dia</b> , as per specifications.	RM	230		
288	2213	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. complete <b>1000mm dia</b> , as per specifications.	RM	230		
	2216	Providing, laying light duty non pressure <b>NP2 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. as per specifications for dia:				

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHEL/ NR/SCT/ANPARA D  
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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
289		150mm	RM	810		
290		250mm	RM	60		
291		300mm	RM	149		
292		500mm	RM	12		
293						
293	2218	Providing and fixing <b>C.I Manhole cover</b> of size <b>600mmx450mm</b> including frame from reputed manufacture all complete as per specifications.	NO.	19		
294	2219	Providing and fixing circular heavy duty <b>man hole cover of 600mm</b> dia with frame all complete as per specification.	NO.	13		
295	2220	Providing and fixing <b>square mouth S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size <b>100x100mm</b> P or S Type.	NO.	21		
296	2221	Providing and fixing square mouth <b>S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size <b>150x100mm</b> P or S Type.	NO.	9		
297	2222	Providing and fixing square mouth <b>S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size <b>150x150mm</b> P or S Type.	NO.	19		
298	2223	Providing and fixing <b>C.I. floor traps with C.P jalli</b> complete as per specification.	NO	85		
299	2224	Providing and installing approved brand single tap <b>water cooler of 80 L</b> cooling capacity complete in all respect.	NO.	33		
300	2225	Providing and installing approved brand single tap <b>water cooler of 150 L</b> cooling capacity complete in all respect.	NO.	6		
301	2226	Providing and fixing white vitreous <b>urinal partitions</b> all complete as per specification.	NO.	49		
	<b>2300</b>	<b>Structural steel works. All items for fabrication should include supply, fabrication drawings as per specifications including painting with a coat of primer and also inclusive of all necessary quality test to the satisfaction of engineer/customer for the following :</b>				
	2301	Fabrication, erection, alignment, welding, primer painting (primer coat consisting of 2 coats of redoxide zinc-chromate as per IS:2074 & IS:1477 (Parts I & II). One coat to be applied at shop and the other after erection ) of <b>structural steel made from mild steel</b> conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, 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, gratings, portals, laced purlins, space frames, shear connectors, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, diaphragm, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails (G.I. & M.S.),	MT	14500		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
		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(minimum preheat and interpass temperature of 66 degrees centigrade for welding over 40 mm and upto 63 mm & 110 degrees centigrade for thickness over 63 mm) & 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, surface preparation protection against damage in transit, stability of structures, installation of temporary structures (Scaffolding, Access ladders, Working Platforms etc.), setting column bases, surface preparation by means of manual or mechanical power tools 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), preparation of fabrication drawings, joint design calculations and all other general and special requirements <b>including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drawings, in consultation with BHEL,</b>				
		prepared by the bidder and 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. Approval of fabrication drawings does not relieve the bidder from the responsibility of its correctness and accuracy.				
302	2301 A	Power House Structure , Structural Building ( ESP CR , CWPB ) , Pipe Racks etc	MT	8250		
303	2301 B	Bunker Structures , Transfer Tower and Gallery ,MS Circular Coal Bunker	MT	4500		
304	2302	Extra over ST NO. 2301 for <b>blast cleaning of steel structures</b> to near white metal surface(Sa 2 1/2 ) and applying epoxy based zinc phosphate primer in coats of minimum 75 micron (DFT) at shop and 75 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc complete as per specification.	MT	120		
305	2303	Extra over ST NO. 2301 for providing and application of two coats of <b>primer consisting of chemical resistant epoxy resin</b> and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 Sqm area of surface) instead of primer coat of red oxide zinc-chromate, including touch up painting as per specification and instruction of the Engineer.	MT	120		
306	2304	Providing & application of <b>synthetic enamel paint of Berger</b> or approved equivalent make and colour in two coats of minimum 75 micron total thickness (DFT) 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.(Total thickness (DFT) including primer shall not be less than 110 micron.)	MT	14000		
307	2305	Providing & application of <b>epoxy based colour finish paint</b> in two coats with minimum 75 micron total thickness (DFT) of approved make and shade over steel sections already having primer coats (as per ST NO. 2302) 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 instruction of the Engineer.(Total thickness (DFT) including primer shall not be less than 100 micron.)	MT	420		
308	2306	Providing & application of <b>anti corrosive synthetic enamel paint of Berger</b> or approved equivalent make and colour in two coats of minimum 75 micron total thickness (DFT) 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.(Total thickness (DFT) including primer shall not be less than 110 micron.)	MT	7		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
309	2307	Supply, fabrication and delivery at site, transportation, loading/unloading of <b>chequered plates</b> , confirming to IS:3502 as per specifications, labour and material complete.	MT	10		
310	2308	Supply, fabrication and delivery at site, transportation, loading/unloading of <b>chequered plates</b> , confirming to IS:3502 as per specifications, labour and material complete including <b>hot dipped galvanisation</b> @ 610 g/sqm.	MT	17		
311	2309	Supplying, fabrication , transportation, erection and alignment of factory made <b>electroformed galvanised gratings 40mm thick</b> of steel (having minimum galvanisation of 610 g/sqm) 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, grading.	MT	180		
312	2310	Finishing the fabricated grating unit with <b>hot dipped galvanisation</b> @ 610 gm/sqm over blast cleaned steel surfaces, as per specifications, drawings and instructions of Engineer instead of painting with 2 coats of red oxide primer followed by two coats of enamel finish paint.	MT	9		
313	2311	i) Supplying and fixing in position of permanent <b>mild steel bolts</b> (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work complete as per specification, drawings and instructions of the Engineer.	QUINTAL S	6		
314	2312	ii) Supply and fixing in positing of <b>high strength structural bolts</b> (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 'B' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work complete as per specification, drawings and instructions of the Engineer.	QUINTAL S	20		
315	2313	Supply, fabrication and delivery at site, transportation, loading/unloading of various sizes, <b>stainless steel pipe hand railing</b> of 65 mm dia including fixing , as per specification, labour and material complete for heavy duty class.	MT	1		
	2314	Erection , alignment, welding, primer painting of structural steel works ( fabricated under item no 2301 ) including receiving the fabricated material either from Project site or from any where at Project site, all welded field connections, bolting including HSHG bolts wherever applicable and fixtures wherever necessary as shown on drawings and as directed by the engineer, labour and material, for all heights as per the drawings issued from time to time at the time of execution.	MT	14000		
316		Power House Structure , Structural Building ( ESP CR , CWPH ) , Pipe Racks etc	MT	8250		
317		Bunker Structures , Transfer Tower and Gallery ,MS Circular Coal Bunker	MT	4500		
318	2313	Supply, fabricate & erect <b>stainless steel grade hopper/bunker</b> of grade SS:304M as directed by the Engineer including bolting/welding etc. complete as per standards and IS specifications	MT	100		
319	2314	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 <b>mix 1:1:2</b> (one part Cement : 1 part Sand : 2 parts of 6mm down graded stone chips) at any elevation including roughening surface, cleaning, ramming, curing etc. complete <b>non-shrink hand grout</b> . <b>Supply in scope of Contractor</b>	CUM	26		
320	2315	Conducting <b>radiography test on welds</b> 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	90		
321	2316	Conducting <b>ultrasonic test on welds</b> 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	60		

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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
322	2317	Conducting <b>ultasonic test on steel plates</b> as per ASTM-A435 or equivalent 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.	SQM	165		
323	2318	Conducting <b>magnetic particle test on welds</b> 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		
	2319	Providing and fixing in position <b>PTFE type sliding bearings</b> of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of (+or -) 50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc complete as per specification, drawing and instruction of the				
324	a)	Vertical Load of 20 Tons	Nos	12		
325	b)	Vertical Load of 25 Tons	Nos	10		
326	c)	Vertical Load of 40 Tons	Nos	5		
327	d)	Vertical Load of 50 Tons	Nos	2		
328	e)	Vertical Load of 60 Tons	Nos	5		
329	2320	Dismantling of existing steel structures at any elevations including lowering of material and carriage of materials to fabrication shop as per specifications and instructions of engineer, <b>including temporary dismantling</b> , cutting , rewelding, supporting, restoring to correct position and alignment.	MT	9		
330	2321	Dismantling of existing steel structures at any elevations including lowering of material and carriage of materials to fabrication shop as per specifications and instructions of engineer.	MT	12		
331	2322	Re erection of dismantled fabricated structural steel members requiring modifications including carriage from field fabrication shop complete as per specification and instructions of the engineer.	MT	6		
332	2323	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance.	RM	254		
333	2324	Supply, fabrication and delivery at site, transportation, loading/unloading of various sizes, GI pipe hand railing (900 mm high) of 50 mm dia (Medium Grade) including painting and fixing , confirming to IS:1161 as per specification, labour and material complete for heavy duty class.	MT	1		
334	2325	Erection of chequered plate and grating including the receiving material either from Project store or from any where at Project site all field connection, bolting, welding and fixtures wherever necessary as per specifications and as shown on drawings and as directed by the engineer, labour and material, for all heights as per the drawings.	MT	1		
335	2326	Painting of structural steel as per BS 5493 or IS:1477 for exterior structures for minimum maintainance free life of 10 years as per specifications, labour & material complete. Primer coat of organic zinc silicate primer having over blast cleaned surface to near white metal minimum DFT of 75 microns. lintermediate coat consisting of epoxy based T102 or M10 with minimum DFT of 75 microns. Top coat of epoxy paint of approved shade & color and DFT of 70 microns. Additionally finishing coat of polyurethane of min. DFT of 30 microns shall be provided. All paints shall be of high built constitution.	MT	4		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**( ( TENDER NO :BHEL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ) )**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
336	2327	Painting of structural steel of coal bunkers on exterior face only as per BS 5493 or IS:1477 for exterior structures for minimum maintainance free life of 10 years as per specifications, labour & material complete. Primer coat of organic zinc silicate primer having over blast cleaned surface to near white metal minimum DFT of 75 microns. lintermediate coat consisting of epoxy based T102 or M10 with minimum DFT of 75 microns. Top coat of epoxy paint of approved shade & color and DFT of 70 microns. Additionally finishing coat of polyurethane of min. DFT of 30 microns shall be provided. All paints shall be of high built constitution.	MT	3		
337	2328	Painting of structural steel as per BS 5493 or IS:1477 for interior structures for minimum maintainance free life of 10 years as per specifications, labour & material complete. Primer coat of organic zinc silicate primer over blast cleaned surface to near white metal having minimum DFT of 75 microns. lintermediate coat consisting of epoxy based T102 or M10 with minimum DFT of 75 microns. Top coat of chlorinated rubber paint of approved shade & color and DFT of 75 microns. All paints shall be of high built constitution.	MT	12		
	<b>2400</b>	<b>ROAD WORK INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, MACHIENARY ALL COMPLETE AS PER SPECIFICATION, RELEVANT IRC &amp; IS CODES AND AS DIRECTED BY ENGINEER- IN -CHARGE FOR THE FOLLOWING.</b>				
338	2401	<b>Preparation of sub grade</b> by excavating earth to required depth for all types of soil including ash, dressing to camber and consolidating the base including making good the undulation etc. and disposal of surplus earth within plant boundary all complete as per specification.	CUM.	50000		
339	2402	<b>Earth work in filling for road/embankment using approved quality of soil from borrow areas (borrow areas to be acquired by the bidder at no extra cost to Owner/BHEL)</b> on prepared surface obtained by compacting with mechanical means including setting out, sorting, breaking clods, excavation, handling, transportation, spreading, dewatering if necessary, watering, placing/laying in layers not exceeding 250mm loose thickness and compacting each layer in proper moisture content with manual/mechanical means so as to acheive atleast 95% of its maximum dry density obtained as per IS 2720, part-VII, testing including levelling, dressing, finishing to required lines, grades and slope including all lifts etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM.	40000		
340	2403	Providing, stacking and laying <b>granular morrum</b> for shoulder including watering, compaction with road roller to required camber etc. complete as per specification.	CUM.	10000		
341	2404	Providing &Laying water bound <b>macadam sub base course</b> in layers of required thickness with crushed stone aggregates <b>90 to 40 mm down size</b> , stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc. including cost of material labour all complete.	CUM	10500		
342	2405	Providing &Laying water bound <b>macadam base course</b> in layers of required thickness with stone aggregate <b>63mm to 40mm size</b> , stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc. including cost of material labour all complete.	CUM.	2500		
343	2406	Laying water bound <b>macadam base course</b> with stone aggregate <b>50mm to 20mm</b> size stone screening and binding material including screening, sorting , spreading to template and consolidation with road roller including carriage spreading and consolidation of blinding material moorum etc. Including cost of material labour. All complete.	CUM.	4500		
344	2407	Providing and applying <b>Tack coat</b> 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	47500		

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**

(( TENDER NO :BHSL/ NR/SCT/ANPARA D  
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**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
345	2408	Providing, mixing and laying of compacted 75 thk. <b>Bituminous Macadam Course</b> . 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	47500		
346	2409	Providing, mixing and laying <b>premix carpet</b> ( as per IRC-14 ) of compacted 25mm thickness in a single course composed of suitable small size aggregate premixed with a bituminous binder on a prepared base. Mixing applying rolling as per IRC specification.	SQM.	47500		
347	2410	Providing and applying <b>liquid seal coat</b> 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.	47500		
348	2411	Supply and laying (400mm x 150mm X 500mm deep) <b>precast concrete kerb stone of grade M25 with 20 mm aggregate and of shape</b> as per detailed drawing including fixing in 13mm thk. cement mortar 1:2 in joints, finishing of joints with neat cement paste, making drainage opening where required etc. complete as per spec.	RM	19800		
349	2411A	Providing and laying 75 mm thick <b>concrete tiles</b> with cement mortar 1:6 complete.	SQM	250		
350	2412	Providing and laying 230 mm wide <b>bricks</b> , with crushing strength of 75 kg/cm <sup>2</sup> , <b>on edge</b> for protection including fixing in 13mm thk. cement mortar 1:6 complete.	CUM	1500		
351	2413	<b>Dismantling of existing road</b> consisting of premix carpet, curb stone/ brick on edge, bitumen macadem course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 Km etc. complete and as directed by Engineer.	SQM	1750		
352	2414	Providing <b>25mm thick premix carpet on existing/damaged road surfaces</b> ( as per IRC-14 ) of compacted 25mm thickness in a single course composed of suitable small size aggregate premixed with a bituminous binder on the existing base including tack coat, cleaning of existing surface, mixing applying rolling as per IRC specification.	SQM	1750		
353	2415	Concrete of grade M-30 in roads etc complete with 20 mm nominal size graded aggregate complete as per specification.	CUM	1750		
354	2416	Filling below concrete roads with stone (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer-in-charge.	CUM	1250		
355	2417	Providing laying in position 150 dia. <b>RCC HUME</b> pipe for scrapper drain at 15m intervals with all labour, tools and materials etc., complete.	RM	1635		
356	2416	Providing and laying heavy duty 300 dia rcc hume pipe for duct bank with all labour and materials etc., complete.	RM	60		
357	2417	Providing and laying 100mm thk lean concrete (M-10) with 40mm nominal size graded aggregate in shoulders complete as per specification.	CUM	3000		
358	2418	Providing and laying 75 thk PCC interlocking blocks on shoulders with all material and labour as per specification.	SQM	30000		
		<b>NOTES:</b>				
	<b>1</b>	In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work, if awarded, will be on the lowest quoted rate obtained against that item.				

**RATE SCHEDULE FOR MAIN CIVIL, STRUCTURAL ARCHITECTURAL WORKS**(( TENDER NO :BHEL/ NR/SCT/ANPARA D  
/ CIVIL MAIN AND STR/ 685 ))**PACKAGE -B1 FOR UNIT 6 AT 2 X 500 MW ANPARA -D PROJECT**

SI No	ST. NO	DESCRIPTION	UNIT	QTY - B1	RATE	AMOUNT
					<b>In figures</b>	<b>In figures</b>
	2	The rate shall be entered in figures as well as in words. In case of difference in rates between words and figures, the lesser of the two will be treated as valid rate.				
	3	The bidders shall enter both 'Unit Rate' & 'Amount'. In case of any mismatch between 'Total Amount based on Unit Rate' & 'Total Amount as quoted', the higher of the two shall be considered for evaluation and the lower of the two shall be considered for award.				
	4	The quantities indicated against each item above are tentative and are liable to vary depending upon the site requirement. The contractor has to supply / install actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out.				
	5	In case of Non Mobilisation of 2 nos Batching Plant within 45 days of Start Of work as decided by BHEL , 0.5 % of the Cost of Part IIA of the price Schedule will be deducted				
	6	Evaluation of the bids shall be done based on total price against this BOQ.				