

Bharat Heavy Electricals Limited
High Pressure Boiler Plant
Tiruchirappalli – 620 014. India
Civil Engineering Department (Factory)

TENDER DOCUMENT (PRICE BID)

Name of work	:	Civil Construction works for Bay 5 by extending, the existing Bay 5A at Building 50 Structural steel shop for AUSC Project at BHEL Trichy.
Value of work	:	Rs.53.44 Lakhs + Applicable GST
Tender Notice No.	:	CF:TN:006/18-19
Tender Schedule No.	:	CF:TS:018/18-19
Period of Contract	:	8 (Eight) Months
EMD	:	Rs 1,07,000.00/-
Issued to	:	

BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPALLI - 620 014
SCHEDULE - A

Name of Work: Civil Construction works for Bay 5 by extending, the existing Bay 5A at Building 50 Structural steel shop for AUSC Project at BHEL Trichy.

I / We _____ have read the condition of tender attached hereto and agree to abide by such conditions. I/We offer to execute the works in **T.S No. CF:TS:018/18-19 for a period of 08 (Eight) months** at the percentage below / at par / above the rates contained in Bill of Quantities appended **below from Page 03 to 11**

I / We further agree to sign an Agreement Bond to abide by the General Conditions of Contract and to carryout all works according to the specifications for materials and works of Bharat Heavy Electricals Limited, Tiruchirapalli-620 014. In case of acceptance of the tender by the BHEL, I/We bind myself/ourselves to execute the contract documents within 7 days after notice that my/our tender has been accepted and this contract has been awarded to me/us and thus failing which I/We shall have no objection to the forfeiture of the Earnest Money amount to **Rs.1,07,000/-** lodged with Bharat Heavy Electricals Limited, Tiruchirapalli-620 014.

I / We further agree to include all tools & plants and consumables required for the work in my / our scope but required power and water will be provided at one point by BHEL at free of cost and based on this, we have quoted our percentage.

Note: Details & Quantities of each item of work shown in the BILL OF QUANTITIES are only approximate and the same is appended below. They are given as a guide for the purpose of tendering only and are liable to variation and alteration of the Competent Authority. The work under each item as executed shall be measured and priced at the overall percentage quoted by the contractor **Below (100-X) % / At par (100%) / Above (100+X) %** of the rates provided in Bill of Quantities appended below from **Page 03 to 11**

Sl. No.	Approx. Value of work	Common single percentage rate, Below (100-X) % / At par (100%) / Above (100+X) % to be quoted with respect to the rates provided in Bill of Quantities appended below from Page 03 to 11	
		In Figures	In Words
1.	Rs. 53.44 Lakhs (Excluding GST) = 100%		

Note: BHEL estimate rates are given below. Contractor has to quote Common single percentage rate, Below (100-X) % / At par (100%) / Above (100+X) % with respect to the rates provided in Bill of Quantities below at page 11 both in figures and in words.

**BHEL / TRICHY-620 014
CIVIL ENGINEERING DEPARTMENT-FACTORY**

BILL OF QUANTITIES

Name of work : Civil Construction works for Bay 5 by extending, the existing Bay 5A at Building 50 Structural steel shop for AUSC Project at BHEL Trichy

Sl. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
1		Dismantling / removing / demolishing as the case may be of the following by manually/mechanical means and carefully stacking the serviceable materials at site of work or conveying and handing over the same at BHEL stores and disposal of unserviceable materials by transporting and dumping in the nearby low level areas within a lead of 100 metres. All as per instructions of Engineer-in-charge.			
a	70.00	Brick work in cement mortar	cum	522.83	36598.10
b	15.00	Stone rubble masonry in cement mortar	cum	623.84	9357.60
c	50.00	Plain Cement Concrete.	cum	381.73	19086.50
d	216.00	RCC works including stacking of steel bars by manual/mechanical means	cum	904.11	195287.76
e	10.00	RCC or PCC (Using jack hammer only for pockets)	cum	1577.45	15774.50
f	60.00	RCC louvers / RCC jally	sqm	150.71	9042.60
g	50.00	G.I / PVC pipe lines of various dia including all specials.	meter	10.65	532.50
h	500.00	G.I / Aluminium sheets / Aluminium Zinc alloy coated sheets from roofs and side cladding including ridges, valleys, gutters etc.	sqm	48.61	24305.00
l	5.00	Steel structures / steel works in built up sections including bolts, nuts, cutting rivets, welding, dismembering, preparation of DODL etc	MT	1527.31	7636.55

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Sl. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
2		Earthwork excavation (TRENCHES) in soils given below by mechanical means (Hydraulic excavator)/manual means and depositing the excavated earth at suitable places within the initial lead of 50 meter and initial lift of 1.5 meter for foundation in building works, roads, narrow drains, sewers, bridges, pipe lines etc., sectioning the subgrade to proper level and grade, watering and consolidating the subgrade to receive concrete bed, all as per standard specifications and instructions of Engineer-in-charge.			
a	130.00	All kinds of soil except rock	cum	124.04	16125.20
b	40.00	Ordinary rock	cum	198.88	7955.20
c	30.00	Hard rock (blasting prohibited)	cum	405.00	12150.00
3		Earthwork excavation (TRENCHES) in soils given below by mechanical means (Hydraulic excavator)/manual means and depositing the excavated earth at suitable places within the initial lead of 50 meter and initial lift of 1.5 meter for foundation in building works, roads, narrow drains, sewers, bridges, pipe lines etc., sectioning the subgrade to proper level and grade, watering and consolidating the subgrade to receive concrete bed, all as per standard specifications and instructions of Engineer-in-charge. Rate also includes bail-ing or pumping out water during excavation due to subsoil water, rain etc.			
a	100.00	All kinds of soil except rock	cum	136.46	13646.00
b	30.00	Ordinary rock	cum	218.74	6562.20
c	20.00	Hard rock (blasting prohibited)	cum	445.47	8909.40
4		Earth work for Open excavation (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) in soils given below by mechanical means (Hydraulic excavator)/manual means including disposal of earth at suitable places within a lead upto 50 metres and lift upto 1.5 metre, sectioning the sub-grade to proper level and grade. Disposed soil are to be leveled and neatly dressed. Rate also includes bail-ing or pumping out water during excavation due to subsoil water, rain etc			
a	1350.00	All kinds of soil except rock	cum	175.61	237073.50
b	350.00	Ordinary rock	cum	185.91	65068.50
c	250.00	Hard rock (blasting prohibited)	cum	395.29	98822.50

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ACCEPTING OFFICER

Sl. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
5	200.00	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including disposal of excavated earth upto 50 m and lift upto 1.5 m, disposed soil to be levelled and neatly dressed in All kinds of soil	sqm	34.90	6980.00
6		Extra for every additional lift of 1.5 metre or part thereof in			
a	900.00	All kinds of soil Excluding Rock.	cum	32.00	28800.00
b	250.00	Ordinary or hard rock	cum	57.39	14347.50
7	170.00	Supply and filling with river sand in foundation, plinth, under floor etc. including watering, ramming, consolidating and dressing complete	cum	495.91	84304.70
8	340.00	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead upto 50 m and lift up to 1.5 m etc. complete.	cum	77.80	26452.00
9	50.00	Clearing jungle including uprooting of rank vegetation, grass, brushwood, trees and saplings of girth upto 30 cm measured at a height of 1 metre above ground level and removal of rubbish upto a distance of 50 metre	sqm	4.44	222.00
10	10.00	Hire charges for engaging earth moving machinery (Hydraulic Excavator) to at-tend to channeling works at river bed, pipe line burst works, cleaning the are-as including uprooting thorny plants/heavy jungles/trees etc. of all heights and leveling the areas thereafter including all debris etc., all as per instructions of Engineer-in-charge. Rate includes hire, fuel, operation charges, to and fro charges for machinery, all labour and all other incidentals etc., complete.	Hour	1084.60	10846.00
11	93.00	Providing and laying in position plain cement concrete of specified grade including consolidation, curing etc. complete, all as per standard specifications. All works upto plinth level. Rate excludes cost of centring and shuttering. 1:4:8 with graded stone aggregate 20 mm nominal size.	cum	2087.66	194152.38
12	32.00	Providing and laying in position machine batched, machine mixed and machine vibrated design mix of reinforced cement concrete of specified grade for structural elements using 10 to 20 mm hard broken granite stone jelly, excluding cost of centring, shuttering, finishing and reinforcement but including admixtures in recommended proportions (as per IS:9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability, all as per directions of Engineer-in-charge. M-20 Grade reinforced cement concrete. All work in foundation, basement and upto Floor V level.	cum	2690.40	86092.80

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ACCEPTING OFFICER

Sl. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
13		Providing and laying in position machine batched, machine mixed and machine vibrated design mix of reinforced cement concrete of specified grade for structural elements using 10 to 20 mm hard broken granite stone jelly, excluding cost of centring, shuttering, finishing and reinforcement but including admixtures in recommended proportions (as per IS:9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability, all as per directions of Engineer-in-charge			
a	82.00	M-25 Grade reinforced cement concrete. All work in foundation, basement and upto Floor V level	cum	2698.73	221295.86
b	210.00	M-35 Grade reinforced cement concrete. All work in foundation, basement and upto Floor V level	cum	2704.30	567903.00
14	10.00	Providing and laying in position specified grade of reinforced cement concrete including vibration charges, curing etc. complete but excluding cost of centring, shuttering, finishing and reinforcement. 1:1.5:3 with graded stone aggregate 20 mm nominal size - All works upto plinth level	cum	2134.05	21340.50
15	10.00	Providing and laying in position specified grade of reinforced cement concrete including vibration charges, curing etc. complete but excluding cost of centring, shuttering, finishing and reinforcement. 1:2:4 with graded stone aggregate 20 mm nominal size - All works upto plinth level	cum	2204.15	22041.50
16	61.00	Straightening, cutting, bending, placing in position of MS/CTD bars and binding with MS binding wires of 18/20 gauge etc. for reinforcement of RCC works. Rate includes cover blocks, cost of binding wire, conveyance of MS/CTD bars from BHEL stores to site of work, labour etc. complete. MS/CTD bars will be supplied by BHEL at Stores at free of cost.	MT	7335.25	447450.25
17	20.00	Encasing rolled steel sections in beams and columns in cement concrete 1:2:4 using graded stone aggregate 12.50 mm nominal size including centering, shuttering etc. complete but excluding cost of reinforcement & fabrication charges.	cum	4021.40	80428.00
18		Centring and shuttering including strutting, propping, assembling etc. and removal of form work. Upto a maximum height of 4.50 metre of each floor and also upto floor five level.			

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SI. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
a	315.00	Foundations, footings, bases of columns, equipment foundations, precast slabs, kerbs etc. for mass concrete.	sqm	164.96	51962.40
b	540.00	Walls (any thickness) including attached pilasters, plinth, stairs, chimney, shafts and string courses etc.	sqm	287.57	155287.80
c	50.00	Lintels, beams, plinth beams, girders, bressumers and cantilevers	sqm	249.95	12497.50
d	40.00	Columns, pillars, piers, abutments, posts and struts.	sqm	366.50	14660.00
e	62.00	Pockets or holes in foundations for holding down bolts.	sqm	669.74	41523.88
19	70.00	Providing precast cement concrete Jali 1:2:4 using graded stone aggregate 6 mm nominal size with suitable reinforcement including centring and shutter-ing, roughening, cleaning, fixing and finishing in cement mortar 1:3 etc.complete. Rate excludes reinforcement steel & fabrication charges 50 mm thick	sqm	531.21	37184.70
20	70.00	Precasting and fixing in position of RCC cable trench cover slabs of following thickness in mix 1:2:4 using graded stone aggregate 12 mm nominal size with top 15 mm thick finished with hardening compound of proportion one part of ironite or equivalent, four parts of cement and eight parts of 6 mm gauge hard granite stone chips (the proportion being by weight) including welding reinforcement rods to the frame work, all as per drawing, specifications and instructions of Engineer-in-charge but excluding cost of M.S frame work which will be paid separately. Reinforcement rods and M.S frames will be supplied by BHEL at stores at free of cost. 69 mm thick	sqm	536.04	37522.80
21	50.00	Providing and fixing in position of 12 mm thick bitumen impregnated fibre board conforming to IS:1838 including cost of primer, sealing compound in expansion joints.	sqm	404.26	20213.00
22	45.00	Random rubble masonry in foundation and basement in the mix Cement mortar 1:5 including simultaneous flush pointing, all as per standard specifications	cum	1750.69	78781.05
23	110.00	Brick work with F.P.S bricks (second class ground moulded chamber bricks) of class designation 50/75 in foundation and plinth in Cement mortar 1:5	cum	3668.02	403482.20
24	110.00	Extra for Brick work in superstructure above plinth upto floor three level in all shapes and sizes.	cum	267.45	29419.50
25	2.00	Fabrication and fixing in position of M.S frames for cable trench cover slabs in required sizes using M.S angles, plates, flats etc., which will be supplied by BHEL at Stores at free of cost, all as per drawings and instructions of Engi-neer-in-charge. Rate includes conveyance of raw materials from BHEL stores to contractors fabrication shop, fabrication charges including cutting, welding, preparing and supplying DODL's for BHEL's approval, supply of fabricated frames at site of work, fixing in proper position etc., complete .	MT	7444.55	14889.10

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ACCEPTING OFFICER

Sl. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
26	1.00	Conveying from BHEL stores to site of work cutting to size and fixing in position of 75 x 75 x 6 mm or other size M.S angles in required lengths for form-ing the rebates in cable trench (for fixing the cable trench cover slabs) including welding in position of dowel bars to the angles and embedding the angle iron frame in the flooring concrete in proper line and level, all as per drawings and instructions of Engineer-in-charge. Rate includes loading, unloading, handling, welding and other incidental charges, preparing and supplying of DODL's for approval etc. complete, but excluding cost of M.S angles and dowel bars which will be supplied by BHEL at Stores at free of cost	MT	7928.97	7928.97
27	1000.00	Fabrication and fixing in position of M.S inserts out of M.S plates, flats, rounds, angles etc., including necessary lugs made of rounds or flats, sizing and cutting to required lengths, threading, bolting and welding as required and placing the same in position in both plain and reinforced cement concrete members, including adjusting the shuttering if necessary, tying and holding to correct level and line. Rate includes cost of all materials, labour etc., complete but excluding raw steel sections which will be supplied by BHEL at Stores at free of cost.	Kg	27.81	27810.00
28	1165.00	Providing holding down bolts of required sizes with nuts, washers etc. and fix-ing in proper level, line, alignment etc., all as per drawings and instructions of Engineer-in-charge. Rate includes cost of steel materials, bolts, nuts, wash-ers, fabrication and machining charges, fixing, all labour etc. complete Bolts including nuts & washers etc.complete in all sizes & lengths.	kg	83.96	97813.40
29	200.00	Conveying all types & sizes of holding down bolts, nuts, washers etc. from BHEL Stores to site of work and fixing in proper level, line, alignment etc., all as per drawings and instructions of Engineer-in-charge. Rate excludes cost of bolts, nuts, washers etc.	kg	23.22	4644.00
30	1188.00	Floor finish with 40 mm thick granolithick flooring over the concrete base while it is wet for proper bonding, the bottom 25 mm thick consisting of one part of cement and one part of 6 mm gauge hard broken granite stone chips (the proportion being by volume) and the top 15 mm finished with hardening compound of proportion one part of hardonate (ironite or equivalent) four parts of cement and eight parts of 6 mm gauge blue granite stone chips (the proportion being by weight) including finishing and painting the sides with bi-tumen etc., complete, all as per standard specifications.	sqm	419.20	498009.60

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Sl. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
31	190.00	Flooring with reinforced cement concrete of mix 1:2:4 using 20 mm and down graded hard broken granite stone jelly for thickness varying from 100 to 500 mm laid in panels not exceeding 6 x 30 m between expansion joints, including necessary vibration using needle / board / screed vibrators, all as required including necessary shuttering, painting the sides with bitumen, but excluding fabrication charges for reinforcement, all as per standard specifications.	cum	2090.02	397103.80
32	960.00	Plastering with cement mortar as per standard specifications In cement mortar 1:3, 12mm thick	sqm	91.65	87984.00
33	30.00	Damp proof course with cement mortar 1:3, 20 mm thick mixed with an admix-ture of crude oil at 5 % by weight of cement, all labour etc. complete as per standard specifications.	sqm	147.26	4417.80
34	480.00	Distemping using oil bound washable distemper of approved brand and shade on surfaces including cleaning, brushing, preparing the surfaces even and sand papered smooth in accordance with standard specifications - Three coats (A priming coat with approved primer and two coats of distemping).	sqm	69.56	33388.80
35	480.00	Painting with exterior emulsion paint (ACE or any other equivalent and approved brand) of approved shade on surfaces to give an even shade including preparing the surfaces, removal of dirt, thorough cleaning by watering etc., all as per standard specifications. Rate includes cost of necessary plaster of paris and putty wherever required, labour and all incidentals etc.complete Three coats (One coat of Primer of approved brand with two coats of Paint)	sqm	73.75	35400.00
36		Supply RCC pipes (NP2 Class) of following sizes with collars at site of work, lowering to trench, laying to proper grade and alignment, joining the collars with stiff mixture of cement mortar 1 : 2, testing of joints etc., but excludes cost of cement which will be supplied by BHEL at stores at free of cost.			
a	25.00	250 mm dia	meter	437.00	10925.00
b	25.00	300 mm dia	meter	479.39	11984.75
37		Providing and fixing G.I pipes and specials (B - Class) of approved brand with G.I fittings and clamps on walls & floors, including cutting and making good the walls & floors etc. complete. (Internal work - exposed on walls)			
a	50.00	15 mm dia nominal bore	meter	145.04	7252.00

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SI. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
b	50.00	20 mm dia nominal bore.	meter	177.48	8874.00
c	100.00	25 mm dia nominal bore.	meter	236.29	23629.00
d	100.00	40 mm dia nominal bore.	meter	340.27	34027.00
38		Providing and fixing G.I pipes and specials (B - Class) of approved brand with G.I fittings in trenches (External work) Earth work excavation for trenches and refilling shall be paid separately			
a	100.00	40 mm dia nominal bore.	meter	229.44	22944.00
b	100.00	50 mm dia nominal bore.	meter	286.04	28604.00
39	150.00	Providing and fixing PVC pipes of 4 K.G / Sqcm conforming to ISS including joining with proper adhesive as suggested by manufacturers and suitable clamps for rain water pipes, drainage etc. Rate excludes all specials like shoe, bend, tee, tee with door etc.PVC Pipe 110 mm OD	meter	222.34	33351.00
40		Providing and fixing PVC moulded fittings / accessories on walls for rain water pipes conforming to IS 13592 Type A including joining with seal rings con-forming to IS 5382 and proper adhesive as suggested by manufacturers etc.complete.			
a	10.00	110 mm shoe	each	100.28	1002.80
b	10.00	110 mm bend	each	148.15	1481.50
41		Providing and fixing in position of brass wheel valve / gate valve approved (G.M) brand with C.I wheel etc. complete. (ISI marked) of			
a	5.00	15 to 25 mm nominal bore	each	415.80	2079.00
b	5.00	40 mm nominal bore	each	702.82	3514.10
42	5.00	Providing and fixing in position C.P brass bib cock / stop cock (Medium Duty) of approved brand (ISI marked) 15 mm nominal bore.	each	204.64	1023.20
43	2.00	Providing and fixing in position of 100 x 75 mm Nahani trap with PVC grating, all as per standard specifications	each	180.14	360.28
44	2.00	Grouting the H.D bolts, underneath the base plates etc., after alignment with wet cement grout (1:1), all as per standard specifications. Rate includes cleaning the sleeves/pockets, tools and plants required for the work etc., complete except cement which will be supplied by BHEL at stores at free of cost	cum	15776.64	31553.28

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Sl. No	QTY	Description	Unit	Rate (Rs.P)	Amount (Rs.P)
45	2.00	Grouting the H.D bolts, underneath the base plates etc., after alignment with non-shrink high strength cementitious grout of such as Tec. Grout 40 or Pidigrout 10M or Flogrout 60 or Conbextra GP2 or any other equivalent grout, all as per instructions of Engineer in charge and as per standard specifications. Rate includes cost of non-shrink grout, cleaning the sleeves/pockets, tools, labour etc., complete.	cum	52738.58	105477.16
46		Conveyance of earth, sand, gravel, rough stone, broken stone, brick bats (debris) etc. by contractor's own lorry including loading, leading, unloading, stacking or spreading, all as per instructions of Engineer-in-charge. Payment for conveyance of earth will be made based on pit measurement and for other items based on stack measurements			
a	272.00	0-1 Km	cum	112.40	30572.80
b	175.00	Beyond 1 Km but upto 2 Km	cum	119.95	20991.25
c	75.00	Beyond 2 Km but upto 3 Km	cum	128.43	9632.25
47		Conveyance of debris generated by dismantling and other modification works by various departments, factory wastes discarded cotton waste, slag, cut tree branches, dried leaves, abandoned broken glass, water closets, urinals, flush tanks, broken furniture, broken refractory bricks, AC materials, hedge cuttings and all other debris and waste materials from various places of facto-ry premises where they are stacked / accumulated and transporting the same by contractor's lorry and disposing off at the specified places, all as per the instructions of Engineer-in-charge. Rate includes labour for collection of the said debris from various places, loading, leading, unloading, spreading, level-ing etc. complete. Rate also includes for safe burning of dried leaves, cut pieces of tree branches, wood, waste paper etc., all by following safety pre-cautions. Payment will be made on trip basis with a lorry load of minimum 300 cft./Trip.			
a	75.00	0-1 Km	each	763.90	57292.50
b	75.00	1-2 km	each	814.83	61112.25
C	50.00	2-3 km	each	865.81	43290.50
48	400.00	Providing and Fixing GI Rungs in Concrete /brick walls having Zinc coating of Minimum 900 g/sqm etc all complete	kg	262.56	105024.00
			Total (Excluding GST)		5344512.02

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