

TENDER SPECIFICATION

BHEL/PSSR/USTPP/SCT&P/SCT/256

FOR

**Balance Civil works of Canteen building
(Near Fire station), Dispensary Building and
Construction of Complete Quality Control
Laboratory at**

**2X660MW Udangudi Thermal Power Project,
Kallamoli, Tiruchendur Taluk,
Tuticorin District, Tamil Nadu**

VOLUME –I BOOK – I

TECHNOCOMMERCIAL BID - Consists of Book- I & Book- II

Book- I Consists of

- Notice Inviting Tender
- Volume-IA: Technical Conditions of Contract

Book-II consists of

- Volume-IB : Special conditions of Contract,
- Volume-IC : General conditions of Contract
- Volume-ID : Forms & Procedures

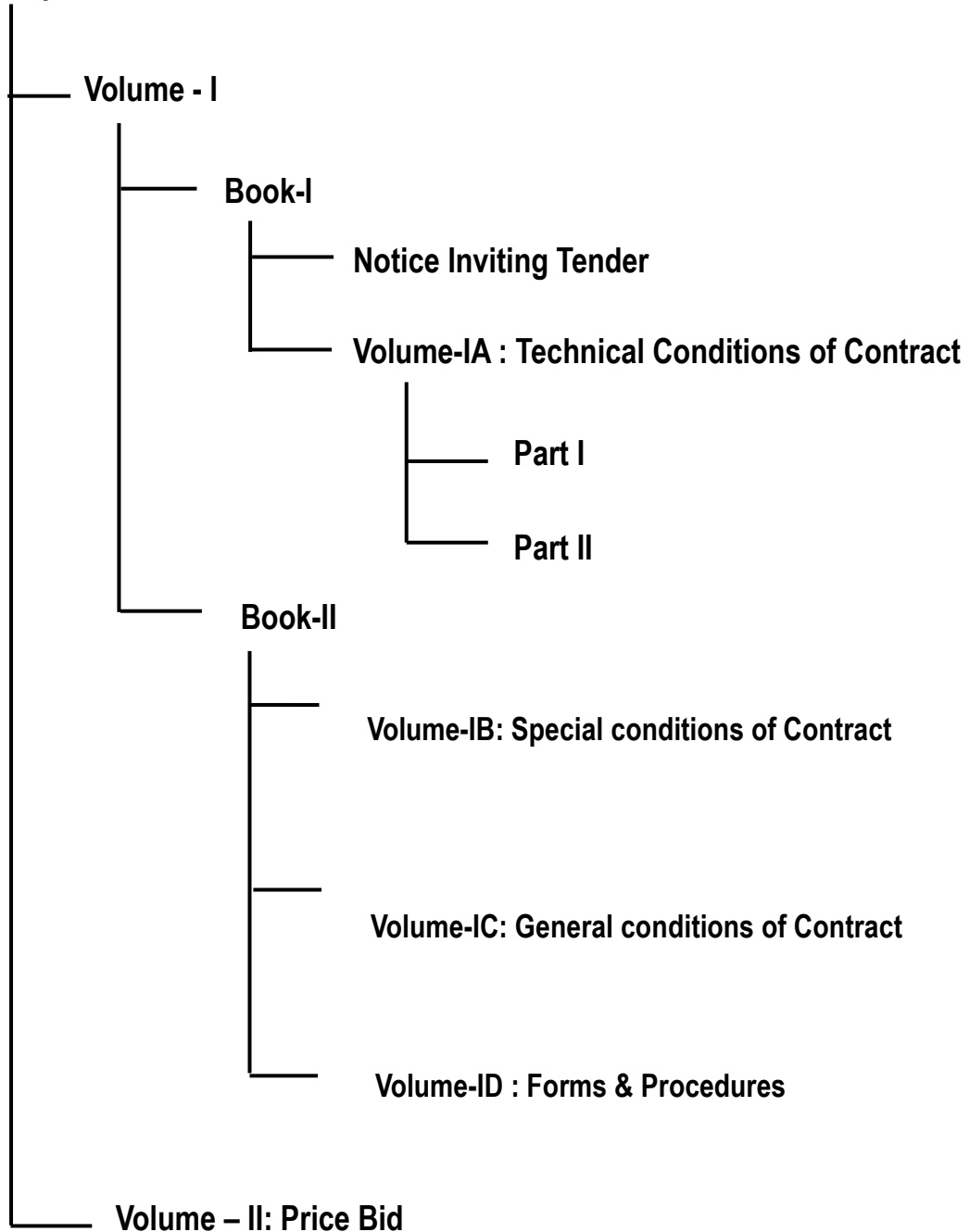


BHARAT HEAVY ELECTRICALS LIMITED

Power Sector – Southern Region
BHEL site office, 2X660 MW Udangudi STPP,
Kallamozhi, Tiruchendur-628206

TENDER SPECIFICATION CONSISTS OF

Tender Specification





VOLUME – IA Part I & II

TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)

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VOLUME - IA PART – I CHAPTER – I

PROJECT INFORMATION

1.1. 2X660MW UDANGUDI THERMAL POWER STATION

UDANGUDI SUPERCRITICAL TPS UNITS- 1 & 2 [2 x 660 MW] is being set up by **TAMILNADU GENERATION AND DISTRIBUTION CORPORATION** at a site in Kallamoli village of Tiruchendur Taluk, Tuticorin District., Tamil Nadu, India. The Bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually binding on BHEL/Owner. All relevant site data /information as may be necessary shall have to be obtained /collected by the Bidder.

PROJECT INFORMATION

1.1.1.	Project Title	:	2 x 660 MW Udangudi
1.1.2.	Plant capacity	:	660 MW
1.1.3.	Type of project	:	Green Field
1.1.4.	Owner	:	Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
1.1.5.	Plant site location	:	Kallamoli - 628203, Tiruchendur Taluk, Tuticorin District., Tamil Nadu.
1.1.6.	Nearest Village	:	Udangudi
1.1.7.	Nearest Town & City	:	Tuticorin at 41 KM
1.1.8.	State Capital	:	Chennai (655 Km)
1.1.9.	Nearest Railway Station	:	Thiruchendhur at 8 KM
1.1.10.	Nearest Airport	:	Domestic air port at Tuticorin (41 KM)
1.1.11.	Nearest Seaport	:	Tuticorin Port (45 KM)
1.1.12.	Nearest Road access	:	ECR Connecting Tuticorin and Kanyakumari – state highway -176
1.1.13.	Meteorological Condition		

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1.1.13.1.	Climate	:	Tropical, very dry and hot summer, dry and cold winter and good rain-fall in monsoon accompanied with strong wind
1.1.13.2.	Site Elevation	:	(+)2.8Meter above Mean Sea Level
1.1.13.3.	Ambient Temperature		
a.	Annual Maximum Mean Temperature	:	41°C
b.	Annual Minimum Mean Temperature	:	22.3°C
c.	Dry bulb Temperature(DBT) for Design Purpose	:	Max 41°C & Min 17°C
1.1.13.4.	Relative Humidity for Design purpose		Max 84% & Min 62%
1.1.13.5.	Annual Rainfall		
1.1.13.6.	Average	:	Max 718.2mm & Min 384.4mm
1.1.13.7.	Basic Design Wind Pressure	:	Design wind speed is 39 m/sec as per IS: 875 Part III Mean Wind Speed (max): 20.6 km/h as per IS: 875 (Latest Edition)
1.1.13.8.	Seismic zone	:	Zone: II as defined in IS:1893-2002
1.1.13.9.	High Flood Level		High Flood Level for site: RL 2.450 m

VOLUME-IA PART-I CHAPTER – II

SCOPE OF WORKS

1.2.1. The scope of works covers Balance Civil works of Canteen building (Near Fire station), Dispensary Building and execution of the same along with construction of Quality Control Laboratory at 2X660MW Udangudi Super Critical Thermal Power project site, including supply of all materials (excluding the materials supplied by BHEL free of cost), labour and mobilization of tools and plants.

1.2.2. AREAS OF WORK

Civil and Architectural works of the following:

- i) Balance portion of Canteen building (Near Fire station)
- ii) Balance portion of Dispensary Building
- iii) construction of Quality Control Laboratory
- iv) Roads, Road Culvert, drains of respective area, Pipe & cable Rack, pipe pedestals, inter plant cable trench, PIPE encasing, Sewage-Septic tank & soak pit, manholes (respective part)
- v) Levelling & Grading, backfilling of the respective area up to FGL.
- vi) And any other works not limited to the above area

Note: The above provided list is indicative only for the bidder's guideline. **Any other building / structure / foundation not mentioned above, but required for completion of scope of works in total is deemed to have been included in the bidder scope under this contract.** Such work will be executed under this contract by bidder as per the direction of Engineer in charge. If any item of work is not available in the rate schedule of this contract, the rate will be fixed in line with clause 2.15.7 of GCC.

1.2.3. BHEL shall provide Cement and reinforcement steel for civil works only for incorporation in the permanent works as free supply.

Though Major scope of Structural fabrication and erection works is in BHEL's scope, depending upon requirement at site, bidder may be required to carry out minor structural fabrication & erection works i.e. supporting structure for false ceiling etc., Structural steel for such works shall be supplied by BHEL as a free issue and fabrication & erection of the same may be operated under the relevant items of BOQ and as per tender terms & conditions.

Embedment's /inserts required for the works in general shall be supplied by the contractor and payment shall be made as per corresponding item in BOQ. If BHEL provides Structural Steel for embedments/inserts from scraps (if available), payment shall be made as per corresponding item in BOQ.

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- 1.2.4. The works to be performed under this contract consist of providing all labour, supervision, material, scaffolding, construction equipment's, tools and plants, temporary works, supplies including POL, transportation and all incidental items not shown or specified but reasonably implied or necessary for the proper completion of work in all respects. Testing of all materials, concrete, earthwork other allied works, preparation of bar bending schedules on the basis of construction drawings, etc. are included on the rates of items of work.
- 1.2.5. The area of work shall be cleared of all vegetation, rubbish and other objectionable matter and materials removed shall be burnt or otherwise disposed of as directed by The Engineer-in-Charge. No separate payment for these operations shall be made. The cost of all these operations shall be deemed to have been included in the unit rates rendered for the different items under bill of quantities.
- 1.2.6. All the works areas shall be adequately illuminated to the satisfaction of the Engineer-in-Charge when the work is in progress during the night shifts.
- 1.2.7. The unit rates shall include all material equipment, fixtures, labour construction plant, temporary works and everything whether of permanent or temporary nature necessary for the completion of job in all respects.
- 1.2.8. The unit rates for various items of B.O.Q shall be in accordance with all the relevant stipulations mentioned in technical specifications (with respect to items under execution) and nothing extra over B.O.Q rates shall be payable.
- 1.2.9. Drawings showing enough details for the construction as per the specification shall be furnished to the contractor in a phased manner.
- 1.2.10. The bidder should fully apprise himself of the prevailing conditions at the proposed site, climatic conditions including monsoon pattern, local conditions, soil strata and site specific parameters and shall include for all such conditions and contingent measures in the bid, including those which may have not been specifically brought out in the specifications.

VOLUME IA PART – I CHAPTER – III
FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL
(SCOPE MATRIX)

Sl.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
1.3.1.1.	ESTABLISHMENT			
1.3.1.1.1.	FOR CONSTRUCTION PURPOSE:			
A	Open space for office	Yes		
B	Open space for storage	Yes		
C	Construction of bidder's office, canteen and storage building, fabrication yard including supply of materials and other services		Yes	
D	Bidder's all office equipment's, office / store / canteen consumables		Yes	
E	Canteen facilities for the bidder's staff, supervisors and engineers etc.		Yes	
F	Firefighting equipment's like buckets, extinguishers etc.		Yes	
G	Fencing of storage area, office, canteen etc. of the bidder		Yes	
1.3.1.1.2.	FOR LIVING PURPOSES OF THE BIDDER			
A	Open space		Yes	
B	Living accommodation		Yes	

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Sl.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
1.3.1.2.	ELECTRICITY			
1.3.1.2.1.	Electricity For construction purposes	Yes		Chargeable as per TANGED CO prevailing tariff
1.3.1.2.1.1.	Single point source	Yes		
1.3.1.2.1.2.	Further distribution for the work to be done which include supply of materials and execution		Yes	
1.3.1.2.2.	Electricity for the office, stores, canteen etc of the bidder which include:		Yes	
1.3.1.2.2.1.	Distribution from single point including supply of materials and service		Yes	
1.3.1.2.2.2.	Supply, installation and connection of material of energy meter including operation and maintenance		Yes	
1.3.1.2.2.3.	Duties and deposits including statutory clearances for the above		Yes	
1.3.1.2.2.4.	Demobilization of the facilities after completion of works		Yes	

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Sl.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
	PART I			
1.3.1.2.3.	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc on the above lines. (in case BHEL provides this facility, the scope should be given without ambiguity)		Yes	
1.3.1.3.	WATER SUPPLY			
1.3.1.3.1.	For construction purposes:		Yes	
1.3.1.3.1.1.	Making the water available at single point		Yes	
1.3.1.3.1.2.	Further distribution as per the requirement of work including supply of materials and execution		Yes	
1.3.1.3.2.	Water supply for bidder's office, stores, canteen etc.		Yes	
1.3.1.3.2.1.	Making the water available at single point		Yes	
1.3.1.3.2.2.	Further distribution as per the requirement of work including supply of materials and execution		Yes	
1.3.1.4.	LIGHTING			
1.3.1.4.1.	For construction work (supply of all the necessary materials) At office storage area At the preassembly area At the construction site / area		Yes	

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Sl.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
	PART I			
1.3.1.4.2.	For construction work (Execution of the lighting work / arrangements) At office storage area At the preassembly area At the construction site /area		Yes	
1.3.1.5.	COMMUNICATION FACILITIES for site operations of the bidder	-		
1.3.1.5.1.	Telephone, Fax, internet, intranet, email etc		Yes	

Sl.No	Description	Scope to be taken care by		Remarks
1.3.2.	PART II	BHEL	Bidder	
	CONSTRUCTION FACILITIES			
1.3.2.1.	Engineering works for construction			
1.3.2.1.1.	Providing the construction drawings for all the equipment covered under this scope	Yes		
1.3.2.1.2.	Drawing for construction methods		Yes	In consultation with BHEL
1.3.2.1.3.	As-built drawings – wherever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes	Yes	Yes	”
1.3.2.1.4.	Shipping lists etc for reference and planning the activities	Yes	Yes	”
1.3.2.1.5.	Preparation of site construction schedules and other input requirements		Yes	In consultation with BHEL,

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Sl.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
1.3.2.	PART II			
1.3.2.1.6.	Review of performance (Form-14) and revision of site construction schedules in order to achieve the end dates and other commitments		Yes	As per requirement of BHEL targets
1.3.2.1.7.	Weekly construction schedules based on SI No 1.3.2.1.5		Yes	
1.3.2.1.8.	Daily construction / work plan based on SI No 1.3. 2.1.7		Yes	For daily monitoring meeting at site
1.3.2.1.9.	Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	
1.3.2.1.10.	Preparation of preassembly bay		Yes	
1.3.2.1.11.	Laying of racks for gantry crane if provided by BHEL or brought by the contractor / bidder himself			Not applicable

1.3.3. OPEN SPACE:

1.3.3.1. Availability of land within plant boundary is very limited and the contractor has to plan and use the existing land considering the use of land by other Civil /mechanical/ electrical contractors and the storage of plant machineries and materials. The existing land shall be shared by all erections agencies. Land will be allocated with certain time frame and to the extent available/ considered necessary, and will be reviewed by BHEL depending upon the area availability. Area within plant premises for batching plant, office, storage area etc. for construction purpose shall be provided as per availability free of cost. The contractor will be responsible for handing back all lands, as handed over to him by BHEL.

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- 1.3.3.2. The contractor to construct labour colony / hutment as per his requirements after obtaining due approvals from statutory body at their own cost. The contractor shall provide adequate water arrangement for drinking / washing / bathing with required toilets, drainage system, lighting facilities etc. in labour colony at their own cost. Suitable paved area to be provided in the labour colony at their own cost.
- 1.3.4. ELECTRICITY:**
- 1.3.4.1. Construction power will be provided to the contractor at one single point within the plant area by BHEL on chargeable basis as per the the prevailing rates of TANGEDCO under LT tariff VI at the nearest substation.
- 1.3.4.2. The present LT tariff VI rate of TANGEDCO is
- Consumption charges at Rs.12.00 per unit
 - Fixed MD (Maximum demand) charges as applicable per month
 - Electricity Tax on total amount
- 1.3.4.3. The TANGEDCO tariff and tax may vary from time to time. The required digital Energy meter for measuring the consumption and MD shall be provided and installed by the contractor. Any dispute regarding consumption, the BHEL engineer's decision is final. The contractor shall make his own arrangement for further distribution (as required within plant boundary and outside plant boundary) with necessary isolator / LCB etc.
- 1.3.4.4. Necessary "Capacitor Banks" to improve the Power factor to a minimum of 0.9 shall be provided by the contractor at his cost. Penalty if any levied by customer on this account will be recovered from contractor's bills.
- 1.3.4.5. Any duty, deposit involved in getting the Electricity shall be borne by the contractor. As regards contractor's office shed also all such expenditure shall be borne by the contractor.
- 1.3.4.6. Provision for distribution of electrical power from the given single central common point to the required places with proper distribution boards, approved cables and cable laying including supply of all materials like cables, switch boards, pipes etc., observing the safety rules laid down by electrical authority of the State / BHEL / their customer with appropriate statutory requirements shall be the responsibility of the tenderer / contractor.
- 1.3.4.7. BHEL is not responsible for any loss or damage to the contractor's equipment as a result of variations in voltage / frequency or interruptions in power supply.
- 1.3.4.8. Contractor has to make their own arrangements for electricity requirement for labour colony at their cost.

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1.3.4.9. As there are bound to be interruptions in regular power supply, power cut/ load shedding in any construction sites, contractor should make his own arrangement for alternative source of power supply through deployment of adequate number of DG sets at their cost during the power breakdown / failure to get urgent and important work to go on without interruptions. No separate payment shall be made for this contingency.

1.3.5. WATER:

1.3.5.1. Construction Water required for construction purposes to be arranged by the contractor at his cost. The required pumps & accessories, pipes for drawing water from the given point and further distribution will be arranged by the contractor at their cost to go on without interruptions.

1.3.6. MATERIAL SUPPLY:

1.3.6.1. Supply / providing of all materials required (excluding BHEL supplied materials) for the work are in the scope of the contractor.

1.3.6.2. BHEL shall provide Cement, reinforcement steel for civil works only for incorporation in the permanent work as free supply. BHEL shall provide structural steel as specified in clause no. 1.2.3 Chapter II of Volume IA Part I.

1.3.6.3. Fine aggregate source shall be manufactured crushed stone or rock sand (M-sand), excluding fines which are by products/rejects of coarse aggregate production. The crushed stone sand shall be graded from fine to coarse with the coarse sizes predominating to give maximum density.

1.3.6.4. The amount of fine particles as ascertained by the laboratory sedimentation method shall not exceed 10% for crushed stone. The amount of material passing a 75 micron sieve (IS test sieve) shall not exceed the following limits:-

a) Crushed stone sand concrete subject to abrasion 1% by weight

b) All other concrete 3% by weight.

1.3.6.5. There shall be no clay or fine silt present. The amount of hollow shells like to form voids or remain partially unfilled and present in material retained on a IS 2.36 mm sieve, determined by direct visual separation, shall not exceed 3% by weight of the entire sample. Fine aggregate shall not contain appreciable amounts of flaky and/or elongated particles. The water absorption of fine aggregate, determined in accordance with BS 812 shall not exceed 2.0% by weight. Fine aggregate subjected to five cycles of the soundness test, specified in IS:2386 (Part-5), shall not show a loss exceeding 10% when sodium sulphate solution is used and 15% when magnesium sulphate solution is used, except where approved otherwise. Tests are to be executed in accordance with IS:2386. The grading of fine aggregate for concrete

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work shall comply with the requirements of IS:383. The grading of the aggregates should be such as to produce a concrete of the specified proportions which will work readily into position without segregation and without the use of an excessive water content. The grading should be controlled throughout the work so that it conforms closely to that used for the preliminary tests. A check on the moisture content of sand should be made at least once a day before concreting. The amount of water to be added to the concrete mix should be adjusted accordingly. Any washing, screening, classifying and other operations on the fine aggregate required to meet this specification shall be done by the Contractor. Washing is required if the content of salt adhering to the aggregate is found to be unacceptably high.

- 1.3.6.6. Regarding supply of cement, the cement shall be provided normally in bulkers and shall be unloaded in the silos (2 Nos minimum 100MT each per 30 Cum batching plant) to be installed by the bidder nearer to their batching plants. This is only minimum requirement and the number of cement silos shall be increased based on the site requirement. Carrying out design mix required for the scope of work providing all materials except cement is in the scope of bidder. Only cement for the design mix shall be provided by BHEL free of cost. On advance request of the bidder, the cement shall be supplied in Bags for other than RCC works like masonry, flooring works etc. Advance request for supply of cement in bags shall be minimum two months.
- 1.3.6.7. The reinforcement steel material will be issued from BHEL stores, within the plant premises. Collection and transporting to the place of work is in contractor's scope without any extra cost to BHEL. The steel will be issued to the agency in standard lengths. In some instances, for 8mm, 10mm & 12mm dia reinforcement steel will be supplied in coil form. No extra claims will be entertained against issue of Non-standard lengths of steel and de coiling of 8mm, 10mm & 12mm dia. steel.
- 1.3.6.8. If any matching sections of steel are not available with BHEL, contractor may arrange these sections on certification of BHEL and the landing cost of sections to site will be reimbursed based on the prevailing rate at SAIL at the time of procurement at the nearest SAIL outlet with the freight charges against supporting document.
- 1.3.6.9. Contractor to note that steel materials required for Embedment's, inserts, MS Grating, Galvanized Grating, GI Handrail, Stainless Steel Handrail, Stop Lock Gate, Stationery Screen, fasteners like MS/HT/HSFG bolts/nuts, lock nuts, washers and foundation bolts other than those supplied by BHEL, shall be supplied by the contractor.
- 1.3.6.10. However, contractor shall use the scrap materials available with BHEL or with the respective bidders, for their use in the permanent works as embedment/inserts etc. after necessary store issue formalities, if taken

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from BHEL and shall be accounted for monthly reconciliation, if it belongs to the bidder's scrap materials.

1.3.7. CONSUMABLE

1.3.7.1. All consumables, like gas, electrodes, chemicals, lubricants etc. required for the scope of work, shall be arranged by the contractor at his cost unless otherwise specifically mentioned in the contract.

1.3.7.2. In the event of failure of contractor to bring necessary and sufficient consumables, BHEL may arrange for the same at the risk and cost of the contractor. The entire cost towards this along-with overhead shall be paid by the contractor or deducted from the contractor's bills.

1.3.8. LIGHTING FACILITY:

1.3.8.1. Adequate lighting facilities such as flood lamps, hand lamps and area lighting shall be arranged by the contractor at the site of construction, and contractor's material storage area etc. at his cost.

1.3.9. CONTRACTOR'S OBLIGATION ON COMPLETION:

1.3.9.1. On completion of work, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and leveled and debris shall be removed as per instructions of BHEL by the contractor at his cost. In the event of his failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.

1.3.10. BLASTING

1.3.10.1. If required, at any stage of construction, blasting is to be carried out by the bidder, bidder should produce documentary evidence of valid blasting license for Tamil Nadu State (or) should produce documents for having tie-up with agency who is possessing valid blasting license for Tamil Nadu State.

1.3.11. DEWATERING

1.3.11.1. Contractor shall ensure at all times that his work area & approach/ access roads are free from accumulation of water, so that the materials are safe and the erection/ progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate payments for dewatering of subsoil, surface water or catchments water, if required, at any time during execution of the work including monsoon period shall be considered by BHEL.

1.3.12. BID DRAWINGS

1.3.12.1. Bid drawings enclosed are for information only and this may get revised during execution.

VOLUME-IA PART-I CHAPTER – IV

T&Ps TO BE DEPLOYED BY CONTRACTOR

- 1.4.1. All the tools and plants required for satisfactory completion of the work have to be arranged by the contractor.
- 1.4.2. The contractor is required to arrange the following tentative Major T&Ps and other T&Ps for the satisfactory completion of the work.

1.4.2.1.

Sr No	T&P items	Tentative Mobilizing time from the date of start of work
A.	Major T&P items	
A. 1	2 Nos. excavator equivalent to capacity of Poclain CK90	1 no. within 10 days, balance as per site requirement
A. 2	1 no. automatic concrete batching plant with printing facility (30 CUM/Hr) with DG backup. With minimum 2 Nos of silo (100MT each)	1 no. within 15 days.
A. 3	1 Nos Truck mounted concrete mixer cum pump along with placing boom minimum 36 m high (Concrete boom placer (36m))	1 No within 15 days
A. 4	1 No. Concrete Pump (Min. 30 CUM/hr capacity) N.B. – Concrete pump can be replaced by providing additional concrete boom placer of adequate capacity with prior approval of Engineer In-Charge.	1 No within 15 days
A. 5	2 nos. transit mixer (5/6 M3 capacity) including standby 1 no.	within 15 days. Balance as per site requirement.
B.	Other T&P items	
B. 1	Void	

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Sr No	T&P items	Tentative Mobilizing time from the date of start of work
B. 2	Void	
B. 3	Void	
B. 4	2 nos. self-priming dewatering pump 5 HP (diesel)	Within 10 days.
B. 5	Void	
B. 6	2 nos. reinforcement bending machine	within 15 days,
B. 7	2 nos. reinforcement cutting machine	within 15 days,
B. 8	MS scaffolding pipe	As per site requirement.
B. 9	2 nos. power driven earth rammer (Roller Type 1/2 T)	As per site requirement.
B. 10	2 nos. curing pump – 1.5 /2 HP (pump for curing at heights)	Within 5 days.
B. 11	1 no. vibro earth compactor or Vibromax or equivalent	As per site requirement.
B. 12	2 nos. Building Hoist	As per site requirement.
B. 13	Civil laboratory equipment's as per list given in indent input with temporary building one AC lab size 4.5mtrx6mtr and 1 non AC lab 4.5 mtrx4.5 mtr.	Within 20 days. *(Or tie up with any established lab within the site
B. 14	1 no total station with adequate arrangement for Surveyors.	within 15 days.
B. 15	1 no's auto level & staff + 2 no's as required	within 15 days.
B. 16	50 no's concrete cube moulds	within 20 days.

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Sr No	T&P items	Tentative Mobilizing time from the date of start of work
B. 17	Adequate no. of small trucks 2T/5T for shifting of reinforcement/cement/shuttering etc. within site	As per site requirement.
B. 18	2 nos. drinking water tank – 5000 lit.	As per site requirement.
B. 19	2 nos. mobile toilet blocks for labour use.	As per site requirement.
B. 20	1 nos. truck mounted 125 KVA DG set	1 no. within 30 days
B. 21	Construction power cable	As per site Requirement
B. 22	Construction water Pipeline	As per site Requirement
B. 23	Concrete vibrator with adequate needle (Minimum 10 nos diesel/power)	3 Nos (at least 1 nos. diesel driven) within 25 Days. Balance as per site requirement.
B. 24	Portable fire extinguishers as below: Soda acid – 1 sets. Dry chemical powder – 1 sets CO2 – 2 sets. Water & sand bucket (4 buckets in one stand) – 5 sets. Fire hose with nozzle (50 M length) – 5 sets.	25% within 10 days and balance progressively within 25 days.
B. 25	1 no. compression testing machine (200 T cap)	1 Nos. within 30 days or tie up with any established lab inside site premises

1.4.2.2. **Notes:**

1.4.2.2.1. T&P and the mobilization schedule shown in the above mentioned list is tentative requirement considering parallel working. However, Mobilization schedule and quantity/numbers of T&Ps, and period of deployment as mutually agreed at site for major T&Ps, have to be adhered to. Numbers/ time of requirement will be reviewed time to

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time at site and contractor will provide required T&P/ equipments to ensure completion of entire work within schedule/target date of completion without any additional financial implication to BHEL. Contractor will give advance intimation & certification regarding capacity etc. prior to dispatch of heavy equipment's. Also on completion of the respective activity, demobilization of T&P in total or in part can be done with the due approval of engineer in charge. Retaining of the T&P's during the contract period will be mutually agreed in line with construction requirement.

- 1.4.2.2.2. All T&P and all IMTEs, which are required for successful and timely execution of the work covered within the scope of this tender, shall be arranged and provided by the contractor at his own cost in working condition.
- 1.4.2.2.3. In the event of non-mobilization of any T&P by the successful bidder and as a result progress of work suffers, BHEL reserves the right to engage required T&P in line with clause no. 4.2.1.7 of Special Conditions of Contract (Volume IB of Volume I Book II).
- 1.4.2.2.4. In the event of need of change of type of any of major T&Ps, approval shall be taken from BHEL Engineer in-charge prior to mobilization. The decision of Number of T&P required due to replacing the enlisted T&P as per above table, shall be taken after analyzing the production capacity and suitability of both the T&Ps.
- 1.4.2.2.5. The age of the contractor deployed cranes upto 150 T should be within 15 years as on date of deployment. Contractor has to provide documentary proof for the age of the crane at the time of deployment to the BHEL Engineer.
- 1.4.2.2.6. Mobilization of concrete boom placer in place of concrete pump will be allowed based on site requirement of BHEL.
- 1.4.3. In addition to the above, any other tools and plants required for execution of the above work are in contractor's scope.
- 1.4.4. The Bidder shall establish and maintain a field laboratory on the site and this laboratory shall be available at all time for testing.
 - 1.4.4.1. The laboratory must have qualified technicians to carry out all tests and must be adequately equipped to ensure that all necessary testing work can be carried out in compliance with the standards.

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- 1.4.4.2. Field and laboratory testing procedures for materials follow Indian Standard Specifications with necessary equipment's like as given in table below:

A. CONCRETE TESTING EQUIPMENT

SI. No.	NAME OF TEST	NAME OF EQUIPMENT	SIZE OF EQUIPMENT	IS REF.
A. 1	Initial & final setting time, Consistency of cement	Vicat Apparatus with desk pot	Standard	IS 5513
A. 2	Shrinkage of cement, Auto Clave Test	Le Chatelier's apparatus Auto Clave Equipment	Standard	IS 5514
A. 3	Abrasion value test	Los Angeles Abrasion testing machine	Standard	IS 2386
A. 4	Aggregate Impact value test	Aggregate Impact value testing machine with blow counter	Standard	IS 9377
A. 5	Aggregate crushing value test	Crushing value apparatus	Standard	IS 2386
A. 6	Flakiness index	Thickness gauge for measuring flakiness index	Standard	IS 2386
A. 7	Elongation Index	Elongation gauge	Standard	IS 2386
A. 8	Bulk density, voids and bulking apparatus	Measuring cylinders	3, 5,10 & 15 liters cylinders	
A. 9	Workability of concrete	Slump cone	Standard, at least 04 no's	IS 456
A. 10	Specific gravity of aggregates	Pycnometer	Standard, at least 02 no's	IS 383
SI. No.	NAME OF TEST	NAME OF EQUIPMENT	SIZE OF EQUIPMENT	IS REF.

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A. 11	Cement mortar cube vibrating	Motorised vibration machine for cement testing	Standard	IS 4031
A. 12	Course aggregate Sieve analysis (Concrete & Road Works)	Sieve set	450mm dia GI Frames Size: 125 mm, 90 mm, 75 mm, 63 mm, 53 mm, 40 mm, 20 mm, 16 mm, 12.5 mm, 10 mm, 4.75 mm, Pan and cover	IS 383
A. 13	Fine aggregate sieve analysis	Sieve set	200 mm dia Brass sieves; Size 4.75 mm, 2.36 mm, 1.18 mm 600 micron, 300 micron, 150 micron, 75 micron, 75 micron, Pan and cover	IS 383
A. 14	Sieve Shaker	Motorized Sieve shaker	Mfg. Catalogue	
A. 15	Silt content check	Sand silt content beaker	Standard	

B. SOIL TESTING EQUIPMENT

Sl. No.	NAME OF TEST	NAME OF EQUIPMENT	SIZE OF EQUIPMENT	IS REF.
B. 1	Liquid limit test	Liquid limit apparatus	Standard	IS 2720
B. 2	Core Cutter test	core cutter apparatus	Rammer, 6 nos. of Std. core cutter mould, dolly	IS 2720
B. 3	Proctor density test	Std proctor Compaction apparatus	Standard	IS 2720

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Sl. No.	NAME OF TEST	NAME OF EQUIPMENT	SIZE OF EQUIPMENT	IS REF.
B. 4	Moisture Content	Rapid moisture meter	Standard, at least 04 nos.	IS 2720

- 1.4.5. Contractor shall have at all times experienced operators and technicians for routine and breakdown maintenance of the equipment. Any delay in rectification of defects will warrant BHEL rectifying the defect and charging the cost to the contractor.
- 1.4.6. The area and infrastructure development of the work area are to be carried out by the customer. However, in construction projects of this magnitude all the areas / approaches may not be ready. In such cases consolidation of ground and arrangement of sleepers / sand bag filling etc. for safe operation / movement of equipment including cranes / trailers etc. shall be the responsibility of the contractor at his cost. No compensation on this account shall be payable.
- 1.4.7. In case the contractor fails to provide any T&P which is in the scope of contractor and if BHEL provides such T&P or higher capacity T&Ps as available with BHEL, hire charges prevailing (as per BHEL norms) as on that day will be recovered from the contractor as per the prevailing BHEL Corporate Crane hire charges. Corresponding pages of Corporate Crane hire charges are enclosed in Chapter 5 of part II of Technical Conditions of Contract (Volume-IA Book-I). This may get revised further as per the BHEL corporate guidelines. However, prevailing rates as on date of execution may be applicable.
- 1.4.8. In case, cement is issued through bulkers being supplied from manufacturer /stockiest, the same shall be emptied in cement silos of batching plant and necessary assistance shall be provided by contractor without any additional financial implication to BHEL. Contractor to note that batching plant being established at site shall have cement silos of 100 MT capacities each as mentioned at Sl. No. A.2 in list of Major T&P items in clause 1.4.2.1 above.

VOLUME-IA PART-I CHAPTER - V
T&Ps TO BE DEPLOYED BY BHEL ON SHARING
BASIS

T&Ps provided by BHEL

- 1.5.1. BHEL will not provide any T & Ps for the tendered scope of work.

VOLUME-IA PART-I CHAPTER - VI

TIME SCHEDULE

1.6.1. TIME SCHEDULE

- 1.6.1.1. The entire work of Civil and Architectural works as detailed in the Tender Specification shall be completed within 6 (Six) months from the date of commencement of work at site
- 1.6.1.2. The date of commencement of work at site shall be mutually agreed date between contractor and BHEL Engineer In-Charge. The scope of work under this contract is deemed to be completed only when so certified by the site Engineer. The decision of BHEL in this regard shall be final and binding on the contractor.
- 1.6.1.3. During the total period of contract, the contractor has to carry out the activities in a phased manner as required by BHEL and the program of scheduled events including milestone events. The work fronts for construction will get released progressively during the course of execution at site. The required documents / drawings for construction will be progressively issued to the contractor during the course of execution at site.
- 1.6.1.4. The contractor is required to refer Form 15 Monthly Performance Evaluation of Contractors in Volume-ID Book-II, for all the instructions to be taken immediately after receipt of LOI. Please note that the Monthly Performance Evaluation of Contractor Form -15 in Vol 1D - Forms and Procedures Book II is revised and attached in Part-2, Chapter-8 which is applicable for this tender.

1.6.2. COMMENCEMENT OF CONTRACT PERIOD

- 1.6.2.1. The date of commencement of contract period shall be the date of commencement of work at site which shall be mutually agreed date between contractor and BHEL Engineer In-Charge. In case of discrepancy, the decision of BHEL Site Engineer is final.

1.6.3. MOBILISATION

- 1.6.3.1. The Contractor has to subsequently augment his resources in such a manner to achieve the COMPLETION SCHEDULES. The tentative schedule for Civil and Architectural works of the non-plant structures/buildings as detailed in this tender specification is given below:

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Sl.No	Area	Completion from the date of commencement of work
1	Completion of balance finishing works of Dispensary	Progressively by 4 th Month
2	Completion of balance finishing works of Canteen near fire station	Progressively by 5 th Month
3	construction of Quality Control Laboratory	Progressively by 6 th Month

Intermediate Milestones –

The intermediate milestones M1 and M2 are mentioned below:

<u>S No</u>	<u>Description</u>	<u>Completion month from the contractual date of start of the work</u>	<u>Intermediate Milestone</u>
1	Roof Slab of Quality Control Laboratory	4 th Month	M1
2	Completion of internal painting (1 Coat) and Flooring of Dispensary ,	5 th Month	M2

Penalty in case of slippage of Intermediate Milestones:

- 1.6.3.2. M1 and M2 shall be intermediate milestones for this work. In case delay in achieving M1 milestone the penalty shall be levied on the bidder. In case delay in achieving each M1 milestone is solely attributable to the contractor, 0.5% per week of executable contract value limited to maximum 2% of executable contract value will be withheld. In case delay in achieving each M2 milestone is solely attributable to the contractor, 0.5% per week of executable contract value** limited to maximum 3.0% of executable contract value will be withheld.
- 1.6.3.3. Amount already withheld, if any, against slippage of M1 milestone, shall be released only if there is no delay attributable to contractor in achievement of M2 milestone.
- 1.6.3.4. Amount required to be withheld on account of slippage of identified intermediate milestone shall be withheld out of respective milestone payment and balance amount shall be withheld at 10% of RA bill amount from subsequent RA bills.
- 1.6.3.5. Final deduction towards LD (if applicable) on account of delay attributable to contractor shall be based on final delay analysis on completion/ closure of contract as per GCC. Withheld amount, if any

TECHNICAL CONDITIONS OF CONTRACT (TCC)

- due to slippage of intermediate milestones shall be adjusted against LD or released as the case may be
- 1.6.3.6. In case of termination of contract due to any reason attributable to contractor before completion of work, the amount already withheld against slippage of intermediate milestones shall not be released and be converted into recovery. 1.6.12.6Note: **executable contract value - value of work for which inputs/ fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.
- 1.6.3.7. The above schedule is tentative. In case the project is to be advanced, the civil works in the scope of the contractor is to be advanced to meet the project requirement. No extra payment whatsoever shall be paid on this account.
- 1.6.3.8. The above schedule is for entire completion and handing over the structure/ Building to BHEL.
- 1.6.3.9. The foundations, pedestals, floors, etc, required for the mechanical equipment erection/ structural erection shall be handed over to BHEL progressively within the scheduled period given in the above table, as per the BHEL site requirement.
- 1.6.3.10. The left out minor finishing works shall also be completed and handed over to BHEL within the contract period.
- 1.6.3.11. The above time allowed for completion of work including Sundays and Holidays is from the date of commencement of work. Detailed program to be prepared by the bidder taking in to consideration of the COMPLETION SCHEDULES /site decision on drawings flow (latest) and submitted for BHEL's approval.
- 1.6.3.12. In order to meet above schedule in general, and any other intermediate targets set, to meet customer / project schedule requirements, contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL Engineer.
- 1.6.3.13. SUBMISSION OF L3 SCHEDULE**
The contractor shall submit a detailed area/structure wise L3 schedule within 15 days from date of issue of LOI, in consultation with BHEL based on the tentative schedule provided in clause 1.6.3.1. The detailed L3 schedule shall be approved by BHEL and same shall be implemented. Bidder shall submit L3 schedule in MS Projects to meet the agreed project schedule covering various milestone activities and their split up details such as construction, procurement of materials, execution activities. This schedule shall also clearly indicate the interface facilities/inputs to be provided by BHEL/Customer and the dates by which such facilities/inputs are required.

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The schedule shall be acceptable to BHEL for meeting their mile stone targets/schedule.

1.6.4. CONTRACT PERIOD

The contract period for completion of entire works as detailed in the tender specifications shall be 6 (Six) months from the “COMMENCEMENT OF CONTRACT PERIOD” as specified earlier.

1.6.5. GUARANTEE PERIOD

Guarantee period of 12 months shall commence from the date of completion of the whole of the work, as certified by BHEL Engineer.

VOLUME-IA PART-I CHAPTER - VII

TERMS OF PAYMENT

TERMS OF PAYMENT

- 1.7.1 **Secured Advance**
Not applicable
- 1.7.2 **Advance for Mobilization** : Not applicable
- 1.7.3 **Interim Payment**
- 1.7.3.1 Interim bills in the form of monthly running bills prepared by the contractor in soft as well as Hard copies shall be based on the quantities executed and measured.
- 1.7.3.2 95% item rate shall be released after completion of works certification by Engineer in charge.
- 1.7.3.3 5% of the item rate shall be released after submission of the quality check formats/documents as per the quality plan for the quantum of work billed and duly certified by engineer.
- 1.7.3.4 BHEL Site Engineer, at his discretion, may operate the part rate of the items in line with clause no. 2.23.1 (v) of General Conditions of Contract (Volume IC Book II).
- 1.7.4 **Royalty / Seigniorage Charges**
Royalty/seigniorage charges for excavation, inside/outside the plant boundary, as applicable as per Govt. of Tamil Nadu shall be payable by the contractor and proof of payment shall be submitted to BHEL.
- 1.7.5 **METHOD OF MEASUREMENT**
Mode of measurement shall be as per relevant clauses of technical specification of this tender. In case the same is not available the relevant IS 1200 in conjunction of IS code 3385 shall be adopted. In case the same is also not available, the standard procedure adopted in CPWD shall be adopted. In case the same is also not available in CPWD, the measurement of the work done will be based on the mutual agreement between BHEL and contractor. In all the above cases, the interpretation of BHEL will be final and binding to the contractor.

NOTES

NOTE 1: Please Refer Chapter 1 of Part II of Technical Conditions of Contract (Volume-IA Book-I) for Retention Amount, Performance Security Deposit.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

NOTE 2: No claim what so ever may be, will be entertained under this contract, after duly signing the final bill along with measurement books and accepted by BHEL.

NOTE 3: (**PVC & ORC – Not applicable to this contract**).

VOLUME -IA PART -I CHAPTER -VIII
TAXES AND OTHER DUTIES

1.8.1 Goods and service Tax (GST) & Cess

- 1.8.1.1 The successful bidder shall furnish proof of GST registration with GSTN Portal in the State in which the Project is being executed, covering the services under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by the successful bidder on BHEL for this project/ work.
- 1.8.1.2 Contractor's price/rates shall be exclusive of GST & Cess (if applicable) (herein after termed as GST). Contractor shall submit to BHEL the GST compliant tax invoice/debit note/revised tax invoice on the basis of which BHEL will claim the input tax credit in its return. Since this is a works contract, the applicable rate shall be @ 18% GST, as applicable presently.
- 1.8.1.3 Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules wherein the 'Bill To' details will as below:
BHEL GSTN - 33AAACB4146P2ZL
NAME - BHARAT HEAVY ELECTRICALS LIMITED
ADDRESS – BHEL PSSR SITE OFFICE,
2X660MW Udangudi Thermal Power Project
Kallamoli, Tiruchendur Taluk,
Tuticorin District., Tamilnadu-628203
India
- 1.8.1.4 GST charged in the tax invoice/debit note/revised tax invoice by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return.
- 1.8.1.5 In case BHEL has to incur any liability (like interest / penalty etc.) due to denial/reversal / delay of input tax credit in respect of the invoice submitted by the contractor, for the reasons attributable to the contractor, the same shall be recovered from the contractor.
- 1.8.1.6 Further, in case BHEL is deprived of the Input tax credit due to any reason attributable to contractor, the same shall not be paid or Recovered if already paid to the contractor.
- 1.8.1.7 Tax invoice/debit Note/revised tax invoice shall contain all such particulars as prescribed in GST law and comply to the timelines for issue of the same. Invoices shall be submitted on time to the concerned BHEL Engineer In Charge.
- 1.8.1.8 TDS under GST (if/ as & when applicable) shall be deducted at prevailing rates on gross invoice value from the running bills.

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1.8.1.9 E-way bills / Transit passes / Road Permits, if required for materials / T&P etc., bought into the project site is to be arranged by the Contractor only.

1.8.1.10 BHEL shall not reimburse any amounts towards any interest / penalty etc., incurred by contractor. Any additional claim at a later date due to issues such as wrong rates / wrong classification by contractor shall not be paid by BHEL.

1.8.2 All taxes and duty other than GST & Cess

1.8.2.1 The contractor shall pay all (except the specific exclusion viz GST & Cess) taxes, fees, license charges, deposits, duties, tools, royalty, commissions, Stamp Duties, or other charges / levies, which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract and the same shall not be reimbursed by BHEL. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.

1.8.3 Statutory Variations

1.8.3.1 Statutory variations are applicable under the GST Acts, against production of proof. The changes implemented by the Central / State Government during the tenure of the contract viz. increase / decrease in the rate of taxes, applicability, etc. and its impact on upward revision / downward revision are to be suitably paid/ adjusted from the date of respective variation. The bidder shall give the benefit of downward revision in favour of BHEL. No other variations shall be allowed during the tenure of the contract.

1.8.4 New Taxes/Levies

1.8.4.1 In case Government imposes any new levy / tax after submission of bid during the tenure of the contract, BHEL shall reimburse the same at actual on submission of documentary proof of payment subject to the satisfaction of BHEL that such new levy / tax is applicable to this contract.

1.8.5 Direct Tax

1.8.5.1 BHEL shall not be liable towards Income Tax of whatever nature including variations thereof arising out of this contract as well as tax liability of the bidder and their personnel. Deduction of tax at source at the prevailing rates shall be effected by BHEL before release of payment as a statutory obligation, unless exemption certificate is produced by the bidder. TDS certificate will be issued by BHEL as per the provisions of Income Tax Act.

VOLUME-IA PART-I CHAPTER IX

BILL OF QUANTITY

1.9.1 Bill Of Quantity (BOQ)

As mentioned in Part-C: Bill of Quantities in 'Price Bid' Volume-II of this tender.

1.9.2 Notes to BOQ

1. The quantity indicated in the BOQ in Part-C of Price bid Volume II of this tender is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
2. Bidders shall quote 'Total Amount' in the format for Price Bid available in the E-procurement portal.

Bidders may also quote 'Total Amount' in the format given in Part – B of Price Bid Volume II of this tender. (Optional)

Any other entry elsewhere in the price bid shall be treated as Null and Void.
3. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C in Price Bid, Volume II of this tender.
4. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C in Price Bid, Volume II of this tender.
5. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
6. Based on the quantities of individual item and the amount arrived in Sl. No: 5 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
7. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per Sl No.6 above.
8. The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). The derived item rates (as mentioned above) for individual items shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value is within the limit of Minus (-) 30% of awarded contract value.

VOLUME-IA PART-I CHAPTER-X
GENERAL

The scope of the work will comprise of but not limited to the following:

(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

- 1.10.1 Bidders are requested to furnish the following at PSSR-HQ
- i) Security Deposit and additional Security Deposit.
 - ii) Unqualified Acceptance for Detailed LOI / Work Order.
 - iii) Rs.100/- Stamp Paper for preparation of Contract Agreement.
 - iv) Option (whether a or b of said clause) exercised towards Performance Security Deposit for the subject contract as per Sl. No. 16 of Volume IA Part II Chapter 1 of TCC.
- 1.10.2 Bidders are requested to furnish the proof of documents for the following at the respective PSSR- Site
- i) PF Regn No.
 - ii) Labour License No.
 - iii) Workmen Insurance Policy No.
- 1.10.3 **In addition to the clause 2.8 of General Conditions of Contract (Volume-1C of Book-II) the contractor shall comply with the following.**
- 1.10.3.1 **BOCW Act & BOCW Welfare Cess Act**
- 1.10.3.1.1 The Contractor should Register their Establishment under BOCW Act 1996 read with rules 1998 by submitting Form I (Application for Registration of Establishment) and Form IV (Notice Of Commencement / Completion of Building other Construction Work) to the respective Labour Authorities i.e.,
- a) Assistant Labour Commissioner (Central) in respect of the project premises which is under the purview of Central Govt.-NTPC, NTPL etc.
 - b) Appropriate State authorities in respect of the project premises which is under the purview of State Govt.
- 1.10.3.1.2 The Contractor should comply with the provisions of BOCW Welfare Cess Act 1996 in respect of the work awarded to them by BHEL.
- 1.10.3.1.3 The contractor should ensure compliance regarding Registration of Building Workers as Beneficiaries, Hours of work, welfare measures and other conditions of service with particular reference to Safety and Health measures like Safety Officers, safety committee, issue of Personal protective equipments, canteen, rest room, drinking water, Toilets, ambulance, first aid centre etc.

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- 1.10.3.1.4 The contractor irrespective of their nature of work and manpower (Civil, Mechanical, Electrical works etc) should register their establishment under BOCW Act 1996 and comply with BOCW Welfare Cess Act 1996.
- 1.10.3.1.5 Contractor shall make remittance of the BOCW cess as per the Act **in consultation with BHEL** as per the rates in force (presently 1%). BHEL shall reimburse the same upon production of documentary evidence. However, BHEL shall not reimburse the Fee paid towards the registration of establishment, fees paid towards registration of Beneficiaries and Contributions of Beneficiaries remitted.
- 1.10.3.1.6 Non-compliance to provisions of the BOCW Act and BOCW Welfare Cess Act is not acceptable. In case of any non-compliance, BHEL reserves the right to withhold any sum it deems fit. Only upon total compliance to the BOCW Act and also discharge of total payment of Cess under the BOCW Cess Act by the Contractor, BHEL shall consider refund of the amounts.
- 1.10.3.2 **PROVIDENT FUND**
- 1.10.3.2.1 The contractor is required to extend the benefit of Provident Fund to the labour employed by you in connection with this contract as per the Employees Provident Fund and Miscellaneous Provisions Act 1952. For due implementation of the same, you are hereby required to get yourself registered with the Provident Fund authorities for the purpose of reconciliation of PF dues and furnish to us the code number allotted to you by the Provident Fund authorities within one month from the date of issue of the letter of intent. In case you are exempted from such remittance an attested copy of authority for such exemption is to be furnished. Please note that in the event of your failure to comply with the provisions of said Act, if recoveries therefore are enforced from payments due to us by the customer or paid to statutory authorities by us, such amount will be recovered from payments due to you.
- 1.10.3.2.2 The final bill amount would be released only on production of clearance certificate from PF / ESI and labour authorities as applicable.
- 1.10.3.3 **OTHER STATUTORY REQUIREMENTS**
- 1.10.3.3.1 The Contractor shall submit a copy of Labour License obtained from the Licensing Officer (Form VI) u/r25 read with u/s 12 of Contract Labour (R&A) Act 1970 & rules and Valid WC Insurance copy or ESI Code (if applicable) and PF code no. along with the first running bill.
- 1.10.3.3.2 The contractor shall submit monthly running bills along with the copies of monthly wages (of the preceding month) u/r78(1)(a)(1) of Contract Labour Rules, copies of monthly return of PF contribution with remittance Challans under Employees Provident Fund Act 1952 and copy of renewed WC Insurance policy or copies of monthly return of ESI

TECHNICAL CONDITIONS OF CONTRACT (TCC)

contribution with Challans under ESI Act 1948 (if applicable) in respect of the workmen engaged by them.

1.10.3.3.3 The Contractor should ensure compliance of Sec 21 of Contract Labour (R&A) Act 1970 regarding responsibility for payment of Wages. In case of “Non-compliance of Sec 21 or non-payment of wages” to the workmen before the expiry of wage period by the contractor, BHEL will reserve its right to pay the workmen under the orders of Appropriate authority at the risk and cost of the Contractor.

1.10.3.3.4 The Contractor shall submit copies of Final Settlement statement of disbursement of retrenchment benefits on retrenchment of each workmen under ID Act 1948, copies of Form 6-A (Annual Return of PF Contribution) along with copies of PF Contribution Card of each member under PF Act and copies of monthly return on ESI Contribution – Form 6 under ESI Act 1948 (if applicable) to BHEL along with the Final Bill.

1.10.3.3.5 In case of any dispute pending before the appropriate authority under ID Act 1948, WC Act 1923 or ESI Act 1948 and PF Act 1952, BHEL reserve the right to hold such amounts from the final bills of the Contractor which will be released on submission of proof of settlement of issues from the appropriate authority under the act.

1.10.3.3.6 In case of any dispute prolonged / pending before the authority for the reasons not attributable to the contractor, BHEL reserves the right to release the final bill of the contractor on submission of Indemnity bond by the contractor indemnifying BHEL against any claims that may arise at a later date without prejudice to the rights of BHEL.

1.10.3.3.7 **DEPLOYMENT OF SKILLED / SEMI-SKILLED TRADESMEN**

The following clause is applicable in case the contract value / contract price is Rs.Five crores and above.

The contractor shall, at all stages of work deploy skilled / semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute / Industrial Training Institute / National Institute of Construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed / certified by State / Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled / semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer-in-Charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written

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notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate of Rs. 100 per such tradesman per day. Decision of Engineer-in-Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.

1.10.3.4 ***Site Visit by the Bidder***

1.10.3.4.1 The bidder shall, prior to submitting his tender for the work, visit, examine and acquire full knowledge & information and necessary conditions prevailing at the site and its surroundings of the plant premises together with all statutory, obligatory, mandatory requirements of various authorities about the site of works at his own expense, and obtain and ascertain for himself on his own responsibility that may be for preparing his tender and entering into a contract, and take the same into account in the quoted contract price for the work.

1.10.3.4.2 The bidder shall satisfy themselves about the following factors:

- i) Site conditions including access to the site, existing and required roads and other means of transport/communication for use by him in connection with the work including diverting and re-routing of services.
- ii) Requirement and availability of land and other facilities of his enabling works, establishment of his nursery, office, stores etc.
- iii) Ground conditions including those bearing upon transportation, disposal, handling and storage of materials required for the work or obtained therefrom.
- iv) Source and extent of availability of suitable materials, including water etc., and labour (skilled and unskilled) required for work, and laws and regulations governing their use and employment.
- v) Geological, meteorological, topographical and other general features of the site and its surroundings as are pertaining to and needed for the performance of the work.
- vi) The limit and extent of surface and subsurface water to be encountered during the performance of the work, and the requirement of drainage and pumping.
- vii) The type of equipment and facilities needed, for and in the performance of the work;
- viii) The extent of lead and lift required for the work in complete form over the entire duration of the contract, and
- ix) All other information pertaining to and needed for the work including information as to the risks, contingencies and other circumstances which may influence or affect the work or the cost thereof under this contract.

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- 1.10.3.4.3 The bidder should note that information, if any, in regard to the local conditions, as contained in these tender documents, has been given to tenderer merely for guidance and is not warranted to be complete.
- 1.10.3.4.4 A bidder shall be deemed to have full knowledge of the site, whether he inspects it or not, and no extra charges consequent on any misunderstanding or otherwise shall be allowed.
- 1.10.3.4.5 The bidder and any of his personnel or agents will be granted permission by the Site-In-Charge or his authorized nominee, on receipt of formal application in respect thereof a week in advance of the proposed date of inspection of site, to enter upon his premises and lands for purpose of such inspection, but only on the express condition that the tenderer (and his personnel and agents) will relieve and indemnify the Employer (and his personnel and agents) from and against all liability in respect thereof and will be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused which, but for the exercise of such permission, would not have arisen.
- 1.10.3.5 Scope of work covered under this specification requires quality workmanship, engineering and green belt management along with the supply of all consumables, tools and tackles and testing instruments. The contractor shall ensure timely completion of work. The contractor shall have adequate tools, measuring instruments etc. in his possession. He shall also have adequate trained, qualified and experienced engineers, supervisory staff and skilled personnel. The manpower deployment identified by contractor shall match with above scope of works.
- 1.10.3.6 It is not the intent to specify herein all details of all material. Any item related this work not covered by this but necessary to complete the system will be deemed to have been included in the scope of the work.
- 1.10.3.7 All the necessary certificates and licenses required to carry out this scope of work are to be arranged by the contractor then and there at no extra cost.
- 1.10.3.8 Site testing wherever required shall be carried out for all items / materials installed by the contractor to ensure proper installation and functioning in accordance with drawings, specifications and manufacturer's recommendations.
- 1.10.3.9 The contractor shall carryout additional tests if any, which the Engineer feels necessary because of site conditions and also to meet system specification.
- 1.10.3.10 All the work shall be carried out as per instructions of BHEL engineer. BHEL engineer's decision regarding the correctness of the work and method of working shall be final and binding on the contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

- 1.10.3.11 Wherever work sequences are furnished by BHEL, the contractor shall follow the same sequence.
- 1.10.3.12 Contractor shall execute the supply and works as per sequence prescribed by BHEL at site engineer. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the methods of execution of similar job in any other site or for any reasons whatsoever.
- 1.10.3.13 If required by BHEL, the contractor shall change the sequence of his operation so that work on priority sectors can be completed within the projects schedule. The contractor shall afford maximum assistance to BHEL in this connection without causing delay to agreed completion date.
- 1.10.3.14 Contractor shall, transport all materials to site and unload at site / working area for inspection and checking. All material handling equipment required shall be arranged by the contractor.
- 1.10.3.15 Contractor shall retain all T&P / Testing instrument / Material handling equipments etc at site as per advice of BHEL engineer and same shall be taken out from site only after getting the clearances from engineer in charge.
- 1.10.3.16 The contractor at his cost shall arrange necessary security measures for adequate protection of his machinery, equipment, tools, materials etc. BHEL shall not be responsible for any loss or damage to the contractor's construction equipment and materials. The contractor may consult the Engineer-in-Charge on the arrangements made for general site security for protection of his machinery equipment tools etc.
- 1.10.3.17 The Contractor may have to execute work in such a place and condition where other agencies also will be under such circumstances. However completion time for work agreed will be subject to the condition that contractor's work is not hampered by the agencies.
- 1.10.3.18 Contractor has to work in close co-ordination with other work agency at site. BHEL engineer will co-ordinate area clearance. In a project of such magnitude, it is possible that the area clearance may be less / more at a particular given time. Activities and work program have to be planned in such a way that the milestones are achieved as per schedule/ plans. Contractor shall arrange & augment the resources accordingly.
- 1.10.3.19 The contractor must obtain the signature and permission of the security personnel of the customer for bringing any of their materials inside the site premises. Without the Entry Gate Pass these materials will not be allowed to be taken outside.
- 1.10.3.20 Contractor shall remove all scrap materials periodically generated from his working area and collect the same at one place earmarked for the

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same. Load of scraps is to be shifted to a place earmarked by BHEL. Failure to collect the scrap is likely to lead to accidents and as such BHEL reserves the right to collect and remove the scrap at contractor's risk and cost if there is any failure on the part of contractor in this respect.

- 1.10.3.21 The contractor shall ensure that his premises are always kept clean and tidy to the extent possible. Any untidiness noted on the part of the contractor shall be brought to the attention of the contractor's site representative who shall take immediate action to clean the surroundings to the satisfaction of the Engineer-in-Charge.
- 1.10.3.22 The contractor is strictly prohibited from using BHEL's regular components like angles, channels, beams, plates, pipe / tubes, and handrails etc for any temporary supporting or scaffolding works. Contractor shall arrange himself all such materials. In case of such misuse of BHEL materials, a sum as determined by BHEL engineer will be recovered from the contractor's bill. The decision of BHEL engineer is final and binding on the contractor.
- 1.10.3.23 No member of the already erected structure / buildings, other component and auxiliaries should be removed / modified without specific approval of BHEL engineer.
- 1.10.3.24 Contractors shall ensure that all their Staff / Employees are exposed to periodical training programme conducted by qualified agencies/ personnel on ISO 9001 – 2015 Standards.
- 1.10.3.25 The terminal points decided by BHEL are final and binding on the contractor for deciding the scope of work and effecting the payment for the work done up to the terminals.
- 1.10.3.26 Crane operators deployed by the contractor shall be tested by BHEL before he is allowed to operate the cranes.
- 1.10.3.27 On Completion of work, all the temporary buildings, structures, pipe lines, cable etc. shall be dismantled and leveled and debris shall be removed as per instruction of BHEL by the contractor at his cost. In the event of his failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.
- 1.10.3.28 It is the responsibility of the contractor to do the checking, testing etc. if necessary, repeatedly to satisfy BHEL Engineer with all the necessary tools and tackles, manpower etc. without any extra cost. The testing will be completed only when jointly certified so, by the BHEL Engineer.
- 1.10.3.29 If any item or equipment not covered but requires being executed, same shall be carried out by the contractor. Equivalent or proportional unit rate shall be considered wherever possible from the BOQ. The rates quoted

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by the contractor shall be uniform as far as possible for similar items appearing in rate schedule.

- 1.10.3.30 The contractor's work shall not hinder other work, either underground or over ground, such as electrical, phone lines, water or sewage lines, etc. In areas of overlap, the contractor shall work in coordination with other related contractors. Any damage by the landscape contractor's team to such utilities will be penalized and contractor shall be responsible for cost for such damages.

1.10.3.31 **SITE INSPECTION**

BHEL or his authorized agents may inspect various stages of work during the currency of the contract awarded to him. The contractor shall make necessary arrangements for such inspection and carry out the rectification pointed out by the owner / employer without any extra cost to the owner / employer. No cost whatsoever such duplication of inspection of work be entertained.

BHEL will have full power and authority to inspect the works at any time, either on the site or at the contractor's premises. The contractor shall arrange every facility and assistance to carry out such inspection. On no account will the contractor be allowed to proceed with work of any type unless such work has been inspected and entries are made in the site inspection register by BHEL.

Wherever the performance of work by the contractor is not satisfactory in respect of workmanship, deployment of sufficient labour or equipment, leading to delay in execution of work or any other matter, BHEL shall have the right to engage labour at normal ruling rates and get the work executed through other agency and debit the cost to the contractor and the contractor shall have no right to claim compensation thereof. In such a case, BHEL shall have the right to utilize the materials and tools brought by the contractors for the same work.

1.10.3.32 **DOCUMENTATION**

- 1.10.3.32.1 The following information shall be furnished by the bidder within two weeks of award of contract for purchaser's approval:

- a) Bar chart covering planned activities at site
- b) Detailed organization chart
- c) Details of T&P available with contractors with documents proofs.

- 1.10.3.32.2 The following information shall be furnished by the bidder after testing and inspection:

Test certificates of various tests conducted at site. All inspection and test certificates shall be signed by BHEL representative also.

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1.10.3.33 **RECORDS TO BE MAINTAINED AT SITE :**

- 1.10.3.33.1 Record of Quantity of FREE/Chargeable items issued by BHEL must be maintained during contract execution. Also reconciliation statement to be prepared at regular intervals.
- 1.10.3.33.2 The under mentioned Records/ Log-books/ Registers applicable to be maintained.
 - a) Hindrance Register.
 - b) Site Order Book.
 - c) Test Check of measurements.
 - d) Supply and Consumption Daily Register of Cement and Steel
 - e) Records of Test reports of Field tests.
 - f) Records of manufacture's test certificates.
 - g) Records of disposal of scraps generated during and after the work completion

VOLUME-IA PART-I CHAPTER-XI
PROGRESS OF WORK

The scope of the work will comprise of but not limited to the following:

(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

- 1.11.1 Refer revised forms F -14, F-15 as per corresponding chapters of Part II Volume IA Technical Conditions of Contract (Volume-I Book-II) and forms F-16 to F-18 of volume I D (Forms & Procedure) of Volume -I Book-II. Plan and review will be done as per these formats.
- 1.11.2 The progress reports shall indicate the progress achieved against plan, indicating reasons for delays, if any. The report shall also give remedial actions which the contractor intends to make good the slippage or lost time so that further works can proceed as per the original plan, the slippages do not accumulate and affect the overall programme.
- 1.11.3 It is the responsibility of the contractor to provide all relevant information on a regular basis regarding progress of work, labour availability, equipment deployment, testing, etc.
- 1.11.4 Contractor is required to draw mutually agreed monthly work programs in consultation with BHEL well in advance as per Form-14. Contractor shall ensure achievement of agreed program and shall also timely arrange additional resources considered necessary at no extra cost to BHEL.
- 1.11.5 Progress review meetings will be held at site during which actual progress during the week vis-a-vis scheduled program shall be discussed for actions to be taken for achieving targets. Contractor shall also present the program for subsequent week. The contractor shall constantly update / revise his work program to meet the overall requirement. All quality problems shall also be discussed during above review meetings. Necessary preventive and corrective action shall be discussed and decided upon in such review meetings and shall be implemented by the contractor in time bound manner so as to eliminate the cause of nonconformities.
- 1.11.6 The contractor shall submit daily, weekly and monthly progress reports, manpower reports, materials reports, consumables (gases / electrodes / ferules / lugs) report, T&Ps cranes availability report and other reports as per Performa considered necessary by the Engineer as per BHEL formats. The periodicity of the reports will be decided by BHEL Engineer at site.
- 1.11.7 The contractor shall submit weekly / fortnightly / monthly statement report regarding consumption of all consumables for cost analysis purposes.
- 1.11.8 The contractor shall submit a report of any damage, shortage, discrepancy etc., every week detailing in this regard.
- 1.11.9 The monthly report as a booklet shall be submitted at the end of every month and shall contain the following details :-

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- a. Progress photographs in colour.
 - b. Work progress in terms of percentage of work completion as relevant to the respective work areas against planned. Construction progress in terms of quantity, CUM, etc., completed as relevant to the respective work areas against planned.
 - c. Site Organization chart of engineers & supervisors as on the last day of the month with further mobilization plan.
 - d. Category- wise man hours engaged during the previous month under the categories of bar benders, carpenters, mason, fitters, welders, riggers, khalasis, grinder-men, gas-cutters, electricians, crane operators, store keepers, lab technicians helpers, security etc. Data shall be split up under the work areas.
 - e. Consumables report giving consumption of all types of gases and electrodes during the previous month, as applicable.
 - f. Availability report of cranes, T&Ps.
 - g. Safety implementation report in the format.
 - h. Status of updating details in SCMS package of BHEL, as applicable.
 - i. Pending drawings / materials and any other inputs required from BHEL for activities planned during the subsequent month.
- 1.11.10 The manpower reports shall clearly indicate the manpower deployed, category wise specifying also the activities in which they are engaged.
- 1.11.11 During the course of construction, if the progress is found unsatisfactory, or if the target dates fixed from time to time for every milestone are to be advanced, or in the opinion of BHEL, if it is found that the skilled workmen like fitters, operators, technicians etc employed are not sufficient BHEL will induct required additional workmen to improve the progress and recover all charges incurred on this account including all expenses together with BHEL overheads from contractor's bills.
- 1.11.12 It is the responsibility of the contractor to provide all relevant information on a regular basis regarding construction progress, labour availability, equipment deployment, testing, etc.
- 1.11.13 The contractor to reflect actual progress achieved during the month and will be submitted to BHEL, so that slippages can be observed and necessary action taken in order to ensure that the situation does not get out of control will update the construction schedule forming part of this contract each month.

VOLUME-IA PART-I CHAPTER-XII
MATERIAL HANDLING

- 1.12.1 Open land as available shall be provided by BHEL on free of cost basis. Contractor shall maintain one centralized fenced store cum bar bending yard. Hard surfacing of this yard and all round drain shall be carried out by the contractor at his own cost within the quoted rate. Batching plant area, shall be provided nearer plant premises and contractor shall make use of the area for installation and operation of the Batching Plant at his own cost. The bidder shall make complete arrangement of necessary security personnel, to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent work. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering.
- 1.12.2 The system for receipt, storage & issue of materials shall be available with vendors for easy traceability.
- 1.12.3 Periodic audit of system of purchasing, storing and issue, etc. will have to be carried out by the vendors. BHEL will also audit the same.
- 1.12.4 11.4 The contractor shall construct waterproof cement store (capacity 400MT) for initial period for storing and stacking of cement, CGI/ asbestos roofing (slope) with brick masonry wall, PCC flooring. Materials required for the same shall be provided by contractor at his own cost. Cement has to be kept over wooden raised platform. Stacking of cement is to be done as per IS codes with proper illumination and locking arrangements.
- 1.12.5 The contractor shall in no case be entitled for any compensation or damages on account of any delay in supply or non-supply thereof for all or any such material.
- 1.12.6 Clotting of cement and excessive rusting of steel must be avoided. In case, due to any cause attributable to the contractor, rusting of steel for BHEL issued steel occur rendering the same unusable, then such quantity of cement, steel shall be recovered from the interim payment at the penal rate specified in the tender.
- 1.12.7 The contractor shall maintain proper store account for all the BHEL issued materials and shall give three copies of once in two months computerized reconciliation statement of such account to the BHEL.
- 1.12.8 All TMT shall be stacked over sleeper's diameter wise.
- 1.12.9 All structural steel (issued for insert/ embedment) shall be stacked plate size wise and thickness wise beams, channels and angles shall be stacked separately on sleepers.

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- 1.12.10 Materials shall not under any circumstances taken out of the project site unless otherwise permitted by BHEL.

VOLUME-IA PART-I CHAPTER - XIII

ACCOUNTING OF MATERIAL ISSUE

ACCOUNTING OF MATERIALS ISSUE

The material issued to the contractor by BHEL will be accounted as follows:

1.13.1 CEMENT

1.13.1.1 ISSUE OF CEMENT

- 1.13.1.1.1 The cement issued by the BHEL shall be properly accounted (issue and reconciliation).
- 1.13.1.1.2 Cement as received from the manufacturer/ stockiest will be issued **free of cost** to the contractor. The cement shall be provided normally in bulkers and shall be unloaded in the silos (2 Nos cement silo of each of 100MT capacity per 30CUM/hr batching plant) to be installed by the bidder nearer to their batching plants. This is only minimum requirement and the number of cement silos shall be increased based on the site requirement. Unloading arrangements shall be provided by the bidder at his own cost.
- 1.13.1.1.3 Bidder is responsible for unloading the cement as soon as the arrival of cement, either in silo, if received in bulker or in the weather proof cement storage sheds, if received bags. Bagged cement shall be stored in a weatherproof sheds having dense impervious bituminous or concrete floors which shall be kept swept clean at all times. The storage arrangements shall be fully completed and approved by the owner before any cement is delivered to site. The construction of cement storage sheds as per the requirement of BHEL, unloading of cement bags, stacking properly in the storage sheds, removal of the sheds after the completion of the work is in the scope of bidder within the quoted price.
- 1.13.1.1.4 On advance request of the bidder, the cement shall be supplied in 50kg tamper proof sealed Bags for other than RCC works like masonry, flooring works etc. The theoretical weight of each bag of cement for issued purposes will be considered as 50 kg, the contractor shall be accountable for the cement issued to him on this notional weight only. No claim whatsoever will be entertained because of difference between theoretical and actual weight of the bags of cement. The empty cement bags duly accounted for against issue shall be the property of the contractor and the same shall be disposed by the contractor as per statutory regulation prevailing in the project.

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- 1.13.1.1.5 The contractor shall submit to the engineer, a statement indicating estimated quantity of cement required during a quarter, at least two months in advance of the quarter. In addition, the contractor shall also furnish the estimated requirement of cement during a month by the third week of the previous month indicating his requirement.
- 1.13.1.1.6 The contractor shall satisfy himself of the quality and quantity of supplied cement at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.
- 1.13.1.1.7 Bidder is responsible for unloading the cement as soon as the arrival of cement, either in silo, if received in bulk or in the weather proof cement storage sheds, if received bags. Bagged cement shall be stored in a weatherproof sheds having dense impervious bituminous or concrete floors which shall be kept swept clean at all times. The storage arrangements shall be fully completed and approved by the owner before any cement is delivered to site. The construction of cement storage sheds as per the requirement of BHEL, unloading of cement bags, stacking properly in the storage sheds, removal of the sheds after the completion of the work is in the scope of bidder. Though the cement is unloaded directly at the contractor storage shed, it will be deemed to be considered that the cement was issued from BHEL stores. Necessary documents are to be submitted by the contractor to BHEL stores for having received cement.
- 1.13.1.1.8 Bidder is responsible for sampling and testing of cement as per Indian Standard/Specification/approved quality plan in the testing laboratory established by the bidder.
- 1.13.1.1.9 Bidder is responsible for carrying out design mix as per IS 456/10262 Latest revision and specification, using the cement provided by BHEL and submit the design mix proportions for the approval of BHEL/TANGEDCO. The design/trial mix shall be carried out time to time on change of brand/type of cement supplied by BHEL and suitable adjustments on the quantity of ingredients (sand, aggregates, admixture) of the concrete to get the required workability and durability, shall be the responsibility of the bidder without any extra cost to BHEL.
- 1.13.1.1.10 Following shall be limit for the maximum quantity of BHEL issue materials that would be with the contractor at any point of time when

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work is in progress (excluding what has already been incorporated in the works).

SLNO	ISSUE OF MATERIALS	MAX. QTY IN CONTRACTOR'S STORE
1.	Cement	Requirement of one month

1.13.1.2 RETURN OF CEMENT

1.13.1.2.1 Sealed cement bags remaining unused and in perfectly good condition at the time of completion or termination of the contract shall be returned promptly, (within 15 days from assessment) if BHEL/ Engineer is satisfied of the physical condition of the cement. Return of such cement to the project stores/ place as identified within the project area by Engineer/ BHEL will not be entitled to handling and incidental charges. Surplus sealed and good conditioned cement bags will be taken back on weightment basis.

1.13.1.2.2 Cement unloaded in the silos shall be returned on weightment basis, only when the cement is unloaded in the silo 30days before.

1.13.1.2.3 Sweep cement will not be taken back by BHEL

1.13.1.3 CEMENT CONSUMPTION AND WASTAGE

The theoretical consumption of cement shall be based on the following.

- For design mix concrete as per approved design mix.
- For nominal mix concrete work, as per minimum cement as specified or as approved by Engineer-in-charge.

For item of works, where volume mix is permitted in writing by the BHEL, for masonry works, plaster other miscellaneous items, the cement consumption shall be governed by the "Statement of Cement Consumption" attached to the Delhi schedule of Rates of CPWD-DSR-LATEST REVISION unless otherwise specified in the specifications or the drawing of contract or mutually agreed by Engineer-in-charge and contractor.

Actual consumption = Issue – Surplus/ unused quantity of cement returned in good condition by contractor to store.
(No sweep cement will be taken back by BHEL).

1.13.1.4 CEMENT WASTAGE

Allowable wastage: One and half percent (+1.5%) of theoretical consumption of cement unless specified otherwise in the technical specification.

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1.13.1.5 BASIS OF ISSUE AND RECOVERY

For any material issued by BHEL to the contractor free of cost, and which is not accounted by the contractor to BHEL, then recovery for such material shall be effected at penal rates.

SI No	Cement consumption	Basis of issue & penal recovery
C-1	Theoretical consumption (without considering any wastage or loss).	Free
C-2	Actual consumption being Limited to one and half percent (+1.5%) of aforesaid theoretical consumption towards allowable wastage.	Free
C-3	Actual consumption beyond one and half percent (+1.5%) of above (C-1).	Penal rate

1.13.2 STEEL

1.13.2.1 ISSUE OF STEEL

1.13.2.1.1 The steel shall be issued to the contractor, free of cost, on the following basis:

Sl. No.	Description	Basis
(a)	Reinforcement Steel and Earthing Rod (MS Round)	Weighment basis (Unit – MT)
(b)	Structural Steel (as specified in clause 1.2.3)	Weighment basis (Unit – MT)

1.13.2.1.2 All the steel (structural (if any), reinforcement, earthing MS rod,) issued by the BHEL shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved Bar Bending schedule, fabrication drawings, approved laps, chairs and lugs. The measurement for payment as well as for accounting (issue, return of materials and reconciliation) shall be based on the sectional weights as indicated in the following IS specifications. No rolling tolerance shall be accepted in any case for issue, return of materials, reconciliation and payment purposes.

IS: 808-1964 Beams, Channels and Angles
IS: 1730-1961 Plates, Sheets and Strips/Flats

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IS: 1732-1971 Rounds including deformed high yield strength bars

In case any such sectional weights are not available in the above documents, the manufacturer recommendation shall be binding.

- 1.13.2.1.3 The steel issued to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project stores. No claims for extra payment because of issue of non-standard length will be entertained.
- 1.13.2.1.4 The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.
- 1.13.2.1.5 The contractor shall submit to the engineer, a statement indicating estimated quantity of steel required during a quarter, at least two months in advance of the quarter. In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month indicating his requirement.
- 1.13.2.1.6 Following shall be limit for the maximum quantity of BHEL issue materials that would be with the contractor at any point of time when work is in progress (excluding what has already been incorporated in the works).

Sl. No.	Issue of Materials	Max. quantity in contractor's store
(a)	Reinforcement Steel and Earthing Rod MS Round	Requirement of one month
(b)	Structural Steel (as specified in clause 1.2.3)	Requirement of one month

- 1.13.2.1.7 Bidders to ensure that no lamination materials are taken over by them from BHEL. Fabrication wastage, if any due to above, shall not be compensated by BHEL.
- 1.13.2.1.8 Bidder to note that steel materials required for washers and foundation bolts, embedded items other than those supplied by BHEL, etc. shall be supplied by the bidder. However, Bidder shall use the scrap materials for their use in the permanent works as embedment/inserts

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etc. after necessary store issue formalities and shall be accounted for monthly reconciliation.

1.13.2.2 **RETURN OF STEEL MATERIALS**

- a) All surplus steel and all wastage materials will be taken back on weighment basis.
- b) Surplus, unused and untampered steel shall be sorted section-wise and returned separately for a place directed by BHEL/Engineer within the project area. Return of such materials will not be entitled to any handling and incidental charges.
- c) All wastage / scrap (including melting scrap, wastage, un usable scrap) shall be promptly returned to the stores and a receipt obtained for material accounting purposes. Return of such material will not be entitled to any transportation and incidental charge.

1.13.2.2.1 **SCRAP & SERVICEABLE MATERIALS:**

- a) All Structural steel of length above 2 M except M.S. Plate shall be considered as serviceable materials provided the materials is in good and acceptable condition. Structural steel in length less than 2 M shall be treated as scrap.
- b) MS Plates having both sides greater than 1 Metre OR if any side is less than 1 M but greater than 0.5 M and the total area is equal or greater than 2 Sq. Metre shall be considered as serviceable.
- c) All pipes measuring 2 metre and above in length shall be treated as serviceable materials provided they are in good and acceptable condition. Pipe in less than 2 metre length shall be treated as scrap.
- d) All TMT measuring 3 metre and above in length shall be treated as serviceable materials provided they are in good and acceptable condition. TMT in less than 3 metre length shall be treated as scrap.

1.13.2.3 **STEEL CONSUMPTION AND WASTAGE**

1.13.2.3.1 **REINFORCEMENT AND EARTHING ROD MS ROUND STEEL CONSUMPTION AND WASTAGE.**

a) **CONSUMPTION.**

The theoretical consumption of various sections and/or diameter of reinforcement and earthing rod steel shall be based on approved construction drawing and bar bending schedule. Weight shall be calculated considering the sectional weights as per Indian standards. No extra cost shall be payable to the contractor for any deviation in

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weights for the different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

Actual consumption = Issue – Surplus.

Surplus = UN tampered & unused quantity of steel and serviceable materials as stipulated under clause “Scrap and Serviceable Materials (Refer Clause 1.13.2.2.1 above)” returned by the contractor to BHEL store along with relevant documents.

Wastage = Actual consumption – Theoretical consumption.

b) **WASTAGE**

ALLOWABLE WASTAGE: - (+3%) of the theoretical consumption shall be considered as allowable wastage. Invisible wastage (max limit to 0.5%), if any, shall be considered to be included in the specified +3 % allowable wastage.

c) **BASIS OF ISSUE & RECOVERY**

SI No	REINFORCEMENT STEEL & EARTHING ROD MS ROUND	BASIS OF ISSUE & PENAL RECOVERY
R-1	Theoretical consumption (without considering wastage and scrap or loss).	Free
R-2	Wastage limited to plus THREE percent (+3%) of aforesaid theoretical consumption (R-1) towards allowable wastage (cut pieces plus scrap to be returned to BHEL).	Free
R-3	Wastage beyond THREE percent (+3%) of the theoretical consumption above (R-1).	Penal rate

1.13.2.3.2 **STRUCTURAL STEEL, (ROLLED SECTION, PLATES ETC.) CONSUMPTION & WASTAGE(As specified in clause 1.2.3)**

a) **CONSUMPTION: -**

The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard. No extra payment shall be payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

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Actual consumption = Issue – Surplus.

Surplus = UN tampered & unused quantity of steel and serviceable materials as stipulated under clause “Scrap and Serviceable Materials (Refer Clause 1.13.2.2.1 above)” returned by the contractor to BHEL store along with relevant documents.

Wastage = Actual consumption – Theoretical consumption.

b) **WASTAGE**

Allowable wastage: - +4% (FOUR percent) of the theoretical consumption shall be considered. Wastage shall be considered as cut pieces and scrap material, measured as per actual weightment basis. Invisible wastage (max limit to 0.5%), if any, shall be considered to be included in the specified +4 % allowable wastage.

c) **BASIS OF ISSUE & RECOVERY**

SI No	CONSUMPTION OF STRUCTURAL STEEL (Rolled Section, Plates & SS liner)	BASIS OF ISSUE & PENAL RECOVERY
S-1	Theoretical consumption (without considering any wastage and scrap or loss) as per spec. & drg.	Free
S-2	Wastage limited to plus FOUR percent (+4%) of the aforesaid theoretical consumption (S-1) towards allowable wastage.	Free
S-3	Wastage beyond FOUR percent (+4%) of the aforesaid theoretical consumption (S-1).	Penal rate

1.13.2.3.3 **RECONCILIATION OF MATERIALS**

- The contractor shall submit a reconciliation statement of steel issued to him with each RA Bill.
- At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material are available with contractor's custody at site.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

- c) At the time of submission of bills by the contractor, if it is noticed by BHEL that the wastage is high and calls recovery at the penal rate, then, BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified.
- d) The reference drawings for actual material consumption to be used for the purpose of reconciliation shall be drawings prepared by the BHEL and drawings approved by BHEL for fabrication works and such other drawings approved by BHEL. This shall also include the bar bending schedule prepared by the contractor and approve by BHEL.

1.13.3 RECOVERY OF MATERIAL

If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly R/A Bill at the Penal Rate.

PENAL RATE OF MATERIALS

A	REINFORCEMENT STEEL Cold rolled steel, high strength, deformed bar or mild steel round bars including earthing rod MS round	Rs. 59,085/- per MT Plus GST and / or other taxes & duties
B	STRUCTURAL STEEL MS plates, MS flats, rolled steel joists, channels, and angles, MS pipes, Chequered Plates, etc in sizes and lengths as available	Rs. 70,123/- per MT Plus GST and / or other taxes & duties
C	CEMENT (OPC/ PPC/PSC)	Rs. 4,741/- per MT Plus GST and / or other taxes & duties

VOLUME-IA PART – II CHAPTER 1
CORRECTIONS / REVISIONS IN SPECIAL CONDITIONS OF
CONTRACT, GENERAL CONDITIONS OF CONTRACT AND
FORMS & PROCEDURES

Sl.no:1

Following Clauses are Modified / Revised / Added in GCC as below:

Sl no.	GCC Clause No.	GCC clause Modified / Revised / Added
I.	1.9.1, Sl. No. (ii)	The following mode of deposit, Sl. No. (e) is added: e) Insurance Surety Bonds
II.	1.10.3, Sl. No. (vi)	The following Clause, Sl. No. (vi) is deleted: Security deposit can also be recovered at the rate of 10% of the gross amount progressively from each of the running bills of the contractor till the total amount of the required security deposit is collected. However, in such cases at least 50% of the required Security Deposit, including the EMD, should be deposited in any form as prescribed before start of the work and the balance 50% may be recovered from the running bills as described above
III.	1.10.3, Sl.No.(vii)	The following mode of deposit, Sl. No. (vii) is added: e) Insurance Surety Bonds
IV.	Note mentioned under the GCC Clause 1.10.3	Note mentioned under GCC Clause 1.10.3 is revised as below: Note: (1) BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith. (2) In case of delay in submission of security deposit, enhanced security deposit which would include interest (Repo rate +4%) for the delayed period, shall be submitted by the bidder.
V.	1.10.8	GCC Clause 1.10.8 is revised as below: Bidder agrees to submit security deposit required for execution of the contract within the time period mentioned. In case of delay in submission of security deposit, enhanced security deposit which would include interest (Repo rate+4%) for the delayed period, shall be submitted by the bidder. Further, if security deposit is not submitted till such time the first bill becomes due, the amount of security deposit due shall be recovered as per terms defined in NIT / contract, from the bills along with due interest
VI.	2.13.6	GCC Clause 2.13.6 is revised as: The rate of interest applicable for the above advances shall be the repo rate prevailing on the date of release of advance plus 4%, and such rate will remain fixed till the total advance amount is recovered

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VII.	2.22.1	<p>GCC Clause 2.22.1 is revised as:</p> <p>Retention Amount shall be 5% of the Contract Value and shall be furnished through BG in line with clause 1.12 of GCC before payment of first RA Bill. The validity of the said BG shall be initially for the contract period & shall be extended, if so required, up to acceptance of final bill. In case of increase in contract value, additional BG for 5% of differential amount shall be submitted by Contractor before payment of next RA Bill due. Retention Amount can also be recovered at the rate of 10% of the gross amount progressively from each of the running bills of the contractor till the total amount of the required retention amount is collected.</p> <p>In case, contractor opts cash deduction from RA bills in the beginning & subsequently offers to submit BG later on, then refund of deducted retention amount may be permitted against submission of BG for 5% of the Contract Value.</p>
VIII.	<p>New Clause is added and replace the existing clause of Risk & Cost (i.e. 2.7.2.1 to 2.7.3)</p>	<p>Clause 2.7.2 and 2.7.3 are revised as:</p> <p>2.7.2 Breach of Contract, Remedies and Termination</p> <p>2.7.2.1 BHEL shall terminate the contract after due notice of a period of 14 days in any of the following cases, which if not rectified/ improved within the time period mentioned in the notice, then, Breach of Contract will be considered to have been established:</p> <ul style="list-style-type: none"> i). Contractor's poor progress of the work vis- -vis execution timeline as stipulated in the Contract, backlog attributable to contractor including unexecuted portion of work does not appear to be executable within balance available period considering its performance of execution. ii). Withdrawal from or abandonment of the work by contractor before completion of the work as per contract. iii). Non-completion of work by the Contractor within scheduled completion period as per Contract or as extended from time to time, for the reasons attributable to the contractor. iv). Repeated failure of contractor in deploying the required resources, to comply the statutory requirements etc. even after given by BHEL is writing. v). Strike or Lockout declared is not settled within a period of one month. vi). Termination of Contract on account of any other reason (s) attributable to Contractor. vii). Assignment, transfer, subletting of Contract without BHEL's written permission. viii). Non-compliance to any contractual condition or any other default attributable to Contractor. <p><u>2.7.2.2 Remedies in case of Breach of Contract is established</u></p> <p>In case Breach of Contract is established, Security Deposit and Retention Amount shall be encashed/ forfeited. This is without prejudice to BHEL's right to levy of liquidated damages, debarment etc. which shall be applied as per the provisions of the contract. Sequence of recovery to be made in case of breach of contract is established, is as below:</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

		<p>a) In case the value of Security Deposit & Retention Amount, available for the Contract, is less than 10% of the Contract Value, the balance amount shall be recovered from dues available in the form of Bills payable to contractor, BGs against the same contract etc.</p> <p>b) Demand notice for deposit of balance recovery amount shall be sent to contractor, if funds are insufficient to effect complete recovery against dues indicated in (a) above.</p> <p>c) If contractor fails to deposit the balance amount to be recovered within the period as prescribed in demand notice, following action shall be taken for balance recovery:</p> <p>i) Dues payable to contractor against other contracts in the same Region shall be considered for recovery.</p> <p>ii) If recovery cannot be made out of dues payable to the contractor as above, balance amount to be recovered, shall be informed to other Regions/Units for making recovery from the Unpaid Bills/Running Bills/SD/BGs/Final Bills of contractor.</p> <p>iii) In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against contractor.</p> <p>Note:</p> <p>1) In addition to above, levy of liquidated damages, debarment, termination, short-closure etc. shall be applied as per provisions of the contract.</p> <p>2) If tendering is done for the balance work, the defaulted contractor (including all the members/partners in case of JV/ partnership firm) shall not be eligible for either executing the balance work or to participate in the tender(s) for executing the balance work.</p> <p>2.7.3 In case Contractor fails to deploy the resources as per requirement informed by BHEL in writing to expedite the work, BHEL can deploy own/hired/otherwise arranged resources and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC.</p>
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TECHNICAL CONDITIONS OF CONTRACT (TCC)

IX.	2.7.7	<p>GCC Clause 2.7.7 is revised as: BHEL may permit or direct contractor to demobilize and remobilize at a future date as intimated by BHEL in case of following situations for reasons other than Force majeure conditions and not attributable to contractor:</p> <ul style="list-style-type: none"> i) suspension of work(s) at a Project either by BHEL or Customer, or ii) where work comes to a complete halt or reaches a stage wherein worthwhile works cannot be executed and there is no possibility of commencement of work for a period of not less than three months <p>In such cases, charges towards demobilization and remobilization shall be as decided by BHEL after successful remobilization by contractor at site, and decision of BHEL shall be final and binding on the contractor. After remobilization, all conditions as per contract shall become applicable. In case Contractor does not remobilize with adequate resources or does not start the work within the period as intimated, then BHEL reserves the right to terminate the contract and effect remedies under Clause 2.7.2.2. Duration of the contract/time extension shall be revised suitably. In case of any conflict, BHEL decision in this regard shall be final and binding on the contractor.</p>
X.	2.11.3	<p>GCC Clause 2.11.3 is revised as: However, if any Time extension is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take under clause 2.7.2 of GCC i.e. Breach of Contract, Remedies and Termination .</p>
XI.	2.19.1	<p>GCC Clause 2.19.1 is revised as: The contractor will be fully responsible for all disputes and other issues connected with his labour. In the event of the contractor s labour resorting to strike or the Contractor resorting to lockout and if the strike or lockout declared is not settled within a period of one month, it may be considered as Breach of Contract under Clause 2.7 and the remedies under Clause 2.7.2.2 may be executed, at the discretion of BHEL.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Sl. No.: 02

In addition to The EARNEST MONEY DEPOSIT (EMD) clause 1.9 and The SECURITY DEPOSIT (SD) clause 1.10 published in General Conditions of Contract (Volume I Book II) following is added for FDR

1. FDR should be Lien marked in favour of M/s BHEL.
2. Bank issuing FDR should agree to the following conditions and submit duly signed letter addressed to BHEL, confirming the following points:
 - a) There is no Lock in Period for Encashment of the Said FDR
 - b) The amount under the Said FDR would be paid to BHEL-PSSR on Demand, at any point of Time before, or upon Maturity, without any reference to the (Contractor Name).
 - c) Encashment whether premature or otherwise would not require any clearance from any other authority /Person.
 - d) FDR will be auto renewed for such period/s initially mentioned in the FDR and the intimation of Such renewal shall be sent to BHEL, PSSR and (Contractor), immediately after the renewal.
 - e) FDR will not be closed, Encashed, Changed or Discharged without the Written permission/Confirmation from M/s BHEL PSSR.
 - f) Bank to acknowledge and agree that the Lien created on the FDR shall be in Force until M/s BHEL PSSR, gives a Discharge Letter in this regard.

Sl. No.: 03

Detailed Instruction for EMD / Security deposits through SBI e-collect:

Step 1: Vendors may visit SBI collect website, the URL of which is <https://www.onlinesbi.sbi/sbicollect> where they get the home page with various categories of institutions.

Step 2: Select PSU - Public Sector Undertakings – leading to a page with list of PSUs

Step 3: Type BHEL and search, they get to see all BHEL divisions wherein they shall select BHEL PSSR Chennai. The screen shot of the same is given below.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Payment Progress

Select Payee → Enter Payment Details → Verify Payment Details → Complete Payment → Print Receipt

Select Payee

Category: PSU-Public Sector Undertaking

BHEL

Filter by State: --Select--

Name of PSU-Public Sector Undertaking	State
BHEL BAP RANIPET	Tamil Nadu
BHEL PSSR CHENNAI	Tamil Nadu

Showing 1 to 2 of 2 entries (filtered from 113 total entries)

Back

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Step 4: Select EMD receipts. Having selected the Payee in the Payment Progress, it will lead to the payment details – a drop down list of values. From that list, vendors shall select EMD receipts. Upon clicking the entry EMD receipts, a form will open asking for the remitters details and the details of the tender.

Step 5: Confirm details and pay

Fill in all the details correctly, verify the details, and complete the payment as it is leading to the payment gateway.

Step 6: Take a printout on completing the payment and enclose the copy of the same along with the bid submission. Store the copy of receipt for future reference.

SI No: 4:

OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT MANAGEMENT/QUALITY ASSURANCE PROGRAMME

The following clauses in Occupational Health, Safety & Environment Management / Quality Assurance Programme published in Chapter-IX of Special Conditions of Contract (Volume I Book-II) is revised as under.

Chapter IX Clause 9.1 is modified as below:

Contractor will comply with HSE (Health, Safety & Environment) requirements of BHEL as per the “HSE Plan for Site Operations by Subcontractor” (Document No. HSEP: 14 Rev00) enclosed.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter IX Clause 9.1.1 to 9.1.25 stands deleted.

Chapter IX Clause 9.2 to 9.62 stands deleted.

SI No: 5:

Clause No. 10.5 on RA Bill Payments, in Special Conditions of Contract (SCC), Volume-IB, Book-II, is revised as under:

The payment for running bills will normally be released within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc., and other dues in the meanwhile.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

VOLUME-IA PART-II CHAPTERS 2-11

Chapters 2-4 in the next 1371 pages is as follows:

2	Technical Specifications & Drawings	Chapter 2	1102
3	Hire Charges on issue of Tools & Plants	Chapter 4	12
4	"HSE Plan for Site Operations by Subcontractor" (Document No. HSEP: 14 Rev 02)	Chapter 5	131