



BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
100	EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION, DRAWINGS AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:				
101	Earth work in excavation upto 2m depth below ground level for foundation, trenches, pipe lines, storm water drains etc including setting out, clearing & grubbing, removal of debris, dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe, pneumatic rock bracker attachment with poclain/excavator etc but does not require chiselling or blasting.	CUM	8431		
102	Earth work in excavation upto 2m depth below ground level for foundation, trenches, pipe lines, storm water drains etc including setting out, clearing & grubbing, removal of debris, dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for hard rock by controlled blasting or any other suitable approved means like chemical grouting etc. or chiselling including taking necessary permission from customer/concern explosive department for supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer.	CUM	33724		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
103	Earth work in excavation for depth exceeding 2m but not exceeding 4m below ground level for foundation, trenches, pipe lines, storm water drains etc including dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for all types of soils including ash, laterite, morrum , weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe, pneumatic rock bracker attachment with poclain/excavator etc but does not require chiselling or blasting.	CUM	1200		
104	Earth work in excavation for depth exceeding 2m but not exceeding 4m below ground level for foundation, trenches, pipe lines, storm water drains etc including dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for hard rock by controlled blasting or any other suitable approved means like chemical grouting etc. or chiselling including taking necessary permission from customer/concern explosive department for supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer.	CUM	20943		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
105	Earth work in excavation for depth exceeding 4m but not exceeding 6m below ground level for foundation, trenches, pipe lines, storm water drains etc including dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for all types of soils including ash, laterite, morrum , weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe, pneumatic rock bracker attachment with poclain/excavator etc but does not require chiselling or blasting.	CUM	375		
106	Earth work in excavation for depth exceeding 4m but not exceeding 6m below ground level for foundation, trenches, pipe lines, storm water drains etc including dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for hard rock by controlled blasting or any other suitable approved means like chemical grouting etc. or chiselling including taking necessary permission from customer/concern explosive department for supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer.	CUM	8329		

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TS : BHE/PW/PUR/RILNG-CVL/560
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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
107	Earth work in excavation for depth exceeding 6m but not exceeding 8m below ground level for foundation, trenches, pipe lines, storm water drains etc including dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for hard rock by controlled blasting or any other suitable approved means like chemical grouting etc. or chiselling including taking necessary permission from customer/concern explosive department for supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer.	CUM	4048		
108	Earth work in excavation for depth exceeding 8m but not exceeding 10m below ground level for foundation, trenches, pipe lines, storm water drains etc including dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/disposal of surplus excavated material within a lead of 1.0 KM etc complete for hard rock by controlled blasting or any other suitable approved means like chemical grouting etc. or chiselling including taking necessary permission from customer/concern explosive department for supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer.	CUM	1000		
109	Carriage (disposal of earth) beyond initial lead of 1 KM. but not exceeding 2 KM.	CUM	26715		
110	Carriage (disposal of earth) beyond initial lead of 1 KM. but not exceeding 3 KM.	CUM	17510		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
111	Carriage (disposal of earth) beyond initial lead of 1 KM. but not exceeding 4 KM.	CUM	12890		
112	Carriage (disposal of earth) beyond initial lead of 1 KM. but not exceeding 5 KM.	CUM	8285		
113	Carriage (disposal of earth) beyond initial lead of 1 KM. but not exceeding 10 KM.	CUM	4600		
114	Providing and injecting chemical emulsion (1 part chemicals + 20 parts water = 1% emulsion) for preconstructional anti termite/weed treatment with chemicals conforming to IS 8963 and creating a chemical barrier under and around the column pits, wall trenches, basement excavation, backfill, top surface of plinth filling, junction of the wall along external perimeter of building floor together with plinth protection, expansion joints, surrounding of pipes and conduits etc complete as per specification and as directed by Engineer-in-charge. The anti - termite treatment shall conform to IS:6316 and other relevant standards. For treating the bottom surface and sides of excavation, emulsion @ 5 liters/sqm of surface area and for treating the backfills around columns, walls etc, emulsion @ 7.5 liters/sqm of the surface shall be used and treatment shall be done in stages following the compaction of earth in layers. (plinth area of building at ground floor only shall be measured for payment).	SQM	40000		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
115	Back filling around foundations and plinths etc to proper grade and level with selected excavated soil directly from excavation area within a lead of 1Km including watering and ramming/compacting in layers of 15cm thickness to atleast 90% of its maximum dry density by manual/ mechanical means, dressing etc complete including transportation.	CUM	1631		
116	Back filling around foundations in plinths etc to proper grade and level with selected soil within a lead beyond 1 Km but not exceeding 3Km from available excavated materials stock including re-excavating loose thickness, watering and ramming/compacting in layers of 15cm thickness to atleast 90% of its maximum dry density by manual/mechanical means, dressing etc complete including transportation.	CUM	1000		
117	Back filling around foundations in plinths, trenches, drains etc to proper grade and level with selected good soil from compulsorily excavated earth stock within a lead of 1 Km free from shingle, salts, organic materials, roots, sod or any other foreign substance including re-excavating loose thickness, watering and ramming in layers of 15cm thickness compacted to atleast 90% of its maximum dry density by manual/ mechanical means, dressing etc complete.	CUM	7000		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
118	Back filling around foundations in plinths, trenches, drains etc to proper grade and level with borrowed good non swelling soil free from shingle, salts, organic materials, roots, sod or any other foreign substance including excavation, transportation, watering and ramming in layers of 15cm thickness compacted to atleast 90% of its maximum dry density by manual/ mechanical means, dressing etc complete. Borrowed good earth shall be arranged by the contractor him/herself from their own borrow area (without extra cost to BHEL) and the item rate shall be inclusive of any Fee, Royalty, excavation, transportation, filling, compaction as per specification, testing etc. complete and no separate payment will be made on account of the same..	CUM	28600		
119	Supplying and filling sand under floors, in foundation and plinths including cost of sand, transporting for all leads, loading, unloading, spreading in layers in 25cm loose thickness at all depths, watering, compaction with mechanised compaction machine or manually to acheive a minimum 80% of its relative density, dressing and levelling etc complete.	CUM	50		
120	Providing, laying and compacting 75mm thick layer with Gravel/Clean Coarse sand mixed with 8 to 10% by volume of hot bitumen of grade 80/100 etc all complete as per specification and as directed by the engineer-in-charge.	SQM	100		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
121	Supplying and filling in trenches, plinths, area paving and other underground structures with stones using 63 mm and down sized aggregates in layers not exceeding 225 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting so as to achieve 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer-in-charge.	CUM	5484		
122	Providing, laying and compacting 50mm thick layer using crushed stones (12 mm & down graded) mixed with 8 to 10 % by volume of hot bitumen of grade 80/100 etc all complete as per specification and as directed by the engineer-in-charge.	SQM	100		
123	Providing, laying and compacting 50mm thick premix carpet in two layers of 30mm & 20mm with 12mm and down sized stone chips mixed with hot bitumen of grade 80/100 etc all complete as per specification and as directed by the engineer-in-charge.	SQM	100		
	LEVELLING & GRADING				
124	Earth work in stripping of top soil upto a minimum depth of 200mm below existing ground level so as to exclude all debris, grass, vegetation, bushes including roots and organic materials etc for levelling and grading including dressing to specified levels & grades and compacting of graded /stripped surface by manual or mechanical means as per specification, drawing and as directed by the Engineer. Surplus earth, debris, vegetation, bushes, trees, etc unsuitable for filling shall be transported to areas within a lead of 1kM and shall be dumped and levelled as directed by the Engineer-in-charge.	SQM	51000		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
125	Earth work in excavation for levelling and grading down to a maximum depth of 2m below ground level in all types of soil including laterite, moorum, soft rock, weathered rock etc which can be excavated by means of crow bar, pick axe, pneumatic attachment ith poclain/excavator etc but does not require chiselling or blasting including dressing the sides, levelling to grade and ramming the bottom, stacking/disposal of excavated material within a lead of 1km etc all complete as per specification and as directed by the engineer.	CUM	2020		
126	Earth work in excavation for levelling and grading down to any level in all types of rock which can be excavated by means of controlled blasting/chiselling etc. including dressing the sides, levelling to grade and ramming the bottom, stacking/disposal of excavated material within a lead of 1km etc all complete as per specification and as directed by the engineer. Disposal of surplus excavated earth beyond initial lead of 1KM shall be paid saperately under carraige item no. 109 to 113 as per site condition.	CUM	10700		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
127	Earth work in filling for levelling and grading using approved quality of borrowed earth (from contractor's own borrow area without any extra cost to BHEL) including Fee, Royalty etc. on prepared surface obtained by compacting with mechanical means including setting out, sorting, breaking clods, handling, transportation, spreading, dewatering if necessary, watering, compaction in layers not exceeding 250mm loose thickness compacting to atleast 95% of its maximum dry density obtained as per IS 2720, part-VII, levelling, dressing, finishing to required slopes and grades including all lifts and leads etc all complete as per specification and as directed by the engineer. The borrowed earth shall be inorganic non expansive soil with fines (less than 75 micron size) not exceeding 20%.	CUM	38720		
128	Providing, stacking and laying 300mm thick hand placed rip-rap on the slopes of earth fill/cut with approved quality of rock fragments including necessary excavation (if any), compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	100		
200	PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING AND CURING, (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) ETC COMPLETE AT ALL ELEVATIONS AS PER DRAWING, SPECIFICATIONS UNLESS SPECIFIED OTHERWISE AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:				


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
201	Plain Cement Concrete of grade 1:4:8 as blinding layer below foundations, trenches and under ground structures etc all complete using Ordinary Port land cement (OPC) 43/53 Grade.	CUM	3000		
202	Plain Cement Concrete of grade 1:3:6 as blinding layer below foundations, trenches and under ground structures etc all complete. using Ordinary Port land cement 43/53 Grade.	CUM	5000		
203(i)	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete using Ordinary Port land cement 43/53 Grade.	CUM	4000		
203(ii)	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete using Sulphate Resistant cement conforming to relevant IS Code.	CUM	13366		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
204	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size in superstructure at all heights from finished floor level at any level, shape, position or thickness complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete, using Ordinary Port land cement 43/53 Grade.	CUM	3617		
205(i)	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size for foundation, super structure of T.G. Block at all heights/depths from finished ground floor level including addition of suitable plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation etc. all complete using Ordinary Port land cement 43/53 Grade.	CUM	675		
205(ii)	Concrete of grade M-30 conforming to IS:456 with coarse sand and graded hard stone aggregate 20mm nominal size for foundation, super structure of T.G. Block at all heights/depths from finished ground floor level including addition of suitable plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation etc. all complete using Sulphate Resistant Cement conforming to relevant IS Code.	CUM	1200		
206	Extra over item no. 204 & 205 for temperature control of fresh concrete (temperature to be maintained between 18deg.C to 23deg. C) with addition of crushed ice in mixing water etc complete.	CUM	500		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
207	Concrete of grade M-30 conforming to IS:456 with OPC 43/53 Grade, coarse sand and graded hard stone aggregate 20mm nominal size in precast works like trench covers etc including formwork/moulds for thicknesses varying from 50mm to 250mm including transportation, erection, fixing in position at all elevations and use of plasticizer wherever required all complete but excluding the cost of reinforcement .	CUM	28		
208	Concrete of Grade M-20 conforming to IS:456 with OPC 43/53 Grade, coarse sand and graded hard stone aggregate 20mm nominal size in plinth protection.	CUM	380		
209	Breaking existing concrete work at any level including removing the debris within a lead of 1Km including transportation, loading, unloading, etc all complete.	CUM	50		
210	Breaking existing concrete work at any level including cutting reinforcements, removing the rubbish within a lead of 1Km including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, all complete and as directed by Engineer.	CUM	50		
211	Providing and encasing of structural steel member with concrete grade M20 using OPC around flanges, webs etc and filling the gap including wrapping the encasing member with chicken wire mesh with 50mm lap etc complete as per specification and as directed by Engineer.	CUM	13		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
300	SUPPLYING, FIXING AND REMOVING FORMWORK AT ANY ELEVATION INCLUDING ALL LABOUR, MATERIAL, SCAFFOLDING COMPLETE INCLUDING POCKETS ETC AS PER SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING:				
301	Ordinary form work (reasonably good steel/plywood surface) below finished ground floor level for foundations, footings, bases of columns, walls, columns pilasters, beams, mass concrete, trenches etc.	SQM	25686		
302	Fairface form work (using commercial laminated plywood with steel/wooden frame) below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc for exposed concrete works.	SQM	3683		
303	Ordinary form work (reasonably good steel/plywood surface) above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc for all heights.	SQM	27417		
304	Fairface form work (using commercial laminated plywood with steel/wooden frame) above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc for all heights.	SQM	18181		
305	Extra over item no.301, 302, 303, 304 for curved form work for beams, walls, trenches etc as per specification.	SQM	300		


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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
306	Fairface Formwork for TG superstructure (above raft top level) including necessary design & drawing for staging and scaffolding arrangement as per the approved drawing at all levels complete (staging arrangement including design & drawing to be submitted by the bidder for approval before execution for TG top deck).	SQM	1125		
307	Providing and removing formwork in Pockets and openings (below 0.1 sqm contact surface area with concrete) at all elevations including cutting, formations all shapes for foundation bolts, embedments, etc all complete.				
i)	Up to 300 mm depth	Each	50		
ii)	Up to 600 mm depth	Each	40		
iii)	Up to 1000 mm depth	Each	30		
400	REINFORCEMENTS				
401	Taking delivery from BHEL stores/store yard, loading, transporting and unloading at site, straightening, cutting, bending, placing in position at any level, binding in position of mild steel reinforcements supplied by BHEL free of cost {confirming to grade-1 of IS:432 (part-I) fusion bonded epoxy coating as per IS:13620 OR HCR-M Grade Fe 500) including cost of binding wire, labour, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	5		


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402	Taking delivery from BHEL stores/store yard, loading, transporting and unloading at site, straightening, cutting, bending, placing in position at any level, binding in position of High Yield Strength Deformed steel supplied by BHEL free of cost {reinforcements conforming to IS:1786, fusion bonded epoxy coating as per IS:13620 OR HCR-M Grade Fe-500} including cost of binding wire, labour, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	1783		
500	WATER PROOFING AS PER SPECIFICATIONS.				
501	Providing and mixing approved water proofing compound in concrete or cement mortar for works wherever specified or directed as per specification/ manufacturer's instructions, testing of samples for water proofing etc complete.	KG	28923		
502	Providing and laying two coats of acrylic polymer modified cement based flexible water proofing membrane of approved make as per manufacturer's specification and as directed by the Engineer-in-charge for underground structures.	SQM	3000		
503	Providing and laying 25mm thick cement sand mortar 1:3 mixed with approved water proofing compound at the rate specified by the manufacturer and as directed by the Engineer-in-charge for underground structures.	SQM	3000		
504	Providing and laying 15mm thick Kota stone with joints sealed with cement mortar 1:3 as per specification and as directed by the Engineer-in-charge for underground structures.	SQM	3000		


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505	Providing and fixing roof water proofing treatment using high solid content liquid applied elastomeric water proofing membrane with separate wearing course as per ASTM C-898. Thickness of the membrane shall be 1.5mm. This treatment shall includes application of polymerised mortar over roof to achieve a smooth surface and a primer coat.	SQM	4404		
506	Providing and grading under bed over roof slab, floors to achieve the specified slope with 1:4 cement mortar plaster (by volume) of average 15mm thickness at all elevations including all labour, material, equipment, handling, preperation of surface, transportation, batching, mixing, placing, laveling, curing, testing etc. complete as per specification, drawing and instruction of engineer.	SQM	4404		
507	Providing and laying protective wearing course of 40 mm thick screed concrete 1:2:4 with 6 mm down aggregate laid in 1200mm square panels alternatively cast reinforced with 0.56 mm diameter galvanised chicken wire mesh with a gap of 6 mm between two adjacent panels, gaps shall be filled with silicon sealant for expansion and contraction all complete as per specification/drawing and to the satisfaction of engineer in charge.	SQM	4404		
508	Providing and laying cement concrete chequered flooring tiles 22mm thick over roof as per IS 13801 including laying under bed with 8 mm thick 1:3 cement mortar with fine joints including sealing of joints between wearing course and the tiles with silicon sealant all complete as per drawing and specification.	SQM	4404		
509	Providing and laying 50mm thick foam concrete layer as per IS:6598 on roof for thermal insulation all complete as per drawing and specification.	SQM	4404		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
510	Providing and laying water proofing treatment comprising seven courses as per IS:1346 using 3 layers of glass fiber based felt as per IS:7190, all complete as per drawing and specification.	SQM	4404		
511	Providing and laying china mosaic tiles over roof including laying under bed with 8 mm thick 1:3 cement mortar with fine joints including sealing of joints with silicon sealant all complete as per drawing and specification.	SQM	4404		
512	Screed concrete 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6mm nominal size on the roof all complete as per drawing and specification.	CUM	180.1		
513	Screed concrete 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size in underfloors, manholes etc all complete as per drawing and specification.	CUM	25		
514	Providing three coats of bituminous paint on concrete surfaces in contact with soil in foundations of grade 85/25 confirming to IS 702 @ 1.7 kg/sqm.	SQM	25231		
600	SUPPLYING & INSTALLATION OF PREMOULDED JOINT FILLER IN BETWEEN EQUIPMENT FOUNDATIONS, MAT FOUNDATIONS, WALLS, BASEMENT SLABS ETC COMPLETE INCLUDING LABOUR, EQUIPMENT AND MATERIALS, SEALING OF JOINTS INCLUDING COST OF SEALING COMPOUND (POLYSULFIDE BASE SEALANT AS PER IS:12118) ETC COMPLETE AS PER SPECIFICATIONS AND DRAWINGS OR AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING:				
601	12mm thick joints.	SQM	100		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
602	20mm thick joints.	SQM	100		
603	25mm thick joints.	SQM	200		
	M.S. EMBEDMENTS				
701	Supplying, fabricating and fixing of embedments, MS inserts, pipe sleeves, guide rails, angle pieces, rungs of various diameters, plates of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, cutting, drilling, scaffolding and setting complete as per specifications, drawings and as directed by Engineer.	MT	47		
702	Extra over item No 701 for hot dip galvanising at the rate of minimum 610gm/sqm to an average of 750gm/sqm including treating the galvanised members with sodium dichromate solution as per specification and as directed by the Engineer-in-charge.	MT	45		
703	Supply, fabrication, transportation, delivery at site and erection, installation and alignment of MS Foundation bolts (Grade-1 of IS: 432 & IS: 2062) assembly in concrete along with nuts, locknuts (IS: 1363, IS: 1364 & IS: 3138), washers, anchor plates, stiffener plates, protective tapes etc. upto & inclusive of 50mm diameter and upto 2000mm long, for columns including pipe sleeves, templates wherever necessary etc. all complete as per specifications and directed by the Engineer.	MT	15		
704	Extra over item No 703 for hot dip galvanising at the rate of minimum 500gm/sqm to an average of 550gm/sqm including treating the galvanised members with sodium dichromate solution as per specification and as directed by the Engineer-in-charge.	MT	15		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
705	Transportation from stores, delivery at work spot and erection, installation and alignment of embedments, MS inserts, pipe sleeves , rails, guide rails, angle pieces, anchor bolts, foundation bolts of various diameters, plates of dimensions as required including cost of all labour, equipment, loading, unloading but excluding supply of materials all complete as per specifications, drawings and as directed by Engineer.	MT	11		
800	GROUTING AS PER SPECIFICATION FOR THE FOLLOWING:				
801	Providing and laying non shrink flowbale grout of grade M35 using 6mm down graded stone chips and approved admixture for grouting of pocket holes, pipe sleeves of any shape and size under base plates after erection and alignment of necessary structural steel work, machinery at any elevation including roughening surface, cleaning, ramming, curing etc complete as per specification and as directed by the Engineer.	CUM	12		
802	Providing and laying ConbextraGP-2`Fosroc'/ Pidigrout10/Pagel or equivalent for grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection and alignment of necessary structural steel work, machinery at any elevations including roughening surface, cleaning, ramming, curing, etc all complete as per specifications. Cleaning of the pocket shall be by compressed air technique.	CUM	1		
900	DOORS, WINDOWS, VENTILATORS, LOUVERS, ROOF VENTILATORS, ROLLING SHUTTERS, PARTITIONS ETC COMPLETE INCLUDING FRAMING, KICK PLATES, STOPPERS AS PER SPECIFICATION, DRAWINGS AND AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING:				


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
901	Providing and fixing 40mm thick solid core flush door shutters (single or double) with commercial faces and hard board edges. Core of solid core doors shall be of block board or wood particle board of approved make including all fixtures, Godrej make Mortice lock with handle on both sides, shop painting/polishing as per specification all complete including test certificates.	SQM	24.5		
902	Providing and fixing steel windows of fixed type with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision. Glazing shall be of 6mm thick toughened safety glass panes including all fittings, metal beadings, hold fasts, primer painting as per specification all complete.	SQM	231		
903	Providing and fixing steel openable windows/ventilators with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision. Glazing shall be of 4mm thick float glass panes including all fittings, metal beadings, hold fasts, primer painting as per specification all complete.	SQM	220		
904	Providing and fixing anodized extruded aluminium windows (single or double shutter) including aluminium frame conforming to IS:1948, IS:1949 fabricated from extruded sections of INDAL/JINDAL or approved equivalent having minimum 1.5mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Glazing shall be clear float glass of 6.0mm thickness including snap fit type beading, concealed screws, fixtures, Godrej make Mortice lock with handle on both sides etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. Rate shall be inclusive of glazing.	SQM	500		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
905	Providing and fixing anodized extruded aluminium ventilators conforming to IS:1948, IS:1949 fabricated from extruded sections of INDAL/JINDAL or approved equivalent having minimum 1.5mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Glazing shall be clear float glass of 5.0mm thickness including snap fit type beading, concealed screws, fixtures, etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. Rate shall be inclusive of glazing.	SQM	165		
906	Providing and fixing steel single or double door shutters. Shutters shall be 45mm thick flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including all fittings, lock of approved make with handle on both sides, primer painting complete as per specification and as directed by the Engineer-in-charge. Pressed steel frame shall be paid separately under relevant items.	SQM	60		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
907	Providing and fixing fire proof steel door shutters (single or double shutter) conforming to IS:3614 (part-1 & part-2). Shutters shall be minimum 60mm thick flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers with mineral wool insulation, primer and epoxy based painting including door frame, all fittings complete as per specification. and shall be TAC approved with minimum 2 hours fire rating.	SQM	10		
908	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of INDAL/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, lock of approved make with handle on both sides etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required (Frames shall be measured and paid under separate item).	SQM	6		
909	Providing and fixing in position anodised aluminium frame for doors, windows, ventilators having minimum 3mm wall thickness as per IS:1285 and electro colour coating of minimum 15 micron thickness including holdfast, filling up of gaps at junctions, at top, bottom and sides etc all complete as per specification.	Kg	130		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
911	Providing and fixing aluminium glazed partition with single glazing . Aluminium sections shall be of extruded sections of INDAL/JINDAL or approved equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, hold fast, fixtures, necessary fillingup of gaps at the junctions, at top, bottom and sides, etc complete. Aluminium section shall be smooth, rust free, straight, mitred & jointed mechanically wherever required.	SQM	125		
912	Providing and fixing aluminium glazed partition with double glazing . Aluminium sections shall be of extruded sections of INDAL or approved equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Double glazing shall be of two clear float glass of 6mm thickness each sealed and separated by 12mm air-gap including colour anodised aluminium beading, concealed screws, hold fast, fixtures, PVC/neoprene gasket, necessary fillingup of gaps at the junctions, at top, bottom and sides, etc complete. Aluminium section shall be smooth, rust free, straight, mitred & jointed mechanically wherever required. Minimum anodising thickness shall be 15micron.	SQM	75		
913	Providing and fixing of over head hydraulic door closers of approved make or equivalent as per specification and as directed by the Engineer.	Each	15		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
914	Providing and fixing pressed steel frames fabricated using 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars etc complete as per specifications.	KG	250		
915	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per specification and of approved make - Mechanically operated . The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.	SQM	95		
916	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, primer & shop coats of approved enamel paint etc, all complete as per specification and of approved make - Hand operated . The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.	SQM	25		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
917	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, primer & shop coats of approved enamel paint etc, all complete as per specification and of approved make - Electrically operated . The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.	SQM	47		
918	Providing and fixing in position PVC Door of approved make as per specifications and as directed by Engineer.	SQM	10		
1000	BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, SCAFFOLDING ETC COMPLETE AS PER SPECIFICATIONS, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:				
1001	Providing brick work in cement mortar 1:6 (1 part cement: 6 parts coarse sand) in walls, chambers etc of 230mm & above in thickness at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. all complete excluding plastering and painting, using bricks of class designation 5 (crushing strength of 5N/sq.mm) quality of nominal dimensions as per specification.	CUM	142.5		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1002	Providing brick work in cement mortar 1:6 (1 cement : 6 coarse sand) in walls, chambers etc at all heights, places and position above plinth including raking out joints, curing, scaffolding, providing 2 nos. 6mm dia. MS bars at every sixth layer including cutting, bending, placing, tying/welding of reinforcement bar etc complete but excluding plastering and painting, using bricks of class designation 5 (crushing strength of 5N/sq.mm) quality of nominal dimensions as per specification.	CUM	1643		
1003	Providing 115mm thick brick work in cement mortar 1:4 (1 cement : 4 coarse sand) in partition walls, chambers etc at all heights, places and position above or below plinth/graded level including providing 2 nos. 6mm dia. MS bars at every third layer, raking out joints, curing, scaffolding etc. all complete using bricks of class designation 5 (crushing strength of 5N/sq.mm) quality of nominal dimensions as per specification.	SQM	897.5		
1004	Providing and encasing of structural steel member with masonry work around flanges, webs etc and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc complete as per specification.	CUM	10		

BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1005	Making openings in existing finished brick wall or partition wall including making good the broken edges/surface with cement mortar, fixing steel /precast concrete section as lintel (cost of steel/ precast concrete section shall be excluded and paid seperately), painting, finishing to match with existing finishing, scaffolding/ staging works, gas cutting of reinforcement/structural work, cleaning and removing of all debris within 1Km lead etc. all complete and as directed by Engineer.	SQM	425		
1006	Dismantling existing brick work at all level including stacking and removing the debris within a lead of 1Km., including transportation, loading, unloading, etc all complete and as directed by Engineer.	CUM	25		
1007	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris etc all complete and as directed by Engineer.	SQM	150		
1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS, LABOUR, SHUTTERING, CENTERING, CURING ETC COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS OR AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING:				
1101	Damp Proof Course 50mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied before & after the DPC as per specification.	SQM	565		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1200	CEMENT MORTAR PLASTER INCLUDING MAKING GROOVES WHEREVER REQUIRED, MATERIALS, SCAFFOLDING, CURING ETC COMPLETE AS PER SPECIFICATION, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:				
1201	Providing 20mm thick plaster in two layers (with an under layer 14 mm thick in cement mortar 1:6 and top 6 mm thick layer in cement mortar 1:4. The top 6mm layer shall be mixed with water proofing compound) on outside the brick walls finished to a smooth finish as per specification including providing 3mmx3mm size grooves at junctions of two dissimilar materials.	SQM	7543		
1202	Providing 18mm thick plaster in cement mortar 1:6 inside uneven surface of the brick walls with smooth finish as per specification.	SQM	5350		
1203	Providing 12mm thick plaster in cement mortar 1:6 inside even surface of the brick walls with smooth finish as per specification.	SQM	3150		
1204	Providing 6mm thick plaster in cement mortar 1:4 on ceiling with smooth finish as per specification.	SQM	13306		
1205	Providing 15mm thick neat plaster in drains/culverts as per specification.	SQM	10000		
1206	Providing and making decorative plaster of all types and design on walls, ceilings, arcs, columns with various thickness upto 18 mm including finishing all complete.	SQM	1000		
1207	Providing Plaster of Paris 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	SQM	6750		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1300	FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACES, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, SCAFFOLDING ETC ALL COMPLETE AS PER SPECIFICATION, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:				
1301	Two or more coats of white washing with lime to give an even shade on ceiling including a priming coat complete.	SQM	10000		
1302	Two or more coats of colour wash as per IS 627 of approved brand and manufacture to give an even shade on walls including a priming coat as per specifications.	SQM	400		
1303	Two or more coats of water proofing cement paint of approved brand and manufacture and of required shade to give an even shade on walls complete.	SQM	1000		
1304	Two or more coats of distempering with oil bound washable distemper as per IS:428 of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete over P.O.P. (POP shall be paid saperately under relevant itels)	SQM	6333		
1305	Two or more coats of dry distempering of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	1500		
1306	Providing and applying 2 or more coats of exterior Granular finish (vineratex) paint of approved make and colour on exterior surfaces at all heights including material, labour, scaffolding, curing etc complete as per specification.	SQM	3000		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1307	Providing two coats of Acrylic emulsion paint of approved brand and manufacture to give an even shade including 3mm thick plaster of paris punning, one coat of solvent thinnable cement primer of approved shade & quality of Berger make complete as per specifications.	SQM	625		
1308	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer etc all complete as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level.	SQM	450		
1309	Providing and applying 2 or more coats of chlorinated rubber based paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer etc all complete as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level.	SQM	523		
1310	Two or more coats of synthetic enamel paint of Berger make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete.	SQM	175		
1400	FLOORING AND SKIRTING INCLUDING BASE LAYER AND ALL MATERIALS, LABOUR, CURING, POLISHING ETC COMPLETE IN ALL RESPECTS AS SHOWN ON DRAWINGS, SPECIFICATIONS AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:				


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1401	Providing and laying 50mm thick heavy duty I.P.S flooring with metallic hardener pigmented topping using 12mm thick uniform graded treated iron particles in flooring including an under layer of 38mm thick cement concrete mix 1:2:4 (1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded).	SQM	1500		
1402	Providing and laying 50mm thick heavy duty I.P.S flooring with non - metallic hardener pigmented topping including an under layer of cement concrete mix 1:2:4 (1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded).	SQM	3250		
1403	Providing and laying 50mm thick heavy duty cement concrete (Granolithic flooring) with metallic hardener pigmented topping using 12 mm thick uniform graded treated iron particles in skirting and dado including under layer of 38mm thick cement concrete mix 1:1:2 (1 part cement, 1 parts sand and 2 parts stone chips 12.5 mm well graded) and top layer of 12mm thick metallic concrete complete.	SQM	522		
1404	Providing and laying 50mm thick heavy duty cement concrete with non-metallic hardener pigmented topping using 12 mm thick uniform graded treated iron particles in skirting and dado including under layer of 38mm thick cement concrete mix 1:2:4 (1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded) and top layer of 12mm thick metallic concrete complete.	SQM	248		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1405	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum) of size 300mmX300mmX22mm thick of approved shade as per IS 1237, laid in floors jointed with neat cement slurry with pigment to match the shade of the tiles including rubbing and polishing complete with laying as per IS 1443.	SQM	3125		
1406	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum) of size 300mmX300mmX22mm thick of approved shade as per IS 1237, laid in skirting and dado , jointed with neat cement slurry with pigment to match the shade of the tiles including rubbing and polishing complete with laying as per IS 1443.	SQM	200		
1407	Providing and laying 250X250X20mm thick Terrazo Tiles in floors, landings, treads and risers including an under layer of 30mm thk cement concrete 1:1.5:3 by volume to achieve total floor finish thickness of 50mm all complete as per specification.	SQM	50		
1408	Providing and laying 20mm thick Terrazo Tiles finish in skirting/dado/risers/treads of staircase projecting out 6mm from adjacent plaster/finish as per specification all complete and topping of 12mm thk with marble chips of size 1mm to 10mm nominal size laid in white grey or mixture of both in proportion 1:1.5 with white marble powder 3:1 in proportion mixed dry in cement including pigments rubbed/grinding, polishing etc. including 40X3 mm aluminum strips all complete as per specification.	SQM	50		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1409	Providing and fixing 25mm thick Acid / Alkali resistant vitreous tile lining confirming to IS:4457 in flooring/Dado and shall be laid over over bitumastic lining of minimum 12mm thick (to be laid in layers of 6mm each). The minimum size of Acid/Alkali tiles shall be 100mm X 200mm. The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441 & 4443 including preparation of surface, application of bitumen primer, curing etc all complete as per specification and direction of Engineer.	SQM	555		
1410	Providing and laying polished Kota stone 20mm thick in flooring incluing an under bed of average 30mm thick with 1 part cement : 2 part sand : 4 part stonechip by volume and brought to proper level. The minimum size of tiles shall be 600mm X 600mm. 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	250		
1411	Providing and laying polished Kota stone 20mm thick in skirting projecting 6mm from adjacent plaster all complete .	SQM	5		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1412	Providing and laying polished Granite stone of approved colour and texture 20mm thick in flooring including an under bed of average 30mm thick with 1 part cement : 2 part sand : 4 parts stonechip by volume and brought to proper level. The minimum size of tiles shall be 600mm X 600mm. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc complete .	SQM	500		
1413	Providing and laying polished Granite stone 20mm thick in skirting/dado/wash basin slab including pigments, curing, grinding, granite polishing etc complete.	SQM	100		
1414	Providing and laying polished Granite stone 12mm thick in skirting/dado/platform including pigments, curing, grinding, granite polishing etc complete.	SQM	25		
1415	Providing and laying 7mm thick vitrified ceramic tiles of polished variety of size 300mmx300mm from reputed manufacturer, complete as per specification.	SQM	125		
1416	Providing and laying 7mm thick vitrified ceramic tiles of unpolished variety of size 300mmx300mm from reputed manufacturer, complete as per specification.	SQM	675		
1417	Providing and laying 7mm thick vitrified ceramic tiles of polished variety of size 300mmx300mm from reputed manufacturer for skirting and dado up to specified height complete as per specification.	SQM	12.5		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1418	Providing and laying 7mm thick vitrified ceramic tiles of unpolished variety of size 300mmx300mm from reputed manufacturer for skirting and dado up to specified height complete as per specification.	SQM	51		
1419	Providing and laying Heavy Duty dust pressed Ceramic Tiles of size 300mmx300mmx7mm thick of reputed manufacturer of approved finish shade and colour.	SQM	200		
1420	Providing and fixing White glazed tiles of size 150mmx150mm and 5.5mm to 6mm thick in dado , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for underbed plaster shall consist of 1part cement and 3 parts coarse sand by weight, fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry, including pigments, curing etc all complete.	SQM	50		
1421	Providing and laying Heavy Duty Ceramic Tiles (Matt Finish) of size 300mmx300mm and 7mm thick of reputed manufacturer (Kajaria, Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm, with under layer of 20mm thick consisting of 1 part of lime putty:1 part surkhi:2 parts coarse sand by weight complete as per specification including all material, labour etc all complete.	SQM	750		
1422	Providing and laying 2mm thick antistatic PVC floor of approved shade including all labour, material etc all complete as per drawing and as directed by Engineer.	SQM	128		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1423	Providing Epoxy coating on operating floor (over corborandum stone flooring) with min. two coats as per manufacturers recommendation and specification.	SQM	875		
1500	PROVIDING AND ERECTING ROOFING/SIDE CLADDING INCLUDING LAPS, SCAFFOLDING HOOKS, WASHERS, CORNER PIECES, ETC INCLUDING COST OF ALL MATERIAL, LABOUR, EQUIPMENT, CLEATS, SHEETING RUNNER, RAILS MILD STEEL WIND TIES (HORIZONTAL/VERTICAL) AND ANY OTHER STEEL WORKS ETC AT ALL ELEVATIONS COMPLETE AS PER SPECIFICATION, DRAWING AND AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING:				


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1501	<p>Designing, providing and fixing permanently colour coated galvanised MS troughed metal sheet decking plate over roof purlins as per relevant IS code and specification. Thickness of deck plate shall be minimum 0.8mm (with galvanizing rate of minimum 275 gm/sqm) with minimum trough depth of 38mm and shall serve as permanent shuttering to the cast-in-situ roof slab measured over crest of metal decking and shall have adequate strength to support weight of green concrete and imposed loads during construction spanning between purlins(maximum span between purlins is 2000mm) as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc complete as per engineers approval and specification. (height of trough required as per design should be included in the cost) M.S.Trough decking plate shall be connected to the top surface of the purlin, top chord of truss with self tapping self drilling white zinc plated heat treated high carbon steel screws of minimum 5.6mm diameter contd</p> <p>at spacing of 390mm c/c in the trough and sealing it with epoxy sealant including - all material, labour, tools etc complete. In addition shear connector of 16mm diameter and minimum 75mm long mild steel studs at spacing 520mm c/c shall be fixed on top cord of purlin passing through the metal decking. Silicon modified polyester painting shall be used as permanent coating over galvanized surface contd</p>	SQM	3355		
	(Note: Leak proofing of the metal decking and concrete system shall be demonstrated by the contractor) Measurement shall be of the plan area of roof covered by MS trough metal decking.				


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1502	<p>Design, supply and erection of thermally insulated sandwiched metal cladding for external walls with outer sheeting having troughed zinc-aluminium alloy coated (both sides) M.S. sheet having 0.6mm minimum thickness (or high tensile steel sheet of 0.5mm minimum thickness) shall be used on external face (outer face) of cladding system. Weight of coating shall not be less than 150gm/sq.m. The outer side (exposed face) shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of Dry Film Thickness (DFT) 20 microns (minimum) over primer. Inner side of external sheet shall be provided with suitable pre-coating of minimum 7 microns. Galvanised M.S. sheets of minimum 0.6mm thickness shall be used as inner liner (internal face) of cladding system. The exposed face shall be permanently colour coated with silicon modified polyester paint of DFT 20 microns (minimum) over primer. Inner face of external sheet shall be provided with suitable pre-coating of minimum 7 microns.....contd</p> <p>The rate of galvanising shall not be less than 150gm/sq.m. The permanent colour coated sheet shall meet the general - requirements of IS : 14246 and shall conform to class 3 for the durability. Inner sheet shall be fixed directly to side runners and Z spacers made out of atleast 2mm thick galvanized steel sheet of grade 375 as per IS : 277. Inner sheet shall be fixed at the rate not more than 1.50 m center to center to hold the insulation and external sheeting. The insulation shall be of bonded mineral wool of minimum thickness 50 mm conforming to IS : 8183 ...contd</p>	SQM	7376		
	having a density of 32 Kg/cum for glass wool & 48 Kg/cum for rock wool.				

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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1503	<p>Design, supply and erection of single sheet metal cladding for external walls and/or internal walls, ridge, hips, flashing/trimming /closure for vertical/ horizontal joints, capping, etc with sheeting, outer sheeting having troughed zinc-aluminium alloy coated (both sides) M.S. sheet having 0.6mm minimum thickness (or high tensile steel sheet of 0.5mm minimum thickness) shall be used on external face (outer face) of cladding system. Weight of coating shall not be less than 150 gm/sqm. The outer side (exposed face) shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of Dry Film Thickness (DFT) 20 microns (minimum) over primer. The inner face shall be coated with same paint of DFT 12 microns (minimum) over primer. Inner face of external sheet shall be provided with suitable pre-coating of minimum 7 microns. The permanent colour coated sheet shall meet the general-</p> <p>requirements of IS : 14246 and shall conform to class 3 for the durability. Inner sheet shall be fixed directly to side runners and Z spacers made out of atleast 2mm thick galvanized steel sheet of grade 375 as per IS : 277. Inner sheet shall be fixed at the rate not more than 1.50m center to center.</p>	SQM	1000		
1600	PROVIDING AND FIXING FALSE CEILING INCLUDING SUPPLY OF CEILING MATERIAL, SUSPENSION SYSTEM AND ALL OTHER MATERIALS REQUIRED FOR THE WORK INCLUDING POLISHING/ PAINTINGS, LABOUR ETC ALL COMPLETE AS PER SPECIFICATION, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:				


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1601	Providing and fixing 50mm thick resin bonded mineral wool insulation mat conforming to IS:8183. This mat shall be backed with 0.05mm thick aluminium foil and 24GX25mm wire mesh netting. These shall be fixed to ceiling/wall with 100x50x6mm slotted mild steel plate welded to MS Plate/Inserts embedded at the soffit of the slab at 600mm c/c and 14G steel wire drawn through slots and fixed to the wire netting all complete as per specifications and drawings.	SQM	500		
1602	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour and Luxalon make or approved equivalent (Type-84C, Interior) with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm 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 100) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc all complete as per specification. MS channel grid shall be paid under structural item 2301 & required materials shall be supplied by BHEL free of cost.	SQM	675		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1603	Providing and Fixing 12.5mm thick Gypsum board (600mm x 600 mm) plain false celing tiles of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers,etc including two or more coats of acrylic emulsion paint of approved colour to give an even shade all complete with smooth finish as per specifications, drawings and as directed by Engineer.	SQM	225		
1700	PROVIDING AND FIXING RAIN WATER DOWN TAKE PIPES INCLUDING 2 COATS OF APPROVED PAINT OVER A PRIMARY COAT, ALL SPECIALS AND ACCESSORIES ETC COMPLETE AS PER SPECIFICATION FOR THE FOLLOWING:				
1701	MS down take pipes of 100mm diameter- Medium quality as per IS:1239 (part-I).	RM	50		
1702	MS down take pipes of 150mm diameter- Medium quality as per IS:1239 (part-I).	RM	500		
1703	UPVC down take pipes of 100mm diameter- Class 3 as per IS:4985 .	RM	50		
1704	UPVC down take pipes of 150mm/160mm diameter- Class 3 as per IS:4985.	RM	800		
1800	MISCELLANEOUS				
1801	Providing and fixing PVC water stops - 225mm wide	RM	76		
1802	Providing and fixing in position 25mm wide and 25mm thick blown bitumen in expansion joints as per specification. Grade of Bitumen shall be 80/20	RM	10		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1803	Supplying and installation of 25mm thick vibration damping resistoflex or approved equivalent pads around foundation of vibrating equipment and other locations as directed by the Engineer including cost of all materials labour equipment etc complete as per drawing and specifications.	SQM	15		
1804	Providing and fixing bitumen impregnated fibre joint filling board of 25mm thickness , fillers along with PVC water bar etc for expansion joint in water retaining structures all complete as per specifications, drawing and as directed by Engineer. PVC water stop shall be paid under Item no. 1801.	SQM	10		
1805	Supplying and laying of rounded gravels 40mm thick in transformer yards, switch yard floors etc as directed by Engineer.	CUM	300		
1806	Providing and fixing G.I strips minimum 1.5mm thick and 150mm wide unless specified otherwise in water retaining structures including galvanising as per relevant I.S. codes and as per specifications.	RM	50		
1807	Providing and fixing aluminium strips minimum 18SWG and 300mm wide unless specified otherwise with minimum lap of 50mm length all complete as per specification.	RM	36		
1808	Laying of earthing mats/rods including transportation from yard stores, loading, unloading, cutting to length, welding etc complete as per specification and as directed by Engineer. Earthwork excavation & backfilling shall be paid separately under relevant items.	MT	167		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1809	Design, supply, fabrication, installation of truly levelled and aligned 400mm high cavity flooring comprising of 35mm thick Nova teak or approved equivalent make superparticle board of size 610mm x 610mm floor panels having 2mm thick anti-static PVC sheet on top, 2mm thick hard PVC strip lipping on edges and 26G aluminium sheet fixed with araldite on underside including cutting of panels where required for cables etc with supporting system comprising of 25mm diameter galvanised MS threaded rod and pressure die cast zinc alluminium alloy adjustable head attachment at top and welded to 100mmx100mmx8mm base plate, pedestal fixed to floor by means of expansion fasteners to existing floor at a distance of 610mm center to center bothways etc all complete as per specification and as directed by Engineer.	SQM	75		
1810	Designing, providing and fixing of Heavy duty galvanised friction anchor fasteners of Hilti/Equivalent make of 16mm diameter and appropriate length in concrete (minimum grade M20) to take direct tension of minimum 1.8MT including anchor fasteners, materials, equipment, labour, scaffolding complete as per direction of Engineer.	Each	25		
1811	Designing, providing and fixing of Heavy duty galvanised friction anchor fasteners of Hilti/Equivalent make of 20mm diameter and appropriate length in concrete (minimum grade M20) to take direct tension of minimum 2.5MT including anchor fastener, materials, equipment, labour, scaffolding complete as per direction of Engineer.	Each	50		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1812	Designing, providing and fixing of Heavy duty galvanised chemical anchor fasteners of Hilti/Equivalent make of 12mm diameter and appropriate length in concrete (minimum grade M20) to take direct tension of minimum 1MT including anchor fastener, materials, equipment, labour, scaffolding complete as per direction of Engineer.	Each	25		
1813	Designing, providing and fixing of Heavy duty galvanised chemical anchor fasteners of Hilti/Equivalent make of 16mm diameter and appropriate length in concrete (minimum grade M20) to take direct tension of minimum 1.6MT including anchor fastener, materials, equipment, labour, scaffolding complete as per direction of Engineer.	Each	25		
1814	Taking delivery of materials from BHEL stores/store yard, loading, transporting, unloading at site and fixing transformer rails including guide rails in concrete including jointing of rails, anchoring lugs etc complete as per specification. (Rails & Guide channel shall be supplied by BHEL free of cost)	MT	25		
1815	Providing and fixing LDPE pipes in cable duct banks, openings in RCC work at all elevations of following sizes including cutting, fixing and levelling in position as per drawings, specifications all complete.				
i)	100 mm diameter	RM	50		
ii)	150 mm diameter	RM	50		
iii)	200 mm diameter	RM	50		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

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ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
1816	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 1 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.	25		
1817	Providing and fixing PVC pressure release valve 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.	25		
2000	FENCING AND GATES.				
2001	Supplying and fixing G.I. barbed wire in fencing with mild steel Angle posts, clips, anchors, one coat of redoxide zinc chromate primer and two coats of approved aluminium paint etc complete as per specification, drawing and as directed by the Engineer. Earthwork & concrete for post foundation, structural fabrication etc. shall be paid separately under relevant item and MS angle shall be supplied by BHEL free of charge. Spacing of barbed wire shall be 150mm c/c and details of barbed wire shall be as per Sec.D Sub Sec. D17 of Tech. specification	SQM	50		
2002	Providing and fixing M.S gates incuding excavation, concreting etc all complete as per specifications.	MT	3		


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TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2003	Supplying and erecting in position 2.4m high PVC coated galvanised chain linked fencing of minimum 8gauge (including PVC coating) of mesh size 50mm. The diameter of the steel wire for chain link fencing excluding PVC coating shall not be less than 12gauge. GI barbed wire fencing confirming to IS 298 at top of chain link fencing shall be provided with 4 strands of height of 600 mm including all accesories as per specification all complete. Earthwork & concrete for post foundation, structural fabrication etc. shall be paid separately under relevant item and MS angle/channel for post shall be supplied by BHEL free of charge.	SQM	3930		
2100	WATER SUPPLY				
2101	Providing and fixing in position tested heavy duty chromium plated brass long neck bib cocks including sockets, union, nut etc complete - 15mm nominal bore.	Each	19		
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc complete as directed by Engineer - 15mm nominal bore.	Each	19		
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 25mm nominal bore.	Each	13		
2104	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 50mm nominal bore.	Each	11		
2105	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete - 15mm nominal bore.	RM	138		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2106	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete - 20mm nominal bore.	RM	88		
2107	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete - 25mm nominal bore.	RM	161		
2108	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete (for external work) - 15mm nominal bore.	RM	101		
2109	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete (for external work) - 20mm nominal bore.	RM	164		
2110	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete (for external work) - 25mm nominal bore.	RM	89		
2111	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete (for external work) - 50mm nominal bore.	RM	99		
2112	Providing and fixing 610mmx453mmx6mm thick mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving brackets etc complete with screws as per specification.	Each	16		
2113	Providing and fixing 610mmx127mmx6mm thick clear glass with Stainless steel Guard rails and mounted on brackets etc complete as per specification.	Each	16		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2114	Providing and fixing 25mm diameter stainless steel towel ring (600X20 mm)with Brackets etc all complete as per specification.	Each	16		
2115	Providing and fixing stainless steel soap holder mounted with screws etc complete as per specification.	Each	23		
2116	Providing and fixing stainless steel liquid soap dispenser . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on brackets etc complete as per specification.	Each	23		
2117	Providing and fixing electric operated hand dryer with photo voltaic control all complete as per specification.	Each	15		
2118	Providing & fixing P.V.C. water tank of 1000 litres capacity (Syntex or approved equivalent make) in position. The work to include making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete as per specification and at all heights and levels.	Each	5		
2119	Providing & fixing P.V.C. water tank of 2000 litres capacity (Syntex or approved equivalent make) in position. The work to include making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete as per specification at all heights and levels.	Each	5		
2120	Providing & fixing P.V.C. water tank of 5000 litres capacity (Syntex or approved equivalent make) in position. The work to include making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete as per specification at all heights and levels.	Each	6		
2200	SANITARY WORKS				


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2201	Supply and fixing vitreous china Wash Basin size 600mmx450mm with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug 32mm chromium plated brass waste of standard pattern, 32mm diameter chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, cutting and making good the walls where required etc complete as per specifications.	Each	18		
2202	Providing and fixing approved vitreous china acid/alkali resistant laboratory sink of size 600mmx450mmx200mm with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass trap with necessaary union complete including painting the fittings, cutting and making good the wall where required as per specification.	Each	6		
2203	Providing and fixing Stainless steel kitchen sink (750mm) all complete as per specification.	Each	4		
2204	Providing and fixing colour glazed vitreous china European type water closet with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre glazed vitreous china flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc complete as per specification and directed by Engineer.	Each	10		
2205	Providing and fixing glazed vitreous china pan 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.	Each	10		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2206	Providing and fixing wall type glazed vitreous china urinals with C.I. automatic flushing cistern approximately once every five minutes for every four urinals (max.) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings all complete as per specifications.	Each	25		
2207	Supply, laying and jointing 75mm diameter heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead caulking, a coat of bituminous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	100		
2208	Supply, laying and jointing 100mm diameter heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead caulking, a coat of bituminous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	100		
2209	Supply, laying and jointing 150mm diameter heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead caulking, a coat of bituminous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	100		
2210(I)	Supply, laying and jointing 75mm diameter sand CI pipe with lead joints conforming to IS:1239 including bends, branches and all other necessary fittings, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	50		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2210(ii)	Supply, laying and jointing 75mm diameter UPVC pipe conforming to class 3 of IS:4985 including bends, branches and all other necessary fittings, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	50		
2211(i)	Supply, laying and jointing 100mm diameter Sand CI pipe with lead joints conforming to IS:1239 including bends, branches and all other necessary fittings, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	50		
2211(ii)	Supply, laying and jointing 100mm diameter UPVC pipe conforming to class 3 of IS:4985 including bends, branches and all other necessary fittings, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	50		
2212(i)	Supply, laying and jointing 150mm diameter Sand CI pipe with lead joints conforming to IS:1239 including bends, branches and all other necessary fittings, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	50		
2212(ii)	Supply, laying and jointing 150mm diameter UPVC pipe conforming to class 3 of IS:4985 including bends, branches and all other necessary fittings, cutting and making good the walls and floors, jointing, testing etc all complete as per specifications.	RM	50		
2213	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - 200mm diameter as per specification.	RM	188		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2214	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - 300mm diameter as per specification.	RM	88		
2215	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - 450mm diameter as per specification.	RM	100		
2216	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - 600mm diameter as per specification.	RM	123		
2217	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete - 800mm diameter as per specification.	RM	63		
2218	Providing and fixing C.I Manhole cover of size 600mmx450mm including frame from reputed manufacture all complete as per specifications.	Each	31		
2219	Providing and fixing circular heavy duty C.I. manhole cover of 600mm diameter with frame all complete as per specification.	Each	10		
2220	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300mmx300mm (inside), the weight of cover to be not less than 4.53Kg and frame to be not less than 2.72Kg as per drawing and specifications etc all complete size - 100mmx100mm P or S Type.	Each	8		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2221	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside), the weight of cover to be not less than 4.53Kg and frame to be not less than 2.72Kg as per drawing and specifications etc all complete size - 150mmx100mm P or S Type.	Each	9		
2222	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300mmx300mm (inside), the weight of cover to be not less than 4.53Kg and frame to be not less than 2.72Kg as per drawing and specifications etc all complete size - 150mmx150mm P or S Type.	Each	9		
2223	Construction of road/yard gullies in 250mm thick brickwork - 750mm deep with cement concrete M-20 grade foundation, including reinforcement, 12mm cement mortar (1:3) plastering both inside and outside, M.S. rungs @ 250mm c/c including C.I. Grating along with frames as per IS standards including necessary earthwork in excavation, backfilling etc complete as per drawings/specifications.	Each	4		
2224	Providing and fixing C.I. floor traps with C.P jalli complete as per specification.	Each	28		
2225	Providing and installing approved brand single tap water cooler of 80 L cooling capacity complete in all respect.	Each	3		
2226	Providing and installing approved brand single tap water cooler of 150 L cooling capacity complete in all respect.	Each	6		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2300	STRUCTURAL STEEL WORKS all items for fabrication should include supply of 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:				
2301	(STRUCTURAL STEEL SHALL BE SUPPLIED B Y BHEL FREE OF COST Taking delivery of materials from BHEL store/store yard, loading , transportation, unloading at site, Fabrication, erection, alignment, welding, primer painting (primer coat shall consist of one coat of epoxy resin based zinc phosphate primer having minimum DFT of 100 microns. One coat to be applied at shop and the other after erection) of structural steel made from mild steel 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, 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..... contd				


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
	walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails, toeplates, MS Rungs, insert plates, edge angles, embedments, lugs, posts,cccstays, 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. 2305 (i)), assembly, edge preparation, preheating(& use of low hydrogen/ radiogenic electrodes as per specification), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures (Scaffolding, Access ladders, Working Platforms etc.), setting column bases..... contd				
	surface preparation by sand blasting as per specification , 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 , 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.				


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
a)	Fabrication	MT	3347		
b)	Erection, alignment, welding	MT	3347		
2302	Providing and application of finishing coat of polyurethane of min. DFT of 25 microns over top coat of epoxy paint suitably pigmented of approved shade and colour with glossy finish and DFT of 75 microns over intermediate coat of epoxy resin based paint pigmented with titanium dioxide with min. DFT of 100 microns over steel sections already having primer coats (as per ST NO. 2301) at all elevations to achieve an even shade with all materials, labour, equipment, handling, including protection and cleaning, scaffolding etc. complete as per specification, drawings and instructions of the Engineer. (Note: Intermediate, top and finishing coat paints shall be from same manufacturer and the paints shall have compatibility with one another)	MT	3347		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2303	Supplying, fabrication, transportation, erection and alignment of factory made electroforged gratings with steel conforming to IS:2062 at all elevations including preparation of design drawings and fabrication drawings in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads, fixing clamps etc complete with other fittings and fixtures including all taxes, duties, transportation, packing, grinding, drilling, bolting (supply of permanent grade `C' mild steel bolts and nuts to be paid separately under ST NO. 2305(i)), all welding, edge preparation, blast cleaning of steel surfaces to near white metal surface (Sa 2.5) followed by primer coat consisting of 2 coats of 35microns each coat of zinc-phosphate in phenolic alkyd medium . One coat to be applied at shop and the other after erection and two coats of approved colour, enamel finish paint, testing, complete as per specifications, drawings and instructions of the Engineer.	MT	60		
2304	Extra over above ST NO. 2303, for finshing the fabricated grating unit with hot dipped galvanisation @ 900gm/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	25		
2305	i) Supplying and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc including hot dip galvanizing at the rate of minimum 500gm/sqm to an average of 550gm/sqm for structural steel work complete as per specification, drawings and instructions of the Engineer.	Quintal	3.5		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
	ii) Supply and fixing in positing of high strength structural bolts (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc including hot dip galvanizing at the rate of minimum 610gm/sqm to an average of 750gm/sqm for structural steel work complete as per specification, drawings and instructions of the Engineer.	Quintal	4.5		
2306	Dismantling of steel structure at any elevation, lowering of material and carriage of the dismantled material up to field fabrication shop or return to projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions, (weight of such adjacent members and temporarily dismantled members not payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc complete as per specification, drawings and instructions of the Engineer.	MT	50		
2307	Dismantling of G.I. sheet in cladding at any elevation, lowering of material and carriage of the dismantled material up to field fabrication shop or return to projects storage including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per specification, drawings and instructions of the Engineer.	SQM	200		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2308	Addition to alterations in and/or modification of "Erection Marks" either in erected position or in the shop including cutting of parts, gouging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members, (weight of such temporarily dismantled and adjacent members not payable) all complete as per specifications, drawings and instructions of the Engineer.				
	i) In erected position	MT	3		
	ii) In fabrication yard	MT	3		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2309	Re-erection of dismantled fabricated structural steel members requiring additions, modification, (dismantling and additions to, alterations in and/or modification to be paid separately under ST NO. 2310 and 2311 respectively) including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required posiion, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismnatled members, re-alignment of adjacent connected members, (weight of such temporarily dismantled members and adjacent membersnot payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per the specifications, drawings and instructions of the Engineer.	MT	20		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2310	Design, supply, fabrication, erection of stoplog gates in CW Pumps as per specification with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, 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	30		
2311	Supplying, fabricating, erecting in position and testing / examining bolted and / or welded structural steel work at all levels for stationary screens made out of rolled sections and / or plates including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc as 750 gms./sqm. followed by application of an etching primer and dipping in black bitumen as per BS 3416, complete as per drawing and directed.	MT	70		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2312	Providng and fixing in position of PTFE type sliding bearings of reputed make, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of +/- 50mm including all taxes, duties, transportations,installation, drilling, bolting, erecting, alighning etc., complete as per specification, drawings and instructions of the Engineer for the following: (Vertical load carrying capacity of individual bearing shall vary from 10MT to 60MT as specified in the construction drawings)				
a)	10MT/15MT vertical load Capacity	Each	3		
b)	20MT/25MT vertical load Capacity	Each	1		
c)	40MT/45MT vertical load Capacity	Each	1		
d)	60MT/65MT vertical load Capacity	Each	1		
2313	Conducting radiography test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	RM	75		
2314	Conducting ultrasonic test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	RM	51		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2315	Conducting magnetic particle test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	RM	51		
2400	ROAD WORK				
2401	Preparation of sub grade by excavating earth to required depth for all types of soil, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within plant boundary in accordance with IS:2720 all complete as per specification.	CUM	7780		
2402	Supplying and filling with selected good earth of approved quality under pavement and shoulders etc in compacted layers of maximum depth 200mm including watering, rolling/consolidating and dressing etc to required camber including transportation, royalties complete.	CUM	5560		
2403	Providing, stacking and laying granular morrum for shoulder including watering, compaction with road roller to required level etc complete as per specification.	CUM	785		
2404	Providing and Laying water bound macadam base/sub base course in layers of required thickness with stone aggregate 90mm to 40mm 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	1450		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2405	Providing and laying water bound macadam base / sub base course in layers of required thickness with stone aggregate 63mm to 40mm size, 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 etc. all complete as per specification.	CUM	1270		
2406	Providing and laying water bound macadam base course with stone aggregate 50mm to 20mm 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 etc. all complete as per specification.	CUM	545		
2407	Providing and applying Tack coat of low viscosity liquid bitumen of a suitable approved grade confirming to IS 73, 217 or 454 as applicable @ 10 kg/10sqm for an untreated WBM surface including scraping, cleaning with compressed air etc complete.	SQM	7240		
2408	Providing, mixing and laying of compacted 75 thick Bituminous Macadam Course . Bitumen shall be of a suitable grade complying with IS 73 and aggregates, binder material as specified in specification including hot mixing, hot laying, rolling all complete.	SQM	7240		


BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2409	Providing and laying 25mm thick premix carpet surfacing with 2.25cum and 1.12 cum of stone chippings of size 12.5mm and 10mm respectively per 100 sqm with hot bitumen @ 52 kg. and 56 kg. per cu.m. of 12.5mm & 10mm size stone chippings respectively including a tack coat with hot bitumen @ 1.00 kg. per sq.m. of road surface including consolidation with road roller etc all complete with bitumen heated and then mixed with solvent at the rate of 70gms per kg of bitumen including cost of all material, labour all complete as per specification, drawings and instructions of the Engineer.	SQM	14475		
2410	Providing and applying liquid seal coat comprising of an application of a layer of bituminous binder at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling as per specification all complete.	SQM	14475		
2411	Providing and laying edge protection on both edges of black topping using brick on edge (bricks with crushing strength of 75kg/Sqcm) with full brick width (230mm) etc all complete as per drawings and specifications.	RM	600		
2412	Supply and laying (400mm x 150mm X 350mm deep) precast concrete kerb stone of shape as per detailed drawing including fixing in 13mm thick cement mortar 1:2 in joints, finishing of joints with neat cement paste, making drainage opening where required etc complete as per specifications.	RM	300		

BHEL: PS WR
TS : BHE/PW/PUR/RILNG-CVL/560
REVISED PRICE BID- PART-II, VOL-II (REVISION-02)

REVISED RATE SCHEDULE

	1X345.4 MW NAGOTHANE CCPP	REVISED BOQ FOR TOTAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS			DOCUMENT NUMBER - PE - TS - 297- 600 - C002 -R2
ST. NO	DESCRIPTION	UNIT	QTY.	RATE (INR)	AMOUNT (INR)
2413	Supply and laying 150mm diameter R.C.C NP-2 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing in 13mm thick cement mortar, finishing of joints with neat cement paste complete as per specifications.	RM	270		
2416	Dismantling of existing road 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 as per specification and as directed by Engineer.	SQM	1260		
2417	Providing 25mm thick premix carpet on existing/damaged road surfaces by spreading of 2.25cum and 1.12 cum of stone chippings of size 12.5mm and 10mm respectively per 100 sqm with hot bitumen @ 52 kg and 56 kg per cum of 12.5mm & 10mm size stone chippings respectively including a tack coat with hot bitumen @ 1kg/sqm of road surface including consolidation with road roller etc all complete with bitumen heated and then mixed with solvent at the rate of 70 gm/kg of bitumen including cost of all material, labour, cleaning, repairing damaged carpet, WBM, sub grade/sub base,to the required thickness wherever required,consolidation with road roller etc all complete as per specification and as directed by Engineer.	SQM	1260		
	TOTAL OF ALL ABOVE ITEMS IN RS				
	TOTAL OF ALL ABOVE ITEMS IN WORDS (RS				