

**TENDER SPECIFICATION**  
**NO: BHE/PW/PUR/DHJOI-MISC**  
**CVL/1403**

**CONSTRUCTION OF CIVIL WORKS COMPRISING OF APPROACH  
ROADS, PAVEMENTS IN PLANT AREA, DRAINS, AND OTHER  
MISCELLANEOUS CIVIL WORKS COMPLETE**

**AT**

**2X30MW STG + 4GTG WITH HRSG + 2 UB AT OPAL, DAHEJ-  
BHARUCH, GUJARAT**

**VOLUME-II-PRICE BID SPECIFICATION**



**BHARAT HEAVY ELECTRICALS LIMITED**

**(A GOVERNMENT OF INDIA UNDERTAKING)**

**POWER SECTOR - WESTERN REGION**

**SHREEMOHINI COMPLEX**

**345, KINGSWAY - NAGPUR 440 001**

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EARNEST MONEY DEPOSIT: Please see Notice Inviting Tender.

LAST DATE FOR: Please see Notice Inviting Tender.

TENDER SUBMISSION:

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING **VOLUME-I-Tech Bid**, **VOLUME- II-Price Bid** AND  
VOLIME-IBCD Rev ARE ISSUED TO:

M/s. ....

PLEASE NOTE:

THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date:

**BHEL PSWR NAGPUR**  
**Volume-II Price Bid Specification**  
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<b>Job Description:- Civil works including approach roads, pavement,cable trench cover at OPaL Dahej, Bharuch Gujarat Site</b>						
Item No.	Description of work	Unit of Measurement	Quantity.	RATE in Figure (In Rs)	RATE IN WORDS (In Rs)	AMOUNT (In Rs)
101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead up to 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	Cum	1500			
108	Back filling up to any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 200 mm thickness using/with selected materials directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following for Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	Cum	250			
109	Extra over <b>ST No. 101 and 103 to 107</b> for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	Cum				
	For 0km-1km beyond an initial lead of 500m.	Cum	3100			
	For 1km-2km beyond an initial lead of 500m.	Cum	3100			
	For 2km-3km beyond an initial lead of 500m.	Cum	3100			
	For 3km-4km beyond an initial lead of 500m.	Cum	3100			
	For 4km-4.5km beyond an initial lead of 500m.	Cum	3100			
111	Supplying and filling sand up to any depth under floors, around foundations, plinths etc. in layers not exceeding 300mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	Cum	600			
200	<b>CONCRETE WORK</b>					

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Item No.	Description of work	Unit of Measurement	Quantity.	RATE in Figure (In Rs)	RATE IN WORDS (In Rs)	AMOUNT (In Rs)
	<p>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) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.</p> <p>"Note:            1) Cement for all concrete works shall be ordinary Portland Cement, 43 grade conforming to IS: 8112. The engineer in charge may permit the use of ordinary Portland cement (53 grade) or Portland puzzolana cement (fly ash/calcined based) confirming to is: 1489 or Portland slag cement conforming to is: 455 or sulphate resisting Portland cement conforming to IS: 12330 or high alumina cement conforming to is: 6452 without any extra cost.            2) The consumption of cement (per cum. of concrete) shall be as per recommended/approved concrete design mix subject to minimum requirement of IS 456/EIL Specifications/ Approved drawing (whichever is higher). However no extra claim shall be entertained on account of excess cement consumption as per the actual design mix to achieve required target strength &amp; other parameters.            3) Bipolar Corrosion Inhibiting Admixture shall be used for All Reinforced Concrete Works As Per EIL Approved Manufacturer's Recommendation / Customer Specifications : clause no. 8.3 of Doc. No. 6987-00-16-48-DB01 of Section-C 3.6; clause no. 4.5 of Doc. No. 6987-046-16-48-JS-01 of Section-C 4.6; Doc.no.6987-000-16-48-4201 of E-6 &amp; Approved construction drawing.            4) Admixture for corrosion inhibiting shall be paid separately under item no 1802.            "</p>					
201	Plain Cement Concrete of grade M 7.5 ((1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as filling course at any depth below finished floor level, under and around foundations/floors, mass fill etc as per customer specifications : clause no. 8.3 of Doc. No. 6987-00-16-48-DB01 of Section-C 3.6 & drawing.	Cum	170			
204	Reinforced Cement Concrete (with corrosion inhibiting admixture) of grade M20 under floors, paving, plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level as per customer specifications : clause no. 8.3 of Doc. No. 6987-00-16-48-DB01 of Section C 3.6 & drawing .	Cum	20			

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Item No.	Description of work	Unit of Measurement	Quantity.	RATE in Figure (In Rs)	RATE IN WORDS (In Rs)	AMOUNT (In Rs)
205	Providing and laying Design Mix cement concrete (with corrosion inhibiting admixture) conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 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/ super plasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per customer specifications customer specifications : clause no. 8.3 of Doc. No. 6987-00-16-48-DB01 of Section C 3.6 & drawing.					
b	M30	Cum	1000			
206	Providing and laying Design Mix cement concrete (with corrosion inhibiting admixture) conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ super plasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per customer specifications clause no. 8.3 of Doc. No. 6987-00-16-48-DB01 of Section-					
b	M30	Cum	30			
213 (c)	Providing and laying Design Mix cement concrete of M30 Grade as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/ moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transporting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm)	Cum	180			
215	Dismantling concrete work for all types of structures at all levels including stacking of serviceable material to a lead of 500 m and disposal of unserviceable material up to a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.					
(b)	Reinforced cement concrete of all grades	Cum	48			

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Item No.	Description of work	Unit of Measurement	Quantity.	RATE in Figure (In Rs)	RATE IN WORDS (In Rs)	AMOUNT (In Rs)
300	<b>FORMWORK</b>					
	Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centereing complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.					
301	Providing and fixing fairface steel form work of required thickness and smoothness below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.complete as per customer specification : clause no.6.1.3 of Doc. no.6987-046-16-48-JS-01 of section C 4.6	Sqm	1600			
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete					
b	Pockets of depths more than 150mm and up to 300 mm depth	Each	10			
305	Fairface plywood / Steel with filmface/laminated formwork above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights where ever specifically mentioned in the drawing.	Sqm	210			
400	<b>REINFORCEMENT WORKS</b>					
402	Taking delivery of steel from BHEL stores/store yard, loading, transporting and unloading at site, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per customer specifications in clause no. 8.0 of 6987-00-16-48-DB01 of section C 3.6 & clause no. 4.6.2 of Doc. no. 6987-046-16-48-JS-01 of Section C 4.6. Reinforcement shall be provided by M/S BHEL Free of cost.	MT	22			
500	<b>WATER PROOFING WORKS</b>					
	<b>Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>					

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Item No.	Description of work	Unit of Measurement	Quantity.	RATE in Figure (In Rs)	RATE IN WORDS (In Rs)	AMOUNT (In Rs)
501 b	Providing and laying under bed grading plaster with screed concrete 1:2:4 for thickness greater than 25mm including preparation of surface, batching, mixing, levelling etc. all complete as per customer specifications : Cl no. 2.7.6 of Doc. no. 6987-00-16-48-DB01 of Section C 3.6, Clause no. 3.5 of Doc. no. 6987-046-16-48-JS01 of Section C 4.6, EIL standard specifications : 7-75-0068-Rev03.	Sqm	450			

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Item No.	Description of work	Unit of Measurement	Quantity.	RATE in Figure (In Rs)	RATE IN WORDS (In Rs)	AMOUNT (In Rs)
516	Providing and applying <b>Atactic Polypropylene modified bituminous waterproofing</b> membrane over item nos. 501.a and 501.b. All complete as per customer specifications : Cl.no. 3.5 of Document no.6987-046-16-48-JS01	Sqm	450			
517	Providing and laying 24 / 20 SWG Chicken wire mesh to slope in panels not exceeding 6 sq.m area over roof slab, encasing of steel structures. All complete as per customer specifications : Cl.no. 3.5 of Document no.6987-046-16-48-JS01	Sqm	450			
600	<b>JOINT FILLER</b>					
	<b>Joints &amp; fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>					
604	Supplying and filling in position hot applied bitumen sealing compound (Grade B) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete as per customer specification Cl.No. 4.11 of Doc. no.6987-046-16-48-JS01 (Part-A) of section C 4.6					
c	20mmX25mm	RM	5000			
700	<b>MS MBEDMENTS</b>					
	Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	1			
703	Fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.	MT	4			
1000	<b>BRICKWORK</b>					

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Item No.	Description of work	Unit of Measurement	Quantity.	RATE in Figure (In Rs)	RATE IN WORDS (In Rs)	AMOUNT (In Rs)
	Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.					
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.					
d	using burnt clay bricks	Cum	60			
1200	<b>CEMENT MORTAR PLASTER</b>					
	Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1202	Providing 12mm thick plaster inside (smooth side) the building wall in cement mortar 1:4 on walls finished to a smooth finish all complete as per customer specifications : Clause no. 3.4 of Document no. 6987-046-16-48-JS01 (Part-B) of Section C 4.6.	sqm	700			
1300	<b>FINISHES TO CONCRETE / PLASTERED SURFACES</b>					
	<b>Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>					
1309	Two or more coats of synthetic enamel paint of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to wooden and Steel surfaces complete.	Sqm	200			
1310	Providing and applying 3 coats of water proof cement based paint as per IS:5410 of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat all complete as per customer specifications : Clause no. 2.0 of section C 3.6 & Clause no. 3.6.7 of Doc. no. 6987-046-16-48JS01 (Part-B) of section C 4.6		600			
1316	Two or more coats of plastic emulsion paint of approved brand and manufacture. All complete as per customer specification Clause no. 2.0 of section C 3.6 & Clause no. 3.6.2 of Doc. no. 6987-046-16-48JS01 (Part-B) of section C 4.6	Sqm	150			

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Item No.	Description of work	Unit of Measurement	Quantity.	RATE in Figure (In Rs)	RATE IN WORDS (In Rs)	AMOUNT (In Rs)
1400	<b>FLOORING AND SKIRTING</b>					
	<b>Flooring and skirting at any level including base layer, labour, material, equipments, transportation, handling, curing, polishing etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>					
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener all complete as per customer specifications : Clause no. 2.0 of Doc. No. 6987-046-16-48-JS01 (Part-B) of Section C 4.6 & Clause no. 3.2.3 of Doc. No. 6987-046-16-48-JS01 (Part-B) of Section C 4.6	Sqm	1200			
1422 a	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles 20 mm thick confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick ( to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as pe	Sqm	30			
1800	<b>MISCELLANEOUS WORKS</b>					
	<b>Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.</b>					
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 230 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	cum	25			
1802	Providing and mixing approved Bipolar Concrete penetrating Corrosion inhibiting admixture (from EIL's approved manufacturer) in concrete as per Customer specification/ manufacturer recommendation etc. all complete.	Kg	2400			
1812	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	6			
1825	Supply and laying approved quality <b>Stone aSupply and laying approved quality Stone aggregate 40mm size in transformer yards.ggregate 40mm size in transformer yards.</b>	Cum	50			

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2209 ( b )	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete as per customer specifications : Clause no. 3.10.1 of Doc. no. 6987-046-16-48-JS01 (Part-B) of section C 4.6 & EIL standard specifications : 7-75-0051, 7-75-0052	Rm	90			
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within plant boundary all complete. Subgrade below road/pavement shall be compacted to 95% of Modified Proctor Density as per IS: 2720 part-VIII and slope of sub-grade shall be same as top of the pavement slope.	cum	1600			
2403	Providing & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	cum	1200			
2405	Providing & laying water bound macadam base course in two layers of 150mm thickness with stone aggregate 63mm to 40mm size, stone screening and blinding material including road/pavement sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete as per EIL specification 6-65-0018.	Sqm	2300			
Extra 1 b	Providing and fixing medium quality PVC pipes in full length for Road Crossing Pipe culverts and ERC/IRC crossing (Duct Banks) of 200 NB:	RM	324			
<b>Grand Total Amount (In Rs)</b>						
Grand Total Amount (In Rs) In Rs in words						