



VOLUME - IA TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)

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TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-I Project Information

1.0 Project Information (3.0 MTPA Integrated steel plant of NMDC Limited at Nagarnar, Chattishgarh)			
1	Customer	:	Bharat Heavy Electricals Limited, HPEP, R.C. Puram, Hyderabad - 502032
2	Project Title	:	Civil, structural & Architectural works, site storage & area development facilities, etc. for Turbo-blower station for 3.0 MTPA Integrated steel plant of NMDC Limited at Nagarnar, Chattishgarh
3	Location	:	3.0 MTPA Integrated steel plant of NMDC Limited at Nagarnar, Jagdalpur, Chattishgarh
4	Address Detail	:	3.0 MTPA Integrated steel plant Project of NMDC Limited, Nagarnar, Jagdalpur, Chattishgarh
5	Nearest Railway Station	:	Jagdalpur Railway Station
6	Road Approach	:	Jagdalpur is well connected by road with the Raipur , Hyderabad , Visakhapatnam and Vizianagaram .
7	Nearest Air Port	:	Raipur Airport and Visakhapatnam Airport
11	Ambient Air Temperature (Average)	:	a) Maximum : 32 ^o C b) Minimum : 19 ^o C
12	Average Relative Humidity	:	42-86 %
13	Climatic Condition	:	Tropical Savanna Climate

Bidder is advised to visit the project site and appraise himself about the local conditions and infrastructure available in the area for fulfilling their commitments under the contract. BHEL will not admit any claims whatsoever on account of Contractor's non-familiarization of local conditions.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II Scope of Works

2.0 SCOPE OF WORK

This section list major scope of work for Civil, structural & Architectural works, site storage & area development facilities, etc. for Turbo-blower station for 3.0 MTPA Integrated steel plant of NMDC Limited at Nagarnar, Jagdalpur, Chattishgarh to be carried out by contractor, but not limited to following for safe, speedy completion of this package.

Detailed scope of works to be performed are as under:

2.1 Civil, structural & Architectural works, for Turbo-blower station :

2.1.1 The work to be performed under the scope of this tender mainly consists of but not limited to complete Civil and structural work and their maintenance for specified period of the following structural equipment foundations and other miscellaneous structures.

2.1.2 **Construction of foundations for the following Equipment.**

- a) Steam Turbine with Turbo Blower & its auxiliaries- 3Nos.
- b) Air inlet filter for blowers and other miscellaneous skids - 3 Nos.
- c) Miscellaneous other equipments as per Mechanical, Electrical & Instrumentation scope.

2.1.3 **Construction of foundation & super structure for the following item**

- a) Blowers and vent silencers supporting structure
- b) Pipe racks
- c) Platforms

2.1.4 **Construction of Misc. Structures & Services:-**

- a) Concrete Paving in operational areas
- b) Structural platforms, monorail beams, walkways, crossovers, handrails etc. for miscellaneous equipments, piping etc.
- c) Final grading of site upto +/- 500mm.

2.1.5 THE WORK WILL INVOLVE.

All civil, structural and architectural works connected with the above mentioned structures such as earth work, concrete work, brick work, steel work, embedment, plastering and painting, wooden and metal doors,

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Chapter-II Scope of Works

windows and partitions, waterproofing, flooring, plumbing, road work, drainage, grouting etc.

2.1.6 CIVIL AND ARCHITECTURAL WORKS

The scope covers all Civil and Architectural within the battery limits. The important works covered are as below.:

- 2.1.6.1) Excavation of earth and backfilling including dewatering of excavations for foundations, trenches, tunnels pits, etc. till the construction of the same is completed and disposal of surplus.
- 2.1.6.2) Construction of RCC footing/raft/pile caps with pedestals, foundation footing for lightly loaded structures, trenches, tunnels, sumps, grade beams, tie beams at foundation level, grade slabs, floor slabs and roof slabs, equipment foundations etc.
- 2.1.6.3) Complete civil and architectural works such as brick work, plastering, painting, all types of floor/roof finishes, all types joinery etc.
- 2.1.6.4) Preparation and submission of detailed calculations, arrangement drawings and detail drawings of formwork, staging and scaffolding for all reinforced
- 2.1.6.5) concrete structures and foundations as directed by the Engineer for his checking and approval.
- 2.1.6.6) Preparation of detailed working drawings and bar bending schedules for all reinforced concrete work and getting them approved by the BHEL Engineer.
- 2.1.6.7) Taking deliver from BHEL stores, fabrication and fixing structural steelwork for cable trench covers, plates etc.
- 2.1.6.8) Fabrication supply and fixing of anchor bolts, sleeves, fixing frames, embedment etc. in concrete.
- 2.1.6.9) Supply of all instruments and personnel for conducting necessary tests at site as specified/as directed by the Engineer.
- 2.1.6.10) Making appropriate fabrication drawing as per agreed schedule before starting fabrication work for any structural GA drawing.
- 2.1.6.11) Taking delivery from BHEL stores fabrication and erection of structural steel work including all interfacing works and miscellaneous works, supply of steel will be made by BHEL. The nature of work shall include columns, beams, splicing of steel works as needed, bracings, sheeting runners, sag rods, ties struts,

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Chapter-II Scope of Works

walkways , galleries, stairs, ladders, hand railing , floor gratings, chequered plate work ,M.S pipes, equipment supporting platform, and all other structures required for the successful completion of the project.

2.1.7 STRUCTURAL WORKS

The work involve:

- 2.1.7.1) Taking delivery from BHEL stores fabrication and erection of structural steel work including all interfacing work and miscellaneous work. Supply of steel will be made by BHEL. The nature of work shall include columns, beams, splicing of steel works as needed, bracings, purling, sheeting runners, sag rods, ties, struts walkways, galleries, stairs, ladders, handrails, floor gratings, chequered plate work , M.S, pipes, equipment supporting platforms and all other structures required for successful completion of project.
- 2.1.7.2) Taking delivery of M.S pipes from BHEL stores, fabrication and erection of handrail as per drawing and specifications.
- 2.1.7.3) Supply and fixing of floor gratings as per Specifications.
- 2.1.7.4) Supply of high tensile bolts, mild steel bolts, nuts, plain/taper and spring washers, all electrodes required for shop and field work.
- 2.1.7.5) Shop and final painting as per Technical Specification after properly cleaning the steel surfaces.
- 2.1.7.6) Grouting under stanchion bases.

2.2 Site storage & area development facilities:

- a) Design, manufacture, supply, erection (at a place to be specified by the BHEL engineer), final fitup , touchup, painting (and other associated works) of Removable/Re- Erectable Pre - Engineered, Pre-Fabricated Steel Closed Storage Shed of size 30m (Length)X 15 m (width) X 5.25 m(height), one number at 3.0 MMPTA steel plant at NMDC .
- b) Design, manufacture, supply, erection (at a place to be specified by the BHEL engineer), final fitup , touchup, painting (and other associated works) of Removable/Re- Erectable Pre - Engineered, Pre-Fabricated Steel Closed Storage Shed of size 15m (Length)X 15 m (width) X 5.25 m(height) for cement godown, one number at 3.0 MMPTA steel plant at NMDC .

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Chapter-II Scope of Works

- c) Site development, viz. leveling, grading, storm water drain, development of open storage yard with 200mm thick hard granular murum, base/foundation preparation for installation of Porta cabins, barbed wire fencing with gates of site and storage areas, laying of water distribution network, laying of sewerage lines, soak pit, installation of water storage tanks, etc. for the site office area allotted to BHEL. Illumination of the site office area and open storage yard, Electrical distribution & other light fittings. Provision of Pantry, toilet & meeting area in the extended portion of the Pre-fab shed referred in 2.0(a) above (approximate size 15m.(L) x 6.0m.(W) x 3.0m.(Ht.).
- d) Supply of 2nos Portable cabins each of size 20ft. x 10ft. x 8ft. with furniture & other fittings on hiring basis for a period of 24 months. These porta cabins shall be used as BHEL site office & bidder shall take back the cabins after 24 months. Details of porta cabins are given in Part-II, chapter III of TCC.

2.3 GENERAL

2.3.1 The drawings enclosed with this tender are intended to give the tenderer a general idea of the type and extent of work involved. The drawings are as such only indicative and not to be considered as the exact construction drawings.

Further the drawings and the documents furnished along with this specification are the sole property of B.H.E.L. It must not be used directly or indirectly in any way detrimental to the interest of the company.

2.3.2 The scope of work will also include such other related works although they may not be specifically mentioned in the above paragraph and all such incidental items not specified but reasonably imply and necessary for completion of the job as a whole all as desired and as directed by the engineer.

2.3.3 The detail scope of work covered above is not a comprehensive list of items of work involved. The detail scope of work may vary considerably depending on the actual construction requirements.

2.4 ALSO INCLUDED IN THE SCOPE

Unless otherwise specified, the work to be provided by the contractor for the items mentioned in the "Schedule of items", shall include but not be limited to the following.

2.4.1 Furnishing all labour, materials, supervision, construction plans, equipment, supplies, transport, to and from the site, fuel, electricity, compressed air, water, transit and storage insurance and all other incidental items and temporary works not shown on specified but reasonably implied or necessary for the proper completion,

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Chapter-II Scope of Works

maintenance and handing over the works, except in accordance with the stipulations laid down in the contract documents and additional stipulations as may be provide by the engineer during the course of works.

- 2.4.2 Furnishing samples of all materials required by the engineers for testing/inspection and approval for use in the works. The samples may be retained by the engineer for final incorporation in the works.
- 2.4.3 Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the engineer.
- 2.4.4 Giving all notices, paying all fees, taxes etc., in accordance with the general conditions of contract, that are required for all works including temporary works.
- 2.4.5 Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
- 2.4.6 Carrying out topographic survey of the entire and establish levels and coordinates at suitable intervals from existing grid levels and coordinates furnished by the owner established bench marks, setting out the locations and levels of proposed structures, constructions and marking of reference pillars and other identification works etc., The contractor shall provide the owner/BHEL such a assistance, instruments,machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.
- 2.4.7 Providing all incidental items not shown or specified but reasonably implied or necessary for the successful completion of the work in accordance with contract.

2.5 WORK BY OTHERS

No work under the specification will be provided by any agency other than the contractor unless specifically mentioned elsewhere in the contract.

FOR FURTHER DETAILED SCOPE OF WORKS REFER RELEVANT TECHNICAL SPECIFICATIONS PROVIDED IN THE SUBSEQUENT CHAPTERS IN THE TCC

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Chapter – III: Facilities in the scope of Contractor/BHEL

S. No.	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.1	PART I			
3.1	ESTABLISHMENT			
3.1.1	FOR CONSTRUCTION PURPOSE:			
a	Open space for office (as per availability)	Yes		Location will be finalized after joint survey with customer
b	Open space for storage (as per availability)	Yes		Location will be finalized after joint survey with customer
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipments, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc		Yes	
f	Fire fighting equipments like buckets, extinguishers etc		Yes	
g	Fencing of storage area, office, canteen etc of the bidder		Yes	
3.1.2	FOR LIVING PURPOSES OF THE BIDDER			
a	Open space for labour colony (as per availability)	Yes*		Can be provided as per availability on chargeable basis
b	Labour Colony with internal roads, sanitation, complying with statutory requirements		Yes	
3.2.0	ELECTRICITY			
3.2.1	Electricity For construction purposes of Voltage 415, 3-Phase four wire AC Power	Yes		
a	Single point source	Yes		At a distance of approx. 2000 M from site (Distance is only estimated, it may vary up to an extent depending on site condition)

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Chapter – III: Facilities in the scope of Contractor/BHEL

S. No.	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.2	Electricity for the office, stores, canteen etc. of the bidder			
a	Single point source		Yes	BHEL will supply power at one point as per 3.2.1a above. Bidder to make further distribution
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc			Not applicable
a	Single point source			
b	Further distribution including all materials, Energy Meter, Protection devices and its service			
c	Duties and deposits including statutory clearances if applicable			
3.3.0	WATER SUPPLY			
3.3.1	For construction purposes			
a	Making the water available at single point	Yes		At a distance of approx. 1000 M from site (Distance is only estimated, it may vary up to an extent depending on site condition)
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.2	<u>Water supply for bidder's office, stores, canteen etc</u>			
a	Making the water available at single point		Yes	

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Chapter – III: Facilities in the scope of Contractor/BHEL

S. No.	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.3	<u>Water supply for Living Purpose</u>			Not applicable
a	Making the water available at single point			
b	Further distribution as per the requirement of work including supply of materials and execution			
3.4.0	LIGHTING			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3 At the construction site /area		Yes	
c	Providing the necessary consumables like bulbs, switches, etc during the course of project work		Yes	
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	
3.5.0	COMMUNICATION FACILITIES FOR SITE OPERATIONS OF THE BIDDER			
a	Téléphone, fax, internet, intranet, e-mail etc.		Yes	
3.6.0	COMPRESSED AIR wherever required for the work		Yes	
3.7.0	Demobilization of all the above facilities		Yes	
3.8.0	TRANSPORTATION			
a	For site personnel of the bidder		Yes	
b	For bidder's equipments and consumables (T&P, Consumables etc)		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III: Facilities in the scope of Contractor/BHEL

Sl. No	Description PART II 3.9.0 CONSTRUCTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.9.1	Engineering works for construction:			
a	Providing the construction drawings for all the works covered under this scope	Yes		
b	Drawings for construction methods	Yes		
c	As-built drawings – where ever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes		YES	In consultation with BHEL
d	Shipping lists etc for reference and planning the activities	Yes		In consultation with BHEL
e	Preparation of construction (Concreting B/W, etc.) schedules and other input requirements		Yes	In consultation with BHEL
f	Review of performance and revision of site construction schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly construction schedules based on S. No. e. hard copy to Construction manager, by email to HO.		Yes	In consultation with BHEL
h	Daily construction / work plan based on S. No. g. hard copy to Construction manager, by email to HO.		Yes	In consultation with BHEL
i	Periodic visit of 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	
j	Arranging the materials required for Work		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III: Facilities in the scope of Contractor/BHEL

Sl. No	Description PART II 3.9.0 CONSTRUCTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
k	Coordination for inspection & checking and getting clearance from customer		Yes	
l	Preparation of formats for completion of activities		Yes	

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Chapter – IV: T&Ps to be deployed by Contractor

4.0 LIST OF TOOLS AND PLANT:

The following tools and equipment but not limited to, are required for the efficient execution of the civil works. The contractor shall make them available for construction purposes, including all consumables likely to be used at his own cost at the time of mobilization.

S.No.	Description	Minimum Quantity	Remarks
1.	Concrete Batching Plant	1 no.	Need Based
2.	Concrete Mixer 0.25 to 0.40 cum with hopper	2 nos.	
3.	Needle Vibrator (Needle type 40mm)	4 nos.	
4.	Needle Vibrator (Needle type 25mm)	2 nos.	
5.	Surface Vibrator	1 no.	
6.	Concrete Pump	1 no.	
7.	Dewatering Pump	2 nos.	
8.	Earth Compactor	2 nos.	Need based
9.	Reinforcement steel cutting & Bending machine	2 nos.	
10.	Welding Machine	2 nos.	
11.	Grinding Machine	4 nos.	
12.	Excavator	1 no.	Need based
13.	Theodolite with staff	1 no.	
14.	Dumpy level with staff	1 no.	
15.	Compression testing machine (for concrete cubes)		
16.	Cube mould (15cm.x15cm.x15cm.)	6 nos.	
17.	Sieve analysis sieve sets for coarse & fine aggregates	1 set	
18.	Jar/Beaker for Bulk density test of sand	1 no.	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: T&Ps to be deployed by BHEL on sharing basis

5.0 BHEL will not provide any tool, plants or any testing facility/apparatus for the work. It will be contractor's responsibility to arrange all required tools, plants and other testing apparatus, etc. at their own cost. The prices quoted & finalized are inclusive of the charges towards providing such T&P. No extra payment will be entertained on account of this.

However, subject to availability, BHEL may provide few T&P to the contractor for expediting and in larger interest of the project. In case any such facility is provided to the contractor, BHEL will make necessary recovery in the running account/final bills towards the hire charges. A departmental charge @ 5% will also be affected such cases. The decision of BHEL on the hire charges will be final and binding on contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VI: Time Schedule

6.1 TIME SCHEDULE

6.1.1

The entire work of civil construction as detailed elsewhere in the Tender Specification shall be completed within 9 months from the date of commencement of work at site and another 3 months for testing, handing over, closing of site and demobilization. Total contract period shall be 12 months from the date of commencement of work at site.

6.1.2 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 milestone events.

6.1.3

The construction work shall be commenced on the mutually agreed date between the bidder and BHEL engineer and shall be deemed as completed in all respect only when the unit is in operation. The decision of BHEL in this regard shall be final and binding on the contractor. The scope of work under this contract is deemed to be completed only when so certified by the site Engineer.

6.2 COMMENCEMENT OF CONTRACT PERIOD

The date of commencement of contract period shall be the mutually agreed date between the bidder and BHEL engineer to start the work. In case of discrepancy the decision of BHEL engineer will be final.

6.3 MOBILISATION FOR ERECTION, TESTING, ASSISTANCE FOR COMMISSIONING ETC.,

6.3.1

The activities for Excavation, Concreting, Architectural, structural & other civil construction works, etc. shall be started as per directions of Construction manager of BHEL.

6.3.2

The contractor has to augment his resources in such a manner that following major milestones of the project are achieved on specified schedules:

TENTATIVE SCHEDULE

Activity	Tentative schedule	
	Start Month	End Month
Mobilization for Site Establishment	April'15	April'14
Turbo Blower Foundation	April'15	Oct'15
Pipe Rack foundation	April'15	Aug'15
Pipe Rack steel structure	May'15	Nov'15
Local platforms, foundation and supports	May'15	Nov'15
Handing Over	Dec.'15	Jan.'15

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VI: Time Schedule

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.

6.2 CONTRACT PERIOD

For the purpose of contract, the period shall be taken as total 12(Twelve months)(9 months for construction works + 3 months for testing, handing over & demobilization) . Completion of the work shall be as per BHEL Bar Charts revised from time to time. In order to expedite the work, the contractor may have to deploy manpower on two-shift basis.

6.3 GUARANTEE PERIOD

The guarantee period of twelve months shall commence from the date of completion of all works as certified by the BHEL site engineer

TECHNICAL CONDITIONS OF CONTRACT (TCC) Chapter-VII: Payment Terms

The progressive payment for the work on accepted price of contract value will be released on the basis of running account bills & other bills as per the provisions of relevant clauses of GCC and SCC.

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Chapter-VIII: Taxes, Duties & Levies

8.0 TAXES, DUTIES, LEVIES

8.1. For All types of works

8.1.1

The contractor shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tools, royalty, commissions or other charges which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract. 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.

However, provisions regarding Service Tax and Value Added Tax (VAT) on output services and goods shall be as per following clauses.

Service Tax & Cess on Service Tax

Contractor's price/rates shall be exclusive of Service Tax and Cess on Services. In case, it becomes mandatory for the contractor under provisions of relevant act/law to collect the Service Tax & Cess from BHEL and pay the same to the concerned tax authorities, such applicable amount will be paid by BHEL at the prevailing Service Tax Rate (presently 12.36 %) on the admitted bill value.

Contractor shall submit to BHEL documentary evidence of Service Tax registration certificate specifying name of services covered under this contract. Contractor shall submit serially numbered Service Tax and Cess Invoice, signed by him or a person authorized by him in respect of taxable service provided, and shall contain the following, namely,
The name, address and the registration number of the contractor,
The name and address of the party receiving taxable service,
Description, classification and value of taxable service provided and,
The service tax payable thereon.

All the Four conditions shall be fulfilled in the invoice before release of service tax payment.

The contractor to submit proof of payment of service tax before submission of final bill.

Wherever, more than one route/option are available for discharge of service tax liability under a particular service, (e.g. "works contract Service"), contractor shall obtain prior written consent from BHEL site before billing the amount towards Service Tax.

In case, BHEL is forced to pay any Service Tax liability on behalf of contractor, the same will be recovered from contractor's bill or otherwise as deemed fit.

VAT (Sales Tax /WCT)

As regards Value Added Tax (VAT)/CST on transfer of property in goods involved in Works Contract (previously known as Works Contract Tax) applicable as per local laws, the price quoted by the contractor shall be inclusive of the same and in no case input or output VAT/CST will be reimbursed extra.

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Chapter-VIII: Taxes, Duties & Levies

In any case the Contractor shall register himself with the respective Sales Tax authorities of the state and submit proof of such registration to BHEL along with the first RA bill. Contractor will submit all the details of VAT/CST paid for the contract in the prescribed format of the respective state VAT laws. Also, the contractor will issue the tax Invoices to BHEL as per the Tax laws of respective state on monthly basis. Contractor shall also be required to furnish to BHEL necessary proof of VAT remittance on monthly basis.

Deduction of tax at source shall be made as per the provisions of law and is to be construed as an advance tax paid by the contractor and no reimbursement thereof will be made.

Further, if BHEL, at the instance of customer or otherwise adopts the specific route for discharging output VAT liability itself, benefit of the reduction in liability of the contractor will be passed on to BHEL.

In case, BHEL is forced to pay any VAT liability on behalf of contractor, the same will be recovered from contractor's bill or otherwise as deemed fit.

8.2 New Taxes/Levies

In case the Government imposes any new levy/tax on the output service/ goods/work after award of the contract, the same shall be reimbursed by BHEL at actual.

In case any new tax/levy/duty etc. becomes applicable after the date of Bidder's offer, the Bidder/Contractor must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of Price Bid. Claim for any such impact after opening the Price Bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

No reimbursement/recovery on account of increase/reduction in the rate of taxes, levies, duties etc. on input goods/services/work shall be made. Such impact shall be taken care of by the Price Variation/Adjustment Clause (PVC) if any. In case PVC is not applicable for the contract, Bidder has to make his own assessment of the impact of future variation if any, in rates of taxes/duties/ levies etc. in his price bid.

8.3 BUILDING & OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1996 (BOCW Act) AND RULES OF 1998 READ WITH BUILDING & OTHER CONSTRUCTION WORKERS CESS Act, 1996 & CESS RULES, 1998 and INTER-STATE MIGRANT WORKMEN ACT, 1979 (IN CASE BIDDER ENGAGE MANPOWER FROM OTHER STATE)

In case any portion of work involves execution through building or construction workers and/or inter-state migrant workmen, then compliance to the above titled Acts as applicable shall be ensured by the contractor and contractor shall obtain license and deposit the cess under the Act. In the circumstances it may be ensured as under:-

It shall be the sole responsibility of the contractor in the capacity of employer to forthwith (within a period of 15 days from the award of work) apply for a license to the Competent

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes, Duties & Levies

Authority under the BOCW Act and/or ISMW Act as applicable and obtain proper certificate thereof by specifying the scope of its work. It shall also be responsibility of the contractor to furnish a copy of such certificate of license / permission to BHEL within a period of one month from the date of award of contract.

It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under these acts and rules including that of payment / deposit of cess as per the applicability under above referred Acts within a period of one month from the receipt of payment.

It shall be the responsibility of the sub-contractor to furnish the receipts / challans towards deposit of the cess together with the number, name and other details of beneficiaries (building/Inter-state Migrant workmen) engaged by the sub-contractor during the preceding month.

It shall be the absolute responsibility of the sub-contractor to make payment of all statutory payments & compensations to its workers including that is provided under the Workmen's Compensation Act, 1923.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-I General

1.1

The work covered under this specification is of highly sophisticated nature, requiring the best quality of workmanship for construction, engineering and construction management. The Bidder should ensure timely completion of work. The Bidder must have adequate quantity of tools, construction aids, equipment's etc., in his possession. He must also have on his rolls adequate, trained, qualified and experienced supervisory staff and skilled personnel.

1.2

The work shall be executed under the usual conditions affecting industrial construction and in conjunction with numerous other operations at site. The Bidder and his personnel shall cooperate with the personnel of other agencies, co-ordinate his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.

1.3

All the work shall be carried out as per the 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 Bidder.

1.4

The Bidder shall at his cost perform any services, tests etc, although not specified but nevertheless required for the completion of work.

1.5

Contractor shall execute the work as per sequence prescribed by BHEL at site. The sequence of activities, methodology will be decided by the BHEL engineers depending upon the availability of material, drawings, work fronts etc. No claims for extra payment from the Contractor will be entertained on the grounds of deviation from the methods and sequence of construction advised and agreed by BHEL engineer or for any reasons whatsoever.

1.6

All the necessary certificates and licenses required to carry out this work are to be arranged by the Contractor expeditiously at his cost.

1.7

The work to be carried out under the scope of these specifications covers the complete work of collection from stores/storage yard(inside the factory), handling, transporting, unloading at construction site, temporary storage at site in open/closed stores of free issue of materials (cement, reinforcement & structural steel), temporary storing of contractor's own construction material, using the same in the work, carrying out all other activities, viz. survey, excavation, concreting, backfilling, and all the other activities as defined in the scope of work enumerated in chapter-2, Part-I of TCC document, Bill of Quantities and elsewhere till handing over of the entire work. The work shall conform to dimensions and tolerances specified in the various drawings, documents etc. That will be provided during the course of installation. If any portion of the work is found to be defective in workmanship or not conforming to drawings or other specifications, the Contractor shall dismantle and re-do the work duly replacing the defective materials at his cost failing which the work will be got done by BHEL at the cost and risk of the contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-I General

1.8

The terminal points as decided by BHEL shall be final and binding on the Contractor.

1.9

During the course of execution of this work, certain rework/ modification/ rectification/ repairs/ fabrication/dismantling/reconcreting etc. will be necessary on account of feedback from various other units completed earlier and also on account of design discrepancies and manufacturing defects and site operation/maintenance requirements. Contractor shall carryout such rework/ modification/rectification/fabrication/repairs etc., promptly and expeditiously. Claims of contractor, if any, for such works will be dealt as per relevant clauses of General Conditions of Contract.

1.10

Daily log sheets indicating the details of work carried out, man-hours, consumables used etc, shall be maintained by the Contractor and got signed by BHEL engineer every day.

1.11

All tools and tackles, fixtures, equipment, materials, manpower, supervisors/ engineers, consumables etc. required for this scope of work shall be provided by the Contractor. All expenditure including taxes and incidentals in this connection will have to be borne by him unless otherwise specified in the relevant clause.

1.12

The contractor shall make adequate security arrangements including employment of security personnel and ensure protection from theft, fire, pilferage, damage and loss of materials/equipments issued to him for the work. Special care will have to be taken to guard against pilferage / theft of cement, steel and/or other materials.

1.13

Contractor shall ensure proper housekeeping and remove all scrap materials periodically from various work area covered in the scope and deposit the same at the place earmarked for this purpose. In case of contractor's failure to do the same, BHEL reserves the right to remove scrap at contractor's cost and risk.

1.14

Access to site for inspection by BHEL and customer engineers shall be made available by the contractor at all times.

1.15

As Built Drawings : Contractor shall be supplied with two extra copies of the layout & detailed drawings. Contractor to incorporate in one of the copy with Red ink all the changes / deviations / alterations etc carried out at site due to various reasons, with site engineer's endorsement. Marked up drawings shall be submitted to BHEL for approval.

1.16

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-I General

Site Inspection : The owner / employer 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.

1.17

Field Quality Assurance Plan: The contractor will be required to submit Field Quality Plan, after listing all the important activities and plan to check the input material & works. The same will be reviewed and approved by BHEL/customer. The contractor will be required to carry out the work in accordance to the approved Quality Plan. It is the responsibility of the contractor to collect and fill up the relevant concrete pour card/FQA Log sheets and present the same to BHEL after carrying out the necessary checks as per the log sheets and obtaining the signature of BHEL / Customer in token of their acceptance. Monthly Running Bill Payment to the contractor will be linked with the submission of these Log sheets.

1.18

Methods and quantity/lot for testing prescribed in BHEL/IS/CPWD/DSR/Customer contract must be adhered to (i.e. quantity of building material, viz. cement, reinforcement & structural steel, coarse & fine aggregate, water to be tested, etc.). The field quality plan to be submitted by the contractor as referred above must contain the mandatory test requirements for input materials mentioned above.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Civil and Architectural Works

2.0 SCOPE

The work will involve all civil, structural and architectural works connected with the above mentioned structures such as earth work, concrete work, brick work, steel work, embedment, plastering and painting, wooden and metal doors, windows and partitions, waterproofing, flooring, plumbing, road work, drainage, grouting, laying of RCC pipes, etc.

The scope covers all Civil and Architectural within the battery limits. The important works covered are as below:

- 2.1 Excavation of earth and backfilling including dewatering of excavations for foundations, trenches, tunnels pits, etc. till the construction of the same is completed and disposal of surplus.
- 2.1 Foundation footing for structures, trenches, tunnels, sumps, grade beams, tie beams at foundation level, grade slabs, floor slabs and roof slabs, equipment foundations etc.
- 2.2 Complete civil and architectural works such as brick work, plastering, painting, all types of floor/roof finishes, all types joinery etc.
- 2.3 Preparation and submission of detailed calculations, arrangement drawings and detail drawings of formwork, staging and scaffolding for all reinforced concrete structures and foundations as directed by the Engineer for his checking and approval.
- 2.4 Preparation of detailed working drawings and bar bending schedules for all reinforced concrete work and getting them approved by the BHEL Engineer.
- 2.5 Taking deliver from BHEL stores, fabrication and fixing structural steelwork for cable trench covers, plates etc.
- 2.6 Fabrication supply and fixing of anchor bolts, sleeves, fixing frames, embedment etc. in concrete.
- 2.7 Supply of all instruments and personnel for conducting necessary tests at site as specified/as directed by the Engineer.
- 2.8 Making appropriate fabrication drawing as per agreed schedule before starting fabrication work for any structural GA drawing.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Civil and Architectural Works

- 2.9 Taking delivery from BHEL stores and fabrication and erection of structural steel work including all interfacing works and miscellaneous works, supply of steel will be made by BHEL. The nature of work shall include columns , beams, splicing of steel works as needed, bracings, sheeting runners , sag rods, ties struts, walkways , galleries, stairs, ladders, hand railing , floor gratings, chequered plate work ,M.S pipes, equipment supporting platform, and all other structures required for the successful completion of the project.
- 2.10 Taking delivery from BHEL stores (Located inside the factory), temporary storage in contractor's storage go-down/open yard cement and reinforcement steel, proportioning of the various concrete ingredient materials, viz. cement, fine & coarse aggregate, chemical admixtures, etc. as per the approved concrete mix design for various grades of concrete, transporting to the work location, pouring the concrete in the specified formworks for foundation, column, beam, floors, etc. as the case may be as per the latest approved construction drawings & Bill of Quantities.
- 2.11 Arranging for all required construction materials, viz. cement, Coarse & Fine aggregate, admixtures, water & reinforcement steel (except for free issue items, cement, steel, etc. as per schedule of quantities) and using in works as defined in clause 2.10 above (for those item of works, whose supply is in contractor's scope)
- 2.12 All other works, viz. Brickwork, Plastering, waterproofing works, backfilling, painting, etc. as defined in Bill/Schedule of quantities, construction drawings and time to time instructions issued by BHEL engineer required for completion of the work will be in the scope of the contractor.
- 2.13 All the works should conform to the specification provided in the Bill/Schedule of Quantities, relevant Indian Standards and best engineering practices.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-III Structural Works

3.0 SCOPE:

The works involve:

- 3.1 Taking delivery from BHEL stores (Located inside the factory), temporary storage in contractor's storage cum fabrication yard allotted to them near the work area, fabrication and erection of structural steel work including all interfacing work and miscellaneous work. Supply of steel will be made by BHEL. The nature of work shall include columns, beams, splicing of steel works as needed, bracings, purling, sheeting runners, sag rods, ties, struts walkways, galleries, stairs, ladders, handrails, floor gratings, chequered plate work, M.S, pipes, equipment supporting platforms and all other structures required for successful completion of project.
- 3.2 Arranging for all required structural steel (except for free issue structural steels per schedule of quantities) and using in works as defined in clause 3.1 above (for those item of works, whose supply is in contractor's scope)
- 3.3 Supply and fixing of floor gratings as per Specifications.
- 3.4 Supply of high tensile bolts, mild steel bolts, nuts, plain/taper and spring washers, all electrodes required for shop and field work.
- 3.5 Shop and final painting as per Technical Specification after properly cleaning the steel surfaces.
- 3.6 Grouting under stanchion bases.
- 3.7 All the works should conform to the specification provided in the Bill/Schedule of Quantities, relevant Indian Standards and best engineering practices.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IV Pre-Engineered & Prefabricated steel structure store shed, site office & Open storage area

4.0 PRE ENGINEERED & PREFABRICATED STEEL STRUCTURE STORE SHED, SITE MESS/CONFERENCE HALL/TOILET & OPEN STORAGE AREA

The contractor's scope of services for Pre Engineered & Prefabricated steel structures, site mess/conference Hall/Toilet & development of open storage areas are detailed in this chapter.

4.1 SCOPE

This Specification covers Design, Manufacturing, supply, Receipt at site, Erection, site Painting etc. of closed shed removable/Re-erectable type Pre-Engineered, Pre-fabricated Steel Storage sheds, construction of site mess/conference Hall/Toilet & development of open storage areas. After completion of the entire project, i.e. erection & commissioning & handing over to the client, the contractor will be required to dismantle/remove the entire temporary structures referred in this chapter and make good the area in the original condition, as it was received from the customer. The contractor can take back all the serviceable materials received after the dismantling of these temporary structures. All unserviceable materials will have to be disposed at a specified location within the premises of the customer or outside as per the direction & instructions of BHEL engineer. A detailed instruction for dismantling/removal will be provided by BHEL engineer in this regard at appropriate time during the currency of the contract.

4.2 PRE ENGINEERED & PREFABRICATED STEEL STRUCTURE STORE SHED

4.2.1 DESIGN AND CONSIDERATIONS

- Size of closed sheds – 15 M c/cX30M c/cX5.25 M (approximately)
- Clear height of the closed shed (between FFL & Bottom of truss/Structural member)-5.25M
- Columns shall spanning – 6.0M c/c long span & 5.0M c/c short span.
- All design work of sheds shall be of pressed steel sections. The bidder will submit structural stability certificate for the same.
- All Side cladding/roof sheets shall be fitted in such a way that they can be removed at any point of time.
- Sliding doors (4.00 M Width x 4.5 M Height) shall be provided at front entrance shed at center location. Suitable arrangement shall be made for easy operation of gates (gear operated).
- One man entry gate to be provided on at one side of each shed (front entrance by the side of sliding door).
- For Local site conditions, bidder to refer to enclosed write up (refer SCC).
- The bidder should submit a guarantee for 3 years of operations for the materials supplied and erected by him.

4.2.2 STRUCTURAL STEEL WORK

All materials for structural steel works have to be supplied by the contractor and necessary test certificates of the materials procured for this work has to be submitted for scrutiny. All fabrication and

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IV Pre-Engineered & Prefabricated steel structure store shed, site office & Open storage area

erection of structures must be executed according to the specification and drawings. Erection of trusses is true to line and level and aligned properly, as per drawing and instruction of Engineer-In-charge.

- Structural/steel members will have 1 coat of Zinc Chromate primer (surface preparation of the section as per the standards to suit the climatic conditions) followed by 2 coats of synthetic enamel paint, if not pre coated. The roof truss should have bolted joints at crown and at both ends.
- All accessories like G.I. bolts, washers and nuts complete from reputed manufacturer shall be included in the scope. All bolts, nuts (IS 4759) shall be galvanized (hot dip) min. 270 gm/m². Galvanized spring/plain washer shall be as per IS 1573.
- Since these are detachable sheds & to be in repetitive use at other locations, proper marking (permanent) shall be so designed that it can be dismantled at any time and may be transported to be re-erected at other location.
- Roof and side cladding with Galvalume Sheet confirming to ASTM A 792 of thickness 0.47 mm with zinc coating not less than 150gm/Sq.m (both side mass) of 550Mpa (min) of approved make. Translucent (Poly Carbonate) sheet of approved make shall be provided for alternative bays (10% of the sheeting area). Both roof and side cladding are to be made "Water Tight".
- Purlins for walls & roof Cladding shall be made up-up with pressed steel.
- Providing ventilators 900 mm (W)x 600mm (H) – 16 nos should be at a height of 4.5m from FFL, made of suitable Aluminum section with wired glass open-able type.
- Store In-charge room shall be of 50 mm Thick PUF insulated sandwich panels. These panels are to be made out of 0.47 thick colour coated G.I. Sheet as exterior on both sides with PU Foam of density 38 Kg/Cu.Mtr. and tensile strength of 4 kg/Sq.Cm inside. Compressive strength (10% deformation) 2.1 Kg/Sq. Cm. Thermal Conductivity at 10 Deg 0.02 W/M Deg K Temperature Range – 80 Deg C to + 100 Deg C The PU Foam thickness is 60 mm.
- False Ceiling shall be provided with sandwich panels of thickness 30mm thick.
- 1nos. table of 1200mm width X 600 mm depth X 750mm height consisting 3 drawer unit left side, should also have CPU & keyboard provision (table in beech/black colour), 1nos executive chair (Width -70.0 Cm, Depth-70 Cm, Height-84.0 Cm-96.5Cm Seat Height-46.5-59.0Cm)&3nos visitor chairs of approved make shall be provided.
- 1nos. file cabinet consisting 4 drawers of size 470mm width X 1320 mm height X 620mm depth and 1nos. single side steel file/book rack consisting of 3 rakes of size 900mm width X 1850 mm height X 316mm depth shall be provided.
- Suitable long span shelf system shall be provided throughout the length of both opposite longitudinal spans of closed sheds. It should have two shelves with on shorter top & one wider middle rack at height of 600 mm from floor adding to a total height of 1200mm. The shelves shall be design to with stand SKU loading (125Kg/Sq.m) with suitable angle section. The width of top shelf shall be of 600mm & intermediate/middle shelf is 750mm.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IV Pre-Engineered & Prefabricated steel structure store shed, site office & Open storage area

4.3 SITE MESS,CONFERENCE HALL/TOILET & OPEN STORAGE AREA

- The entire site development works, viz. leveling, grading, access way(two layers of WBM), development of open storage yard with 200mm thick compacted murrum, concrete base/foundation preparation for installation of Porta cabins, barbed wire fencing(1.8m. high, angle iron posts & minimum 5 layers of barbed wires) with gates of site and storage areas, laying of water distribution network, soak pit, installation of water storage tanks, etc. for the site office area allotted to BHEL are in the scope of the contractor.
- A meeting cum mess room of approximate size 15.0m.(L) x 6.0m.(W)x 3.0 m.(Ht.) is to be constructed in the extended portion of the closed store shed for BHEL's office for meeting, pantry, toilet, etc. A toilet block having WC & urinal facilities with wash basin and another Kitchen & dining hall is to be constructed in one portion of the store building.. These areas will have separate access and will cater to the daily need of the BHEL site staffs.

NOTE:

THIS ABOVE REFERRED DRAWING & BILL OF QUANTITIES FOR SITE DEVELOPMENT IS ONLY INDICATIVE AND NEITHER EXHAUSTIVE NOR LIMITING. THE DRAWING & BILL OF QUANTITIES ARE SUBJECT TO CHANGE DEPENDING UPON THE EXACT LAND PROVIDED BY THE CUSTOMER. THE CONTRACTOR WILL BE REQUIRED TO CARRY OUT THE WORK AS PER THE REVISED LAYOUT & BILL OF QUANTITIES IN SUCH CASE WITHOUT ANY EXTRA PAYMENT.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-V PORTABLE CABIN

5.0 PORTABLE CABIN

5.1 Supply of 2 No's of brand new Portable Cabins (Size: 20 ft X 10 ft X 8.0 ft) on hiring basis for 20 months for BHEL's site office use. BHEL reserves the right to extend the hiring period for another 6 months at the same rates, terms and conditions.

Amenities to be included in each Cabin are given below
Furniture and Fixtures suitable for 6 members

- Executive Table with Side Table - 01 no.
- Executive Revolving Chair - 01 no.
- Visitor Revolving chair - 03 nos.
- Office Table - 05 nos.
- Office Revolving Chair - 05 nos.
- Wall mounted cabinet - 05 nos.
- Window Air Conditioner 1.5 ton - 02 no.
- White board of size 750x1000mm - 01 no.
- Perforated Board of size 750x1000mm - 01 no.

Interior cum Insulation

- Insulated walls with Pre-Laminated Sheet
- Ceiling : Glass Wool Covered with Pre-Laminated Sheet
- Flooring : Cement fiber sheet with PVC vinyl carpet

Other accessories:

- Tube Lights-4, Wall mounted Fans-5, LAN Points-6, TELE Point-1, External Light-1 Aluminum sliding windows, 15 Amp Switch-2, 5 Amp Switch-4, Electrical switch board-1
- Insulated paneling Doors, Safety Grills for all windows, Vertical Blinds For all Windows
- Weather sheds for all door and windows, Partition(laminated sheet both sides) with internal Door facility, Corrosion free and fire proof paints

Maintenance:

- During hiring period, maintenance of the Porta cabin and accessories shall be in the scope of bidder.

Note:

- Supply, transportation & installation of Porta cabins to the worksite shall be in the scope of bidder.
- Removal of Porta cabins from the work site & transportation after completion of all the activities of E&C related to this project shall be in the scope of bidder. Porta Cabins shall remain the property of the supplier after the completion of the hiring period.
- Power Cable (approx. 50m of length) shall be in the scope of bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VI ISSUE OF MATERIALS TO THE CONTRACTOR

6.0 ISSUE OF MATERIALS TO THE CONTRACTOR

The following materials will be issued to the contractor free of cost from the BHEL stores inside the factory:

- 6.1 FREE ISSUE ITEMS: Cement, Reinforcement steel (Tor steel), Raw structural steel, at BHEL stores at the project site for Civil, structural & Architectural works, for Turbo-blower station (Part II: Plant Civil of Schedule of Quantities only). It may please be specifically noted that no material of any kind will be issued by BHEL for Site storage & area development facilities
- 6.2 It will be the responsibility of the contractor to submit his demands for stores in writing at least 7 days in advance of the actual requirements.
- 6.3 Issue of materials in stores is subject to the extent of their availability at the place of issue noted above. The contractor should bring any of the materials shown above in case the BHEL desire so. The contractor shall not be entitled to any claim or compensation for non-supply of the materials, for delay in the supply of stores under any circumstances.
- 6.4 The materials will be issued only during the working hours. The contractors should have to transport them to site of work at his own cost as soon as there are issued to him.
- 6.5 The contractor shall from time to time, render proper account of all materials issued to him by BHEL. If he fails to do so, no further issues of the materials will be made to him and he shall be held responsible for any delay in the execution of the work which may occur on this account.
- 6.6 Where doors, windows, pipes, fittings, specials, glass, paints or others items are issued free of cost to the contractor, the contractor will have to make good at his own cost any loss or damage to part or whole of the items issued to him as above.
- 6.7 All surplus material in good condition whether issued free of cost or on cost recovery basis and which are not returned to the BHEL Central Stores and also quantities of materials consumed in excess of the actual requirements shall be charged for at punitive rates which will be 100% more than the issue rates of BHEL. The decision of the Senior

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VI ISSUE OF MATERIALS TO THE CONTRACTOR

Engineer / Civil as to the extent to which the materials have been rendered surplus or have been consumed in excess of the actual requirements shall be final and binding on the contractor.

- 6.8 For the purpose of determining the actual requirement of cement, the theoretical consumption of cement as per Delhi Schedule of Rates 2013 of CPWD will be considered by BHEL Engineer. For items not covered in DSR 2013, the consumption will be calculated based on the technical specification & similar items of DSR. The decision of BHEL engineer in this regard will be final and binding on the contractor.
- 6.9 The contractor shall construct store shed for storing cement, at his own cost and required site will be shown by the engineer-in-charge. Contractor shall store cement as directed by the Engineer-in-charge and shall maintain the record by entering day to day consumption and receipts. The contractors shall dismantle the temporary shed as soon as completion of work. Final bill will be forwarded subject to above conditions and certification by stores-in charge of factory civil department.
- 6.10 BHEL Engineer's responsibility will be 100% for the actual price of the materials to be charged by BHEL.
- 4.12 Steel (reinforcement/structural steel) will be issued at lengths as stocked by the Bharat Heavy Electricals Limited. The surplus steel is represented by the difference between the quantity received and the quantity required and utilised on the work with an allowance of 5% towards scrap. The scrap will be the property of the contractor; the contractor will be responsible for the removal from the site in time as directed by the Senior Engineer / Civil. The cut pieces and surplus returned shall not be shorter than three meters in length.
- 6.11 Excess consumption of structural steel/reinforcement steel over the actual quantities of materials consumed in excess of the actual requirements as per design/drawing shall be charged for at punitive rates which will be 100% more than the purchased rates of BHEL (i.e., @ Rs. 88,000/ton) after allowance of 5% towards scrap, will be recovered. The scrap material has to be returned to scrap yard BHEL against SDN (Scrap delivery note).

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX LIST OF TECHNICAL SPECIFICATIONS

7.0 PREAMBLE TO THE SCHEDULE OF QTS. (SOQ) PROVIDED IN PRICE BID SPECIFICATION

- 7.1 Details of the items in this Schedule shall be read in conjunction with the corresponding BHEL specifications, drawings and other documents and shall have precedence over any contrary statement mentioned any where in this document.
- 7.2 The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions., Drawings enclosed with these documents are only indicative giving some idea of the type of work involved. The layout, sizes and details of the building, structures and foundations shown in tender drawings may vary at a large extent during actual construction. Final drawings will be issued progressively during the execution of the work.
- 7.3 Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
- 7.4 Unless specifically mentioned otherwise in the contract, the bidder shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant , temporary works, labour materials, levies , taxes , transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services , temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- 7.5 The rate quoted shall be inclusive of cleaning the site of any vegetations, dressing and leveling etc., required for commencement of site activities. No separate payment will be made towards the same.
- 7.6 The rate shall also be inclusive of carrying out topography survey of site to establish levels and coordinates at suitable intervals, form existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references , pillars and other identification marks etc. No separate payment will be made towards the same.
- 7.7 The quantities of the various items mentioned in the schedule are approximate and may vary up to any extent or be deleted altogether. The quoted rates of each item shall remain firm as long as the variation in the total value of the works remain within +/- 15% (thirty percent) of the Bid Price of the work. For

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX LIST OF TECHNICAL SPECIFICATIONS

any increase or decrease in quantity beyond +/- 15%, the rates for execution of such work will be governed by clause no. 2.14 of GCC. The contractor, in his own interest, should get an indication of the probable extent of the work to be executed under any particular item in this schedule, before, under taking any preliminary work or purchasing bought out component related to the work.

7.8 Rates shall be quoted both in figures and in words in clear legible writing. No over writing is allowed. All scoring and cancellation should be counter signed by the bidder. In case of illegibility, the interpretation of the engineer shall be final. All entries shall be in English language.

7.9 Payments will be made on the actual quantity of work executed against each SOQ item.

7.10 Engineers decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.

7.11 Unless otherwise specified in the schedule of items, cement, structural and reinforcement steel will be issued by BHEL free of cost from BHEL stores inside the factory premises.

7.12 In case of any discrepancy between item description, relevant drawing and/or specification clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.

7.13 HIERARCHY

In case of any conflict/deviations amongst various documents, the order of precedence shall be as follows

- Statutory Regulations
- Items in Schedule of quantities
- IS/BS standards
- BHEL's standard specification (with prior approval of Engineer-in-charge).
- CPWD's technical specification

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Chapter-IX LIST OF TECHNICAL SPECIFICATIONS

LIST OF TECHNICAL SPECIFICATIONS(Annexure-I)

S. No	Description of the Specification	No. of Pages
1	General Scope.	4
2	Properties, Storage & Handling of common building material.	5
3	Earth work Excavation and Back filling.	23
4	Cement Concrete Plain & Reinforced.	67
5	Fabrication and structural work.	30
6	Erection of structural steel work.	18
7	Miscellaneous steel work.	7
8	Miscellaneous metal	6
9	Painting on structural steel.	5
10	Inserts / Embedments in concrete work.	3
11	Grouting.	4
12	Finish to masonry & concrete.	8
13	Pre-moulded Bituminous joint filler and sealing compound.	2
14	Demolition and Dismantling.	5
15	Type and make of materials to be used.	2
16	Concrete Pavements.	11

NOTE: The above technical specification is not exhaustive. In case for any item of work, technical specification is not available, such items of works will be carried out in conformance to technical specification of customer specification/CPWD/manufacturer's recommendations/best engineering practice. In case of any dispute between two specifications or non-availability of specifications, customer's specification will prevail. Decision on applicability of any particular specifications will rest with BHEL engineer and his decision in the matter will be final & binding on the contractor. Contractor has to make himself well conversant with the Customer specification.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-X LIST OF DRAWINGS

LIST OF DRAWINGS(Annexure-II)

S.NO.	TITLE	DRAWING No.	REV. NO.	COPY TO PESD E&C
1.	PLOT PLAN (TENTATIVE).			
2.	STANDARD GRATING DETAILS	ANNEXURE-1	R0	PDF
3.	MS HAND RAIL DETAILS	4-38144-00005	R0	-DO-
4.	PIPE ELECTRODE	GT 57191	R0	-DO-
5.	EARTH ELECRODE IN TEST PIT	GT 57191	R0	-DO-