



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 01

Ref: PSER:SCT:HLD-C774:TCN-01

Date: 16-07-2007

Sub	Tender change notice (TCN) 01.
Job	Complete piling, civil, structural and architectural works of Gas turbine Hall, Extension to existing SG cum Control Room, Field operator's room, A/C Plant room at the SG Bldg. roof top, DM tank, Fuel Tank foundation with Dyke, foundation of HRSG Boilers, Gas Turbine, Generator and auxiliary equipment, foundation and superstructure of pipe rack, SG cum control room, turbine hall, De-aerator and other works of road, culverts, trenches etc. at 1 x Fr – 5 Cogeneration plant for IOCL Haldia (PH – III).
Ref	Tender no PSER:SCT:HLD-C774:07.

With reference to above, following points, relevant to tender, may please be noted and complied with while submitting offer.

1.0 VOLUME IIIB STANDS REVISED. REVISED VOLUME IIIB IS CONTAINED IN FILE: BOQ HALDIA IIIB (REV01) ATTACHED.

2.0 All other terms & conditions shall remain unchanged.

Based on above, you are requested to submit your offer by due date.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

SENIOR MANAGER (SCT)

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS
1.0	EXCAVATION			
1.1	Earthwork in excavation in all kinds of ordinary and hard soils (including slushy soils) up to a depth of 2.0m below G.L. and stacking within a lead of 100m trimming and dressing of the sides etc. including bailing/pumping out any slush water etc. all complete.	CUM.	10000.00	
1.2	----DO--- from 2.0 to 3.0m depth.	CUM.	1500.00	
1.3	----DO--- from 3.0 to 4.5m depth.	CUM.	250.00	
1.4	Extra for every additional lead of 50m or part thereof.	CUM.	75.00	
2.0	BACKFILLING & DISPOSAL			
2.1	Earthwork in back filling & compacting around foundations, trenches, below grade slabs, as per specs, drawings and as directed by the Engineer.			
	a) With earth obtained from stacks within a lead of 100 m .	CUM.	3500.0	
	b) Extra over 2.1(a) for every additional lead of 1.0 Km or part there of within battery limit.	CUM.	1000.0	
	c) With selected earth (cohesive non- swelling/murram) obtained from borrow pits outside the battery limit within a lead of 1.0 Km. lead.	CUM.	50.0	
	d) Extra over 2.1 (c) for every additional lead of 1 km. or part thereof.	CUM.	100.0	
2.2	a) Removal of surplus earth & debris beyond battery limits. Up to 1 KM lead including transportation, loading and unloading, dumping, stacking, levelling and dressing etc. complete.	CUM.	8000.0	
	b) Extra over 2.2a for every additional lead of 1km or part thereof.	CUM.	16000.0	
2.3	Supplying and filling in sand in layers not exceeding 150 mm including compacting by mechanical means etc all complete as per specification and as directed by the Engineer.	CUM.	1200.0	
3.0	CONCRETE			
3.1	Supplying, laying in position and curing as per specification plain concrete of the following mix with 40mm down size aggregates below GL and up to 1.0m above GL, including consolidation of subgrade wherever required.			
	a) 1:5:10	CUM.	10.0	
	b) 1:3:6	CUM.	300.0	
	c) 1:4:8	CUM.	10.0	
	d) 1:2:4 (with 20 mm and down sized aggregates.)	CUM.	25.0	
3.2	Supplying, laying in position, curing as per specifications controlled concrete (using Portland Slag cement conforming to IS: 455 of the following grades (graded coarse aggregates of 40mm down, 20mm down, 12mm down shall be used wherever applicable).			
	a) for all depths below GL and 1.0 m above GL			
	i) Grade M-25.	CUM.	3200.0	
	ii) Grade M-30.	CUM.	9.0	
	b) for all elevations above G.L.			
	i) Grade M25 upto +4.00 LVL.	CUM.	74.0	
	ii) Grade M25 from+4.00LVL. upto +10.00 LVL.	CUM.	85.0	
	iii) Grade M25 from +10.00 LVL to.+15.00 LVL.	CUM.	58.0	
	iv) Grade M25 from +15.00LVL to +18.00 LVL.	CUM.	43.0	
3.3	Providing and placing in position RCC of grade M-20 using 12mm and down graded chips for encasing of steel structures as per specifications.	CUM.	100.0	
3.4	Providing and placing in position Reinforced concrete for paving including laying in approved size panels, leaving grooves for sealing joints, cost of form work, finishing of top surface but excluding cost of reinforcement etc. complete, grade M-20.	CUM.	500.0	
3.5	Supplying and mixing 'CICO' or approved equivalent brand of integral water proofing compound in cement concrete cement mortar etc. all complete as per specifications.	KGS.	150.0	
3.6	Providing and Fixing in position 25mm thick 'shalitex' or approved equivalent fiber board in expansion joints etc as per specifications all complete.	SQM.	46.0	
3.7	Supplying and laying approved quality bitumen- mastic joint sealing compound conforming to IS: 1834 for joints in concrete etc. complete.			
	a) 20mm wide , 25mm deep	RM.	25.0	
	b) 10mm wide , 40mm deep.	RM.	59.0	

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3.8	Fabricating and placing in position pre cast reinforced concrete trench covers of grade M25 of varying thickness including reinforcement, shuttering, lifting lugs etc. all complete including edge angles as per drawing and specifications. Reinforcement will be paid under item 5.0 and edge angles will be paid for under item 6.1d.	CUM.	48.0	
3.9	Supplying and installing ribbed water stops 6 mm thick and 150m wide in cement concrete including laps by fixing/vulcanizing joints and folds as applicable and approved by the Engineer.			
	a) Rubber water stops	RM.	10.0	
	b) PVC water stops "Caliplast" or equivalent.	RM.	100.0	
3.10	Grouting under equipment bases as required, curing and finishing the exposed surfaces including all materials as per drawings and directions of the Engineer.			
	i) With 1:1:2 cement sand stone chips(6 mm and down)nominal mix by volume .	CUM.	3.0	
	ii) With 1:2 cement sand nominal mix by volume.	CUM.	4.0	
	iii) With non-shrink grout like conbextra/GP2 or equivalent, including cost of grout mix etc., all complete as per drawings and specifications.	CUM.	9.0	
4.0	FORM WORK			
4.1	Supplying, installing, dismantling and removing the following classes of form work as per drawings and specifications at all			
	a) Straight	SQM.	9000.0	
	b) Curved in plan	SQM.	500.0	
4.2	Providing pockets in concrete of sectional area less than 0.1 sqm. by fixing and removing formwork for anchor bolts, pipe sleeves etc. as per drgs. including all materials, labour etc. complete as per specification.			
	a) Up to 300 mm deep.	NOS.	1000	
	b) 301mm to 600mm deep.	NOS.	86	
	c) 601mm to 1000mm deep	NOS.	13	
5.0	REINFORCEMENT			
5.1	Taking delivery of raw steel materials supplied by BHEL, bending, binding transporting and placing in position following types of reinforcement of all diameters and at all locations.			
	a) MS reinforcement conforming to IS : 432.	MT.	0.5	
	b) HYSD reinforcement conforming to IS:1139.	MT.	550.0	
5.2	Supplying and fixing steel wire mesh, 3mm dia, 50X50mm mesh,2.2 kg/sqm. as per IS:1566, for encasing steel structures.	SQM.	200.0	
6.0	STRUCTURAL STEEL			
6.1	Taking delivery of raw steel materials supplied by BHEL and transporting to the fabrication area, fabricating of the following categories of Steel work consisting of portal frames, laced and plated column, beams, roof trusses, purlins, non plated beams, grit bracings, sag rods, anchor cleats, end plates, stair cases, ladders, miscellaneous steel works, fabricated with standard rolled sections, plates, flats, angles, pipes etc. work including all necessary bolts, nuts, washers and one shop coat of red oxide zinc chromate primer-over fabricated materials, manpower etc. complete as per drawings and specifications.	MT.	380.0	
6.2	Transporting to erection site and Erection of structural steel as describes in 6.1 including cost of all T&P, tools and tackles, gas, electrodes, erection bolts, nuts, washers, grouting under base, manpower etc all complete as per drawings & specifications.	MT.	370.0	
6.2.A)	Supplying (raw steel materials supplied by bidder) fabricating & further transporting to the erection site, erection of the following categories of Steel work consisting of portal frames, laced and plated column, beams, roof trusses, purlins, non plated beams, grit bracings, sag rods, anchor cleats, end plates, stair cases, ladders, miscellaneous steel works, fabricated with standard rolled sections, plates, flats, angles, pipes etc. work including all necessary bolts, nuts, washers, cost of all T&P, tools and tackles, gas, electrodes, one shop coat of red oxide zinc chromate primer-over fabricated materials, manpower etc. complete as per drawings and specifications.	MT.	35.0	
6.3	Supply of steel sheets (supplied by bidder), transporting to work site, fabricating and fixing by welding etc., 18 gauge MS sheet to steel column including cost of steel, manpower etc. complete as per drawings and specifications.	MT.	2.0	

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6.4	Supplying (raw steel materials supplied by bidder) and Erecting anti skid G.I floor gratings, Hand Welded type-2 and staircase steps all as per drawing No. 4-38144-00003 including all fasteners, manpower etc. complete as per drawings and specifications.	SQM.	200.0	
6.5	Supplying of 32mm dia raw steel pipes (supplied by Bidder), transporting to work site, fabricating & fixing M.S. hand rail including cost of all T&P, tools and tackles, gas, electrodes, as per drawing No. 4-38144-00005 (sheets 1 to 4 & 6), manpower etc. complete as per drawings and specifications..	RM.	300.0	
6.6	Taking delivery of raw steel materials supplied by BHEL and transporting to work site, fabricating and fixing in position MS inserts like channels, angles, plates, beams, and any other structural shape etc. necessary stagings, cutting to required lengths, bolting, welding, manpower etc. complete as per drawings and specifications.	MT.	30.0	
6.7	Supplying (supplied by Bidder), fabricating and fixing in position foundation hardware such as anchor bolts, nuts, washers, pipe sleeves, flats, rounds plates, angles, channels, anchor assembly etc. as per drgs. including fixing to proper level and alignment using templates, cost of steel, manpower, etc. all complete as per drawing and specifications.	MT.	12.0	
6.8	Taking delivery of foundation hardwares from BHEL stores, transporting and fixing to proper level and alignment, manpower etc. complete.	MT.	15.0	
6.9	a) Providing complete protective coating system to structural steel work with "One coat self priming epoxy (DFT 100-125micr). As per IOCL-HALDIA specification.	MT.	50.0	
	b) Providing complete protective coating system to structural steel work with "One coat self priming epoxy (DFT 100-125micr + 2 coat alyphatic polyurathan (DFT 40-45micr each content) + 1 coat synthetic enamel DFT 20micr. As per IOCL-HALDIA specification	MT.	150.0	
	d) Same as above but material supplied by BHEL	MT.	150.0	
6.10	Providing and installing colour coated MS sheeting in roof and side cladding with standard lap (min 150mm end lap) including all drilling cutting and grouting required to give a water tight finish, all bolts, nuts, washers etc. complete. Suitable epoxy paint has to be applied to the drilled holes and dried, before fixing the sheet.(All materials to be supplied by the Bidder).	SQ.M	1400.0	
6.11	Same as above but with transparent fiber glass sheets. (All materials to be supplied by the Bidder)	SQM.	150.0	
6.12	Same as above but with Corrogated GI sheets.(All materials to be supplied by the Bidder). (All materials to be supplied by the Bidder).	SQM.	90.0	
6.13	Providing & installing the following colour coated MS specials and roofing accessories with standard laps including all drilling, cutting & grouting required to give water tight finish with all bolts, nuts, washers, hangers, spacers, etc., complete.(All materials to be supplied by the Bidder).			
	a) Ridge with close fitting adjustable ridge pieces including finish.	RM.	30.0	
	b) Eaves gutter E30 or equivalent with accessories.	RM.	100.0	
	c) Half round gutter.	RM.	60.0	
	d) S type louver with fixtures.	SQM.	9.0	
	e) Barge boards with all fixtures.	RM	9.0	
6.14	Providing and installing GI rain water-down corner, 150mm dia. with all heads bends, junctions, cleanout shoes, connection pieces etc., complete. (All materials to be supplied by the Bidder).	RM	60.0	
6.15	Providing & installing of 3.15mm thick MS flashing with all fittings and fixtures complete as per drawing & instruction of the engineer. (All materials to be supplied by the Bidder).	SQM.	14.0	
6.16	Taking delivery of raw steel materials supplied by BHEL and transporting to the fabricator's shop. Supplying fabricating, packing and delivering at the stores at site of the following categories of steel work including all necessary bolts, nuts, washers etc. (All materials to be supplied by the Bidder).			
	a) CR80 Rail	MT.	3.0	
	b) LB90 Rail	MT.	1.0	
7.0	MASONARY & ALLIED WORKS			
7.1	Supplying and laying of Random rubble stone masonry in cement mortar 1:6 in foundations and basement.	CUM.	15.0	
7.2	Supplying and laying of coursed rubble stone masonry in cement mortar 1:6 in foundations and basement.	CUM.	1.0	
7.3	Supplying and laying in position class-A brick work in foundation and up to plinth in cement sand mortar (1:6) including mixing mortar, laying bricks, raking of joints, curing etc., all complete as per drawings and specifications.	CUM.	68.0	
7.4	Similar to 7.3 in super-structure.	CUM.	345.0	

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS)		
7.5	375mm thk. brick wall.	CUM.	50.0			
7.6	Supplying and laying position class-A brickwork in half brick walls at various elevations in 1:4 cement sand mortar with HB netting at every fourth layer including mixing mortars, raking joints, curing etc. all complete as per drawings and specifications.	SQM.	69.0			
7.7	Supplying and laying damp proof course 40 mm thick with plain concrete (1:1 1/2:3) nominal mix by volume with 12mm down size aggregates and minimum 3% admixture of water proofing compound with all materials complete as per specifications.	SQM.	8.0			
7.8	Providing 12mm thick cement-sand (1:6) plastering to the interior faces of the walls at various elevations including mixing, laying, finishing, cutting grooves wherever required, curing etc. with all materials complete as per drawings and specifications.	SQM.	1598.0			
7.9	Providing 20mm thick cement-sand(1:6) plaster applied to the exterior faces of walls in layers at all elevations including mixing, laying finishing, cutting grooves, if required, curing etc. with all materials complete as per drgs. and specifications.	SQM.	1337.0			
7.10	Providing exterior sand faced cement plaster 20mm thk. in two layers (first layer of 14mm & second layer of 6mm thk.) in cement mortar 1:4 using approved quality sand for second layer, on RCC. and brickwork including mixing, laying, finishing, curing etc. with all materials complete as per drgs. and specifications.	SQM.	90.0			
7.11	Providing minimum 6mm thick 1:4 cement sand plaster over concrete surfaces of columns, beams, slabs etc. similar to item 7.7 above.	SQM.	356.0			
7.12	Providing 25x10mm drip course at various elevations to parapet, chajja, windows&door heads etc. with all materials complete as per drawings and directions of the Engineer.	RM.	129.0			
7.13	Providing 12mm deep 12mm wide rectangular grooves in plaster as per drawings.	RM.	5.0			
7.14	Extra over plaster for providing neat cement finish.	SQM.	95.0			
7.15	Providing flush pointing to rubble of brick masonry work in CM 1:2 as directed by the Engineer including raking of joints, curing etc. complete.	SQM.	10.0			
7.16	Providing and placing in position 50mm thick lath plaster in CM 1:4 for fins, drops etc. including providing and fixing 24 G metal lath (wire mesh) but excluding cost of reinforcement.	SQM.	5.0			
7.17	Providing 2mm thick plaster of paris punning over plaster at various elevations with all materials etc. complete as per specifications and directions of engineer.	SQM.	317.0			
7.18	Providing pebble dash plaster with a mixture of washed pebble or crushed stone 6mm to 12mm nominal size dashed over and including fresh plaster in two layers, under layer 12mm tk. of C.M 1:4 and a top layer of 10mm in C.M 1:3 mixed with finely ground hydrated lime 10% by volume of cement etc. all complete.	SQM.	Rate only.			
7.19	Extra over item 7.9 for supplying, fixing and dismantling 20mmX20mm wedge shaped hardwood battens on exterior faces of walls, beams, columns, projections etc. at various elevations complete with mould oil, nails etc. as per specifications and drawings.	SQM.	Rate only.			
8.0	FLOORING					
8.1	Supplying and laying 40mm thick precast terazzo tiled flooring of approved quality and colour at various elevations including preparations of base, laying underbed & tiles with white cement based topping, curing, rubbing, polishing etc. with all materials complete as per drgs., finish schedule and specifications.	SQM.	10.0			
8.2	--- DO --- in Skirting	SQM.	1.0			
8.3	Providing 40mm thick acid proof tile lining of "Coromandel Prodorite" make or approved equivalent including applying one coat of Prodolacspl, conforming to IS:158, Type II over dry concrete/plastered surface followed by laying 38 mm thick A.R. tilelining using tiles of size 238X114X38 mm conforming to IS:4860 Class-II spec., bedded and jointed in cement prodor SK conforming to IS:4832 Part-I spec. Bed thickness will be 20 mm and joint width is about 3mm.	SQM.	18.0			
8.4	Same as item 8.3 but using resinous cement CNSL mortar for top 12 mm depth of joint.	SQM.	2.0			

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS)
8.5	Supplying and laying granolithic concrete flooring 50mm thick including 12mm thick topping with metallic hardner laid over a base concrete including cleaning of the base concrete curing etc all complete as per specifications.	SQM.	500.0	
8.6	---DO--- skirting.	SQM.	15.0	
8.7	Supplying and fixing 150mmX150mm white glazed tiles dado up to 2.1M elevations including preparation of base, laying underbed, finishing and rounding corners and junctions, curing etc. complete as per drawings and spec.	SQM.	14.0	
8.8	Supplying laying and fixing precast serrated terrazzo steps with nosing at various elevations including preparations of base, laying underbed, finishing, polishing etc., as per drawings and specifications.	SQM.	Rate only.	
8.9	Supplying & fixing of ceramic floor tiles of standard size of 'Spartek' or equivalent make of required shade, in flooring and skirting at different elevations, laid over cement mortar 1:6 & jointing with cement mortar 1:3 duly filling the joint with matching pigment & cleaning the surface with suitable chemicals etc., all complete	SQM.	Rate only.	
8.10	Supply and laying of 3mm thick PVC like flooring including preparation, fixing tile finishing, etc. all complete as per approved manufacturer's specifications.	SQM.	90.0	
8.11	Supply and laying of 3mm thick PVC like skirting 150mm high including preparation, fixing tile finishing, etc. all complete as per approved manufacturer's specifications.	SQM.	4.0	
8.12	a) Supplying laying and fixing 50mm thk. Kota stone flooring at various elevations including preparation of base, laying underbed, finishing, polishing etc., as per drawings and specifications.	SQM.	67.0	
	b) -----DO----- for staircase Treads with nosing.	SQM.	34.0	
	c) -----DO----- 25thk. for staircase risers.	SQM.	12.0	
8.13	a) Laying 20mm thick cement skirting including preparation of base, laying underbed finishing with neat cement, rounding corners and junction, curing etc., complete as per drawings and specifications.	SQM.	9.0	
9.0	FALSE FLOORING & FALSE CEILING			
9.1	Supplying, Erecting, fitting, & laying false flooring with cold formed steel channel sections & cast grooved heads supported by adjustable threaded studs of 20mm dia., 600mm long and tiles of 50mm thick phenol bonded particles board with 2mm thick antistatic vinyl tile, BHOR make or equivalent, for topping & PVC lining at the edges including all necessary nuts bolts, plates etc, complete as per drg.no. 4-38144-00023 & specifications.	SQM.	200.0	
9.2	Supplying, Erecting, fitting, & fixing Pre Coated Luxalon false ceiling with all fittings & fixtures similar to the existing one, all complete as per specifications.	SQM.	400.0	
10.0	FINISHING AND PAINTING	SQM.		
10.1	a) Providing three or more coats of white/colour wash to give a smooth and even shade including cleaning and preparation of surface, scaffolding etc. all complete.	SQM.	34.0	
10.2	a) Providing decorative cement paint finish of 'Snowcem Plus' or approved equivalent of approved shade in two or more coats with primer if required to give an even shade as per manufacturers instructions including preparation of surfaces, scaffolding, curing etc with all materials all complete	SQM.	2273.0	
10.3	a) Painting with two coats of plastic emulsion paint of approved make and shade on new plastered surfaces including cost of paint, surface preparation, priming coat materials, scaffoldings etc. all complete as per specifications.	SQM.	296.0	
10.4	a) Providing complete protective coating system to structural steel work with one coat of red oxide primer 25microns DFT/cost and two coats of synthetic enamel point 50microns DFT/coat including surface preparation by means of sand blasting complete as per specifications.	SQM.	10.0	
10.5	a) Providing minimum two coats of anti-corrosive paint of approved brand on rainwater, soil, waste and vent pipes and fitting including priming coat, surface reparations all materials etc. all complete as per specifications.	SQM.	100.0	
10.6	a) Providing minimum two coats of acid resistant paint over a coat of primer if required, as per manufacturers' instructions including preparation of surfaces, scaffolding etc. all complete to plastered surfaces.	SQM.	18.0	
10.7	a) Supplying and painting 85/25 industrial grade hot bitumen at the rate of 1.2 Kg/Sqm over concrete surfaces including sand blinding as shown on drgs. and as directed by the engineer.	SQM.	20.0	
10.8	a) Providing and applying to interior surfaces two coats of oil bound distemper of approved make and shade over a coat of primer including preparation of surfaces, scaffolding etc. complete.	SQM.	272.0	
11.0	ROOF WATER PROOFING			
11.1	Preparation of average 25m thick grading under bed 1:4 cement coarse sand mortar at various elevations including mixing, laying, curing etc. with all materials complete as per drawings and Specifications.	SQM.	150.0	

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11.2	Preparation of grading under bed with 1:2:4 concrete at various elevations similar to 11.1.	CUM.	12.0	
11.3	Supplying and laying eight course (4 layers of felt)Hessain based bituminous felt water proof roofing and 5 layers of bitumen paint at various elevations with bitumen grade 80/100 including preparation of surface, finishing with pea gravel etc., with all materials complete as per drawings and specifications.	SQM.	155.0	
11.4	Same as above but for flashing at junction of slab and parapet wall including preparation of surfaces, cutting grooves, caulking the end of flashing etc complete.	SQM.	10.0	
11.5	Supply and laying 24G metal lath(wire mesh) to roof slab before plastering as per drg. and spec.	SQM.	87.0	
11.6	Providing and making 150x150mm size fillets in cement concrete 1:2:4 at junctions of roof slab and parapet wall including finishing etc. complete	RM.	57.0	
11.7	Providing 3 mm thick neat cement finish over concrete base for flooring paving etc.	SQM.	7.0	
12.0	DOORS, WINDOWS & VENTILATORS			
12.1	Supplying and erecting including assembling, fitting and fixing best quality 40mm thk. Flush steel doors double plated with pressed steel frames at various elevations including frames, shutters, fittings and fixtures, CP mortice lock cum handle, mastic caulking, grouting the frames, etc. complete.			
	a) Single shutter as per drg.no.4-38144-00006.	SQM.	15.0	
	b) Double shutter as per drg. no. 4-38144- 00007.	SQM.	3.0	
12.2	Same as item 12.1 but with 300X200mm vision panels with 4mm thk. Plate glass etc. complete.			
	a) Single shutter	SQM.	9.0	
	b) Double shutter	SQM.	9.0	
12.3	Providing and fixing wooden flush doors including frames and shutters all as per Drg.No:4-38144-00030.	SQM.	9.0	
12.4	a) Same as item-12.3 but with 300X200mm vision panels with 4 mm thk. plate glass etc. complete.	SQM.	9.0	
	b) Providing and fixing wooden panelled doors with frames and shutters all as per drg.no. 4-38144-00019.	SQM.	9.0	
	c) Extra over 12.3 for supplying & fixing 1.5mm thk. 'Decolam' or approved equivalent laminated sheet.	SQM.	9.0	
12.5	Providing and fixing approved quality hydraulic door closer conforming to IS:3564 as directed by the Engineer.	NOS.	2.0	
12.6	Providing and fixing in position composite, insulated type fire doors of approved make having 2 Hrs fire rating conforming to IS:3614 Part-I with all necessary fittings and fixtures including self closing hinges, locking arrangement and painting with two coats of fire proof paint over approved primer etc. complete. (contractor to obtain and furnish T.A.C. approval for supplies made)			
	a) Single leaf.	SQM.	9.0	
	b) Double leaf.	SQM.	9.0	
12.7	Providing and fixing steel windows and as per drg.no.4-38144-00027,00028,00031 including providing and fixing 4mm thick glass panels with glazing clips and special metal sash putty with approved make handles, peg stays, stoppers, hinges, etc. complete.			
	a) Fixed type	SQM.	4.0	
	b) Openable type	SQM.	5.0	
12.8	Supplying and erecting including assembling, fitting and fixing steel louvers at various elevations including frames, shutters, fitting and fixtures , mastic caulking, grouting the frame, rawl blot for fixing etc. as required with all materials etc. complete as per drg.no.4-38144-00029 and spec. including painting with two coats of synthetic enamel paint over a shop coat of primer paint.	SQM.	4.0	
12.9	Providing and fixing 2mm thk approved quality rubber sealing strip around doors and windows for making them air tight as per specifications and drawings.	RM.	9.0	
12.10	Supplying fitting and fixing the following glazing specials at various elevations including supplying rubber beading, cost of all materials etc. complete as per drawings and specifications to aluminium windows, doors & partitions.			
	a) 4mm thick clear sheet toughened glass.	SQM.	10.0	
	b) 5.5mm thick clear sheet toughened glass.	SQM.	180.0	
	c) 6mm thk clear glass.	SQM.	10.0	
12.11	Supplying and erecting including assembling, fitting and fixing aluminium windows at various elevations including frames and shutters, transoms, mullions, fittings and fixtures, aluminium beading but excluding glazing etc. complete(aluminium hollow sections should be in filled with timber of silver oak).			
	a) Openable type as per dwg. No. 4-38144-00016.	SQM.	29.0	
	b) Fixed type as per dwg.no. 4-38144-00017.	SQM.	92.0	
	c) Sliding type as per drg.no. 3-38144-00013.	SQM.	20.0	

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS)
12.12	Supplying and erecting including assembling, fitting and fixing aluminium partition frames with matching doors etc. as per drawing no. 3-38144-00008 with frames, shutters, double acting heavy duty floor springs, fittings, and fixtures, mortise lock, aluminium beading but excluding glazing etc. complete(aluminium hollow sections should be infilled with timber of silver oak)	SQM.	24.0	
12.13	Supplying, fitting and fixing Aluminium framed doors only as per specifications.. same as for item 12.14.	SQM.	6.0	
12.14	Providing and fixing anodized aluminium ventilators all as per drawing no.4-38144-00018.	SQM.	2.0	
12.15	Supplying and fixing 12mm thick twin laminated particle board of Gypsum board make or equivalent to aluminium partitions and doors framework including all complete etc. as per drg.and specifications.	SQM.	90.0	
12.16	Supplying & fixing best quality fittings to wooden shutters with all materials etc. complete.			
	a) 125 X 40 X 3 mm MS hinges.	NOS.	4.0	
	b) 10mm dia.,300mm long aluminium tower bolt.	NOS.	4.0	
	c) 10mm dia.,150mm long aluminium tower bolt.	NOS.	4.0	
	d) Mortise lock, four levers with handles & duplicate sets of keys.	NOS.	4.0	
	e) 16mm dia.300 mm long aluminium al drop.	NOS.	4.0	
	f) Heavy duty door stop & holder.	NOS.	4.0	
	g) 6mm thk.,100 X 225mm size clear acrylic push plates.	NOS.	4.0	
12.17	Supplying, fitting and fixing 300X38X6mm MS hold fasts to wooden door frames with screws and grouting with 1:2:4 cement concrete at various elevations with all materials etc. complete.	NOS.	4.0	
13.0	ROLLING SHUTTERS :			
13.1	Supplying and erecting including assembling, fitting and fixing rolling steel shutters and accessories from approved manufacturers including all fixtures, locking arrangements electric, wiring for motor drive, wiring for drive shutters, shop coating of anti-corrosive paint and two coats of epoxy paint of approved brand and shade after erection etc. complete as per specifications and drawings			
	a) Electrically operated.	SQM.	127.0	
	b) Manually operated.	SQM.	5.0	
14.0	SANITATION / PLUMBING			
14.1	Supplying and erecting HDPE cylindrical and vertical water tank with closed top of SINTEX or approved equivalent of following capacity			
	a) 1500 LTR.	NOS.	1.0	
	b) 1000 LT	NOS.	1.0	
14.2	Supplying, fitting and fixing heavy cast iron "Roof Drain" pipes at various elevations including shoe bends, junctions, sockets, adapters, brackets, hangers, supports etc jointing, caulking. Prime coat of painting with anticorrosive paint including all materials etc complete as per drawings and specifications--			
	a) 100 mm dia.	RM.	5.0	
	b) 150 mm dia.	RM.	99.0	
14.3	Supplying, fitting and fixing Roof drain heads with high domed gratings as per drg.no.4-38144-00012 at various elevations, including connecting to roof drain pipes, caulking with lead supports, hangers etc. prime coat of painting with anti-corrosive paint with all materials as per drawings and specifications.			
	a) Fabricated from 6 mm M.S plates for			
	l) 100 mm pipe.	NOS.	2.0	
	ll) 150 mm pipe.	NOS.	2.0	
	b) Alternate with C.I heads for			
	l) 100 mm pipe.	NOS.	2.0	
	ll) 150mm pipe.	NOS.	2.0	
14.4	Supplying, fitting fixing the following best quality sanitary fixtures of "Hindustan Twyford's" or approved equivalent make at various elevations as per specifications and drawings including all necessary accessories, cutting and making good openings, all connecting head pipes and bends with all materials etc. all complete			
	a) Wash down type water closet with white glazed stone ware basin and low level white earthenware 10litre discharge capacity cistern including valveless fittings, flush bends, supply connections syphon, front open, black plastic seat with cover with integral 'S' or 'P' trap etc. all complete	NOS.	1.0	
	b) Indian pattern water closet with white glazed stone ware and integral footrest; 10litre capacity high level CI flushing cistern including valveless fittings, inside painted with two coats of anticorrosive paint with all necessary fixtures, integral with 'S' or 'P' trap etc. all complete	NOS.	1.0	

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS)
	c) 610x400x380mm flat back white glazed stoneware urinals with concealed hangers and brackets; CP spreader for concealed piping work; CP brass waste fittings; 30 mm dia heavy duty bottle trap etc all complete.	NOS.	1.0	
	d) Automatic high level C.I cistern with mosquito proof lid interior painted with 2 coats of anti corrosive paint complete with loose key CP brass bib cock Cistern capacity 5 ltrs.	NOS.	1.0	
	e) 550 x 400 mm wall hung white glazed stone ware wash basin with provision for tap holes in three locations with supporting brackets, C.P Bras 30mm dia waste fittings, heavy duty bottle trap, one no. 15mm dia long nose C.P Brass pillar cock, one no. supply connection with 300mm long,15 mm dia P.V.C pipe with brass nuts at both ends and C.P brass stop tap etc, complete.	NOS.	1.0	
	f) 150 x 150 mm recessed white glazed porcelain soap tray.	NOS.	1.0	
	g) 650 x 600 mm levelled edge mirror of superior glass with necessary fixtures as per specifications.	NOS.	1.0	
	h) 600mmX120mmx4mm thk. clear glass shelves with chromium plated brackets, guard rails etc. complete.	NOS.	1.0	
	i) All Chromium plated standard liquid soap dispenser of approved make with all fittings etc. complete.	NOS.	1.0	
	j) 12 mm dia CP. Brass abluion tap with all fittings complete.	NOS.	1.0	
14.5	Supplying, fitting and fixing 100 mm dia inlet and 80/100 mm dia outlet CI floor drain with trap and with screwed or hinged CP brass gratings.	NOS.	1.0	
14.6	Providing 450 x 300 x 675 mm chamber in 1:4 brickwork 115 mm thick with plain concrete 1:2:4 foundation and plastered with 1:3 cement mortar including supplying and fixing 100 mm. dia square mouth gully trap, gratings, CI frame and cover, all complete as per specifications.	NOS.	4.0	
14.7	Providing septic tank with capacity for 25 persons including excavation and back filling at all depths, disposal of spoils with a lead of 1 KM; including dressing and levelling the same, masonry, concrete, reinforcement, shuttering, plastering, all fittings, heavy duty covers etc with all materials complete as per drawing no. 3-38144-00009 .	NOS.	1.0	
14.8	Construction of circular soak pit with 450 mm square dry brick honey comb shaft, surrounded by annular shafts of brick bats and brick ballast of 40 mm to 80mm nominal size including excavations, packing etc.all complete as per drawingno. 3-38144-00003 .	NOS.	1.0	
14.9	Supplying, laying, fitting, fixing, jointing Heavy Duty GI pipes conforming to IS:1239 for water lines at various elevations with all fittings stop cock, valves bends, elbows, tees, reducers etc including excavation, back filling, concrete supports, hangers, straps with all materials etc., complete as per specification and drawings.			
	a) 12 mm	RM.	2.0	
	b) 19 mm	RM.	2.0	
	c) 25 mm	RM.	12.0	
	d) 32 mm	RM.	10.0	
	e) 50 mm	RM.	15.0	
	f) 200 mm	RM.	270.0	
14.10	Supplying, paying, fitting, fixing and jointing extra heavy cast iron soil and drain pipes underground with all fittings bends, teas, reducers etc. including excavation, back filling, supports, caulking, chases, grooves, hangers, supports, straps etc. painting as specified all complete as per specification and drawings.			
	a) 100 mm dia.	RM.	9.0	
	b) 150 mm dia.	RM.	9.0	
	c) 200mm dia.	RM.	9.0	
14.11	Same as above but over ground, including vent pipes and cowls.			
	a) 100 mm dia.	RM.	9.0	
	b) 150 mm dia.	RM.	9.0	
14.12	Supplying and fixing CI heavy duty man hole cover of 50 cm dia of approved brand as per specification.	NOS.	4.0	
15.0	ROADS/PAVEMENTS			
15.1	Consolidating sub base before providing stone soling/WBM with road roller including water if required to obtain 90% proctor density including making good undulations etc. complete, as per specifications.	SQM.	2000.0	
15.2	Supplying, laying and rolling, soling stones of consolidated thickness 230mm including spreading, binding materials, watering and rolling with road roller etc. complete as per specifications.	SQM.	200.0	
15.3	Supplying and laying WBM in 75mm consolidated thickness with dry & wet rolling etc complete as per specifications.	SQM.	4000.0	
15.4	Providing and laying 50mm compacted thickness of premixed bituminous carpet (hot process) finish over WBM surface including provision of a tack coat & a seal coat, using bitumen of appropriate grade conforming to IS:73, preparation of surfaces, rolling etc. complete as per specs.	SQM.	800.0	

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS)
15.5	Supplying, laying and setting precast concrete edging blocks 300 X150mm (at base) and a min. length of 450mm (except at curves) in M20 grade concrete including cutting of trench and packing exterior face of blocks with stone chips and murrum including pointing the joints with CM1:4 etc. complete.	RM.	20.0	
16.0	SURFACE AND UNDERGROUND DRAINS			
16.1	Supplying and installing of UPVC pipes of following diameter in concrete as per specifications and drawing, for cable ducts.			
	a) 100 mm dia.	RM.	9.0	
	b) 150 mm dia.	RM.	9.0	
	c) 200mm dia.	RM.	9.0	
16.2	Same as in 16.1 but with pipe bends of required diameter.			
	a) 100 mm dia.	RM.	9.0	
	b) 150 mm dia.	RM.	9.0	
	c) 200mm dia.	RM.	9.0	
16.3	Supplying and installing of GI pipes of following diameter in concrete as per specifications and drawing, for cable ducts.			
	a) 100 mm dia.	RM.	9.0	
	b) 150 mm dia.	RM.	9.0	
	c) 200mm dia.	RM.	9.0	
16.4	Same as in 16.3 but with pipe bends of required diameter.			
	a) 100 mm dia.	RM.	5.0	
	b) 150 mm dia.	RM.	24.0	
	c) 200mm dia.	RM.	41.0	
16.5	Providing and installing RCC Hume pipes of class P1 at all depths including bedding, jointing complete of the following diameters (excavation and back filling to measure separately).			
	a) 150 mm dia.	RM.	5.0	
	b) 200mm dia.	RM.	5.0	
	c) 300mm dia.	RM.	5.0	
	d) 450mm dia.	RM.	15.0	
	e) 600mm dia.	RM.	27.0	
16.6	Same as above but with class P2 pipe.			
	a) 450 mm dia.	RM.	18.0	
	b) 600 mm dia.	RM.	18.0	
16.7	Supplying, double coated and double wrapping with materials as specified, laying, jointing testing and commissioning carbon steel pipe line below GL. (Earthwork excavation and back filling to be measured separately).			
	a) 50 mm dia as per IS:1239.	RM.	50.0	
	b) 100 mm dia as per IS:1239.	RM.	80.0	
	c) 150 mm dia as per IS:1239.	RM.	200.0	
	d) 200 mm dia. as per IS:3589.	RM.	5.0	
16.8	Same as in 16.7 but with pipe bends of required diameters.			
	a) 50 mm dia	NOS.	6.0	
	b) 100mm dia	NOS.	6.0	
	c) 150mm dia.	NOS.	12.0	
	d) 200mm dia.	NOS.	5.0	
16.9	Supplying and fixing M.S drain funnels of following diameter.			
	a) 150mm dia as per drg.no 4-38144-00055.	NOS.	16.0	
	b) 250mm dia as per deg.no. 4-38144-00053.	NOS.	7.0	
17.00	MISCELLANEOUS ITEMS			
17.1	Supply, fabricating and fixing in position transformer gate/fencing as per drg. no. 4-38144-00034 including painting with aluminium paint two coats over suitable primer etc. complete. excavation, post etc to be measured separately.	SQM.	100.0	
17.2	Supplying, fabricating and fixing in position G.I. MS rungs bent to shape/size as indicated on drgs. and specs.	KG	25.0	
17.3	Supplying and spreading 40 mm size gravel metal in transformer yards.	CUM.	45.0	
17.4	Supplying and laying single layer brick flat soling including filling interstices with sand on compacted soil etc. completed.	SQM.	135.0	
17.5	Providing anti termite treatment as per specs., drg.no 4-38144-00004 and directed by the Engineer.	SQM.	700.0	
17.6	Providing 450X300X600mm Catch pits in 1:4 brickwork 230mm thk. with plain concrete 1:2:4 100mm thk. foundation and plastered with 1:3 cement mortar including supplying and fixing CI frame and grating cover, all complete as per specifications.	NOS.	9.0	
17.7	Providing and laying bitumen sand carpet 50mm thk. in two layers of 30mm & 20mm for tank pads including finishing to correct slopes, light rolling etc. complete as per directions of the Engr.	SQM.	118.0	
17.8	Providing and fixing 50mm thk. Plysterene board including finishing to correct slopes etc.as per directions of the Engr.	SQM.	50.0	
17.9	Supply, fabricating and fixing in position Aluminium strips with Brass Scroo as per designer recommendation ,required as expansion joint cover etc. Including Staing,scaffolding at heights wherever required. All complete.	RM.	27.0	

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS
17.1	Supplying, fitting and fixing Anchor Fastner (HILTI make or equivalent) of following diameter. Including Staging,Scaffolding at heights as per the site requirement required, all inclusive.			
	a) 6 mm diameter.	NOS.	18.0	
	b)10 mm diameter.	NOS.	18.0	
	c)12mm diameter.	NOS.	18.0	
	d)16mm diameter.	NOS.	18.0	
	e)20 mm diameter.	NOS.	18.0	
	f) 25 mm diameter.	NOS.	18.0	
17.11	Supplying and Fixing in position approved quality MS tube of 25mm dia.	KG.	3000.0	
17.12	Supplying and Fixing in position approved quality 50mm expanded polysterene board.	SQM.	90.0	
18.0	FENCING			
18.1	a) Supplying and fixing chain link mesh conforming to IS:2721 , both ends bent type, mesh size 40mm, dia. of mesh wire 3.15 mm , with 2 nos line wire 4 mm dia. including tying to RCC /STEEL posts neatly with GI wire including cost of all materials etc. complete.	SQM.	200.0	
	b) Supplying and fixing barbed wire of 12 gauge 2ply to the fencing posts.	RM.	1000.0	
19.00	DISMANTLING OF STRUCTURES BY MECHANICAL/PNUMETIC HAMMER.			
19.1	Dismantling and removal before modification of the following items in the existing structures with all labour, tools, transport ,staging,scaffolding etc. all complete including delivering as directed by Engineer.			
	i) Height up to 5m high starting from 2.5M below ground.			
	a) Concrete (plain).	CUM.	20.0	
	b) Concrete (rein forced).	CUM.	50.0	
	c) Brickwork.	CUM.	9.0	
	d) Doors, windows, ventilators & rolling shutters.	SQM.	9.0	
	e) 50 Thk. premix carpet.	SQM.	9.0	
	ii) Height from 5m to 18m.			
	a) Concrete (rein forced).	CUM.	9.0	
	b) Brickwork.	CUM.	9.0	
	c) Doors, windows, ventilators & rolling shutters.	SQM.	9.0	
19.20	DISMANTLING OF STRUCTURES BY MANUAL MEANS.			
	i) Height up to 5m high starting from 2.5M below ground.			
	a) Concrete (plain).	CUM.	200.0	
	b) Concrete (rein forced).	CUM.	120.0	
	c) Brickwork.	CUM.	100.0	
	d) Doors, windows, ventilators & rolling shutters.	SQM.	2.0	
	e) 50 Thk. premix carpet.	SQM.	500.0	
	f) Pipe hand rail.	RM.	20.0	
	g) Structural steel.	MT.	5.0	
	h) WBM/soling for roads or paving.	SQM.	2000.0	
	ii) Height from 5m to 18m.			
	a) Concrete (rein forced).	CUM.	40.0	
	b) Brickwork.	CUM.	100.0	
	c) Doors, windows, ventilators & rolling shutters.	SQM.	50.0	
	d) Pipe hand rail.	RM.	9.0	
	e) Structural steel.	MT.	5.0	
20.00	GROUNDING			

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS)
20.1	Drawing from BHEL stores fabricating,erecting,testing ground conductors including cost of excavation,backfilling welding,construction of masonry chambers with MS covers (for electrodes),filling with sand,charcoal and salt (for test pits),labour,material etc. complete. (All materials to be supplied by the bidder) .			
	a) Earth strip 1 no. 75x10 GI flat. (All materials to be supplied by the bidder)	R.M	932.0	
	b) Earth rises 1 no.75x10 mm GI strip. (All materials to be supplied by the bidder)	R.M	246.0	
	c) Test pit electrode treated earth pits as per drg. No.GT 57191 sheet 10 of 37.(Ref. specs). (All materials to be supplied by the bidder)	Nos.	9.0	
	d) Direct driven electrode as per drg. No.GT 57191 sheet 11 of 37.(Ref. specs). (All materials to be supplied by the bidder)	Nos.	18.0	
21.00	GENERAL			
	For item not covered above, quote % above or below the CPWD schedule (DSR-2002)			
	(i) Rate for complete			
	(ii) Rate for supply only			
	(iii) Rate for item excluding supply of materials			
	<i>NOTE: Item 20.0 shall be optional. BHEL reserves its right either to incorporate in the contract or delete the same. Total price as shown in schedule of Items & Rates/Prices.</i>			
22.00	PILING			
22.1	Mobilization of minimum six number of piling rigs and ancillary equipment including boring equipment all complete to site for installation of 500mm diameter Bored cast-in-situ R.C.C piles and demobilization from site after completion of work as per specifications.	SET	6.0	
22.2	a) Construction of 500mm nominal dia. Bored cast-in-situ piles using cement concrete(cement not less than 400 Kg/cum.)of grade M-25 as per specifications including cost of plant and equipment, labour, materials (except reinforcement which will be paid for under item No.3)etc. complete. Rate up to 25.5m depth below cutoff level as per the drg. 3-38142-00276..	RM.	10315.0	

SL.NO	DESCRIPTION	UNIT	QUANTITY	PRICE IN PERCENT (%) OF TOTAL PRICE FOR EACH ITEM (IN FIGURES AND WORDS
	b) -----Do----- for 500mm dia. Piles.17.0m long.	RM.	612.0	
22.3	Conducting initial vertical load tests by direct loading on piles including finishing pile head, supply and erection of all kentledge, labour, excavation , backfilling, compaction etc. all complete.			
	a) 500mm dia.,25.5m long– 60 tones capacity pile.	NOS.	1.0	
	b) 500mm dia.,17.0m long–25 tones capacity pile.	NOS.	1.0	
22.4	Same as item No. 21.3 but for routine vertical load test by direct loading.			
	a) 500mm dia.,25.5m long 60 tones capacity pile.	NOS.	5.0	
	b) 500mm dia.,17.0m long–25 tones capacity pile.	NOS.	3.0	
22.5	Same as item No. 21.3 but for initial lateral load test by direct loading.			
	a) 500mm dia.,25.5m long -3.5 tones capacity pile.	NOS.	2.0	
	b) 500mm dia.,17.0m long–2.7 tones capacity pile.	NOS.	2.0	
22.6	Same as item No. 21.3 but for routine lateral load test by direct loading.			
	a) 500mm dia., 25.5m long–3.5 tones capacity pile.	NOS.	5.0	
	b) 500mm dia.,17.0m long–2.7 tones capacity pile.	NOS.	2.0	
22.7	Same as item No. 21.3 but for initial pullout test by direct loading.			
	a) 500mm dia.,25.5 long–12 tones capacity pile.	NOS.	1.0	
	b) 500mm dia.,17.0m long-5 tones capacity pile.	NOS.	1.0	
	c) 500mm dia.,25.5m long–20 tones capacity pile.	NOS.	1.0	
22.8	Same as item No. 21.3 but for routine pullout test by direct loading.			
	a) 500mm dia.,25.5 long–12 tones capacity pile.	NOS.	5.0	
	b) 500mm dia.,17.0m long-5 tones capacity pile.	NOS.	2.0	
	c) 500mm dia.,25.5m long–20 tones capacity pile.	NOS.	2.0	
22.9	Empty boring 500mm dia in ordinary soil.	RM.	405.0	
	TOTAL			