

2X800MW DVC KODERMA  
(KTPS) PHASE-II -  
CHIMNEY PACKAGE

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

CONSTRUCTION OF ONE (1) NO. 275 M TALL **TWIN FLUE** RCC CHIMNEY COMPLETE IN ALL RESPECT INCLUDING CHIMNEY RCC WIND SHIELD, FABRICATION & ERECTION OF STEEL FLUE CANS, SUPPLY FABRICATION & ERECTION OF SHOP FABRICATED STRUCTURAL PLATFORMS, INSTALLATION OF ELECTRICAL ITEMS IN CONFORMITY WITH THE APPROVED LAYOUT, ELEVATORS ETC TO COMPLETE THE CHIMNEY IN ALL RESPECT (BUT EXCLUDING BOROSILICATE WORKS & CHIMNEY RAFT) FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND

## VOLUME - IA

BHARAT HEAVY ELECTRICALS LIMITED



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CONTENTS

Sl No	DESCRIPTION	Chapter
<b>Volume-IA</b>	<b>Part-I: Contract specific details</b>	
1	PROJECT INFORMATION	Chapter-I
2	SCOPE OF WORKS	Chapter-II
3	FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)	Chapter-III
4	T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR	Chapter-IV
5	T&PS AND MMES TO BE DEPLOYED BY BHEL ON SHARING BASIS	Chapter-V
6	TIME SCHEDULE	Chapter-VI
7	TERMS OF PAYMENT	Chapter-VII
8	TAXES AND OTHER DUTIES	Chapter-VIII
9	MATERIAL	Chapter-IX
10	BOQ CUM RATE SCHEDULE AND % WEIGHTAGE OF INDIVIDUAL ITEMS	Chapter-X
11	TECHNICAL SPECIFICATIONS AND DRAWINGS	Chapter-XI

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter - I: PROJECT INFORMATION

Sl. No.	Description	Details
1	Project Title	2X800MW KODERMA THERMAL POWER STATION (KTPS) PHASE-II
2	Customer	Damodar Valley Corporation (DVC)
3	Location	<p>The Koderma Thermal Power Station project is located near Benjhidi Village of Koderma District in Jharkhand. National Highway NH-19, which is referred to Delhi–Kolkata highway is about 25 Km from the Site. The nearest National Highway NH- 20 is about 8 Km from the site.</p> <p>The Site is located at latitudes of 24°23'00" N and longitudes of 85°33'15" E respectively.</p> <p>The Site can be approached from District Head Quarters through National Highway NH-20 and thereafter the internal road of the town</p> <p><b><u>Town/City:-</u></b></p> <p>Nearest Town Koderma- About 7 Km District Head Quarters Koderma Collectorate -About 16 Km Nearest Major Town Hazaribagh- About 60 Km Nearest Major City Gaya About 115 Km</p>
4	Nearest Airport	<p>The nearest airport is Gaya Airport at Bodh Gaya at about 108 Km from the project site.</p> <p>Other Important Commercial Airport is Birsa Munda International Airport Ranchi at about 170 Km from the project site.</p>
5	Access By Road/Major Cities	National Highway NH-19, which is referred to Delhi–Kolkata highway is about 25 Km from the Site. The nearest National Highway NH- 20 is about 8 Km from the project.
6	Temperature	Climatological data from nearest observatory is placed as a Annexure-II, as per Technical Specification of DVC, Section-VI Part-A (Copy Attached)
7	Seismic Zone	As per Technical Specification of DVC, Section-VI, Part-B, Sub-Section-D-1-12 (E), Civil Works Seismic Design Criteria. (Copy Attached)
8	Wind Speed	As per Technical Specification of DVC, Section-VI, Part-B, Sub-Section-D-1-12 (D), Civil Works Wind Design Criteria. (Copy Attached)

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter - I: PROJECT INFORMATION

<b>1.0</b>	<b>INSTRUCTIONS TO BIDDERS</b>	
<b>1.1</b>	The Bidder shall visit project site and acquire full knowledge and information about conditions prevailing at site and in & around the plant premises, together with site conditions, transportation routes, various distances, all the statutory, obligatory, mandatory requirements of various authorities and all information that may be necessary for preparing the bid and entering into the Contract. All costs for and associated with site visits shall be borne by the bidder.	
<b>1.2</b>	Other contractors would be working in this area and their structures are to be protected. The material brought and stacked for construction should not make hindrance to other contractors.	
<b>1.3</b>	The information given herein 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.	
<b>1.4</b>	The contractor, in the event of this work awarded to him, shall establish an office at site and keep posted an authorized, responsible officer with valid Power of Attorney for the purpose of the contract. Any order or instructions of the 'Engineer' or his duly authorized representative, communicated to the contractor's representative at site office will be deemed to have been communicated to the contractor at his legal address.	
<b>1.5</b>	No claim will be entertained by BHEL on ground of lack of knowledge and the contractor's rates shall be deemed to have taken this into account.	
<b>1.6</b>	Bidders may fix up their site visit in consultation with below mentioned contact person:	
	Name:	Shri Rikash Jyoti Dutta
	Designation:	DGM
	Email:	rjd@bhel.in
	Ph no:	9831073012
	Name:	Shri Manoj Kumar Prasad
	Designation:	DGM
	Email:	Manoj.kumar.prasad@bhel.in
	Ph no:	8744009677

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

<b>2.0</b>	<b>Scope of Works:</b>
<b>2.1</b>	CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY COMPLETE IN ALL RESPECT INCLUDING CHIMNEY RCC WIND SHIELD, SUPPLY FABRICATION & ERECTION OF STEEL FLUE CANS, SUPPLY, FABRICATION & ERECTION OF SHOP FABRICATED STRUCTURAL PLATFORMS, INSTALLATION OF ELECTRICAL ITEMS IN CONFORMITY WITH THE APPROVED LAYOUT ELEVATORS ETC TO COMPLETE THE CHIMNEY IN ALL RESPECT ( <b>BUT EXCLUDING BOROSILICATE WORKS &amp; CHIMNEY RAFT</b> ) FOR 2X800MW DVC KODERMA (KTPS) PHASE-II, JHARKHAND
<b>2.2</b>	<b>The brief scope of work is as follows:</b>
<b>2.2.1</b>	<p>Construction of One (1) nos. 275 m tall <b>twin flue</b> RCC chimney complete in all respect including:</p> <ol style="list-style-type: none"> <li>a. RCC Works for Chimney Shell (using slip form shuttering) &amp; other misc works.</li> <li>b. Supply of Fabricated Structure Steel (Platform beam, stair case, Chequered plate etc) is under bidder's scope.</li> <li>c. Supply (Shop Fabricated) Fabrication &amp; Erection of Structural Platforms (Internal &amp; External), Staircase, Steel Flue Cans &amp; flue duct inside the chimney, Mini Shell with Titanium cladding as per Specification, (including development of hard crusted / paved fabrication yard for onsite structural steel fabrication work wherever permitted by customer),</li> <li>d. Supply &amp; Installation of Electrical Items, Fixtures, Fittings, Conduit, Embedment and other associated works.</li> <li>e. Supply including design, receipt, unloading, erection, testing and commissioning of stack elevator and electrical equipment; allied items, cabling, earthing, spares etc</li> <li>f. Condensate Water Collection system in conformity with the approved layout etc.</li> <li>g. Air Aviation Obstruction lighting system, gas sampling ports, opacity measurement ports, lightning protection and grounding system, doors for access to the shell, external platforms and inspection of the liners, ladders, communication system components, embedment for installation of equipment and fixtures, Lift (inside windshield), Ventilation, insulation, etc all complete.</li> <li>h. Painting both internal and external of the chimney shell as well as of all doors, stairs, ladders and other structural steel items in accordance with this specification and approved drawings.</li> </ol> <p><b>Note: The scope work for Chimney Civil Works under the specification covers the supply, storage at site, storage of material supplied by BHEL (i.e. taking delivery of materials from plant gate / BHEL stores, transportation to site), Civil,</b></p>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

	<b>Structural and Architectural works as specified herein but without excluding any other necessary components, which are not mentioned herein but are required for the completeness and efficient, easy and reliable operation of the system.</b>
2.2.2	The contractor shall prepare, at his own cost, the detailed working drawings showing all details of the formwork, staging/ slip form (adequacy to be supported by design calculations) and other arrangements for the concreting work and submit six copies of the same duly approved/vetted by reputed third party consultant/ Engineering Institutes with consent of BHEL Engineer. Only on the receipt of the approval/vetting of the consultants the work shall be taken up. However, the consultant's approval of the design/drawings shall not absolve the Bidder of his responsibility for correctness of design, accuracy of dimensions, loadings, details, etc., or safety and stability of the structure including foundations, accessories, appurtenances, etc. Any modifications/change in subsequent revisions of design/drawings shall be clearly marked and identified with a revision of the approval. All modifications suggested by the Owner/BHEL to meet specification requirements and sound engineering practice, shall be incorporated by the Bidder at no extra cost to the Owner.
2.2.3	The contractor shall prepare, at his own cost, the detailed working drawings showing all Electrical details and Elevator details and shall submit six copies of the same for the approval of the Engineer-in-Charge /consultants and only on the receipt of the approval of the consultant the work shall be allowed to be taken up.
2.2.4	<p><b><u>Fabricated Structure (Steel Platform beam, stair case, Chequered plate etc ) :</u></b></p> <p>Supply of Fabricated Structure Steel (Platform beam, stair case, Chequered plate etc.) is under bidder's scope.</p> <p>Structural Steel required for the items of works wherever specifically mentioned in Price Schedule in BHEL's scope, shall be procured by BHEL and issued to contractor as free of cost (FOC) Item except for those items wherever specifically mentioned in contractor's scope in BOQ.</p> <p>All steel structures (vendor's scope supply-Platform beam, stair case, Chequered plate) shall be fabricated in factory, transported and erected at site. All factory fabricated structures shall have bolted field connections. Chimney flue liners can either be fabricated at factory in segments, transported and welded at site before erection or fabricated at site. For Chimney flue liners, to prevent flue gas leakages, the applicable field joints shall necessarily be welded. Structural Steel shall be fabricated at a suitable fabrication shop, outside the plant premises.</p> <p>BHEL will visit the fabrication shop of Contractor to examine its suitability for the scope of work involved. However, contractor's fabrication shop shall be adequately equipped to handle the scope of work involved within the given time schedule. Any modifications / alterations as required to carry out the works shall be done by contractor at his own cost. No claim / compensation for delay in works on this account will be admitted.</p>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

	<p>Contractor shall designate separate areas inside its fabrication shop for storage of Raw Materials as well as fabricated materials for this tender's scope and materials supplied for this work shall solely be utilized for this tender's purpose only. Safety, Watch and Ward, Insurance of the materials procured, fabricated and stored inside fabrication shop and transit insurance shall be the responsibility of the contractor. No claims / compensation on account of damage / theft of materials which is in the custody of contractor shall be permitted.</p> <p>Contractor shall give due notice in advance to BHEL for Stage Inspection of the works being carried out at its fabrication shop as per the approved FQP. However, BHEL Engineer shall be entitled to visit the Contractor's Fabrication shop at any feasible time during the period of execution to examine the progress and quality of work. Contractor shall always maintain all such records and provide facilities / equipment / MMEs as required by BHEL's Engineer for inspection of works within the quoted rates.</p> <p>Fabricated Structural Steel shall be dispatched from the shop only after getting the due clearance from BHEL /Customer.</p> <p>Transportation of fabricated structure steel / Raw Structure Steel from shop to site, Unloading, Handling / storage, at site, inside BHEL Yard / Contractor's store, will be in the scope of contractor. No extra payment for unloading / handling / transportation shall be paid to contractor.</p>
2.2.5	Supply including design, receipt, unloading, erection, testing and commissioning of stack elevator and electrical equipment; allied items, cabling, earthing, spares etc. are also under the scope of this of work.
2.2.6	Supply and installation of Closed Cell Borosilicate Glass Block Lining System shall be <b>excluded from this scope of work</b> . However, surface preparation of FLUE CANS should be suitable for application of Closed Cell Borosilicate Glass Block Lining System. There should not be any defects like improper fit-up, improper joint welding, left-out lifting hooks & any other left-out attachments before handing-over of flue liner to borosilicate application agency. After completion of Flue Can Fabrication the same shall be handed over to Borosilicate Agency for application of primer.
2.2.7	<p>The bidder has to provide the support to Borosilicate supply and installation agency for <b>erection of the hanging platform &amp; other lifting system required for installation of borosilicate lining</b> by providing the support of following T&amp;Ps:</p> <ul style="list-style-type: none"><li>a) Passenger lift.</li><li>b) Winch support for lifting the member of hanging platform.</li><li>c) Initial power supply at roof deck.</li><li>d) The bidder has to place the completed flue can on a raised platform / raised height (+600 mm from the ground LVL) for easy access for the painter of borosilicate agency for initial blasting &amp; primer application on inner surface of the flue can.</li></ul>



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

	<p>e) Chimney vendor shall provide man access lift till installation and commissioning of permanent lift.</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. Support to borosilicate agency shall be continued till the readiness of staircase and permanent lift, which is in the scope of chimney contractor.</li> <li>2. For Borosilicate Application, winch for moving platform shall be arranged by the borosilicate supply and installation agency.</li> <li>3. The Lift supports for access to different platforms and roof shall be provided by the chimney agency till the readiness of permanent lift and staircase.</li> </ol>
<b>2.3</b>	BHEL at its discretion may include other area works limited to 15% of awarded contract value, which are not mentioned in above scope of works. Contractor shall execute such works as desired and as directed by BHEL Engineer. The item rates & contract conditions shall remain unchanged for such works.
<b>2.4</b>	The work under this contract shall be carried out as per BOQ Cum Rate Schedule and in compliance of tender conditions including technical specifications and approved drawings/ documents.
<b>2.5</b>	<b>General:</b>
<b>2.5.1</b>	Providing all incidental items not shown or specified but reasonably implied or necessary for the successful completion of the work in accordance with contract.
<b>2.5.2</b>	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.
<b>2.5.3</b>	Further this is to be noted that the drawings and the documents furnished along with this specification are the sole property of BHEL. It must not be used directly or indirectly in any way detrimental to the interest of the company.
<b>2.5.4</b>	Furnishing all labor, materials, supervision, scaffolding, construction plans, equipment, tools & plants, inspection/ measuring/ testing instruments, 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 or specified but reasonably implied or necessary for the proper completion, maintenance and handing over the works in accordance with the stipulations laid down in the contract documents and additional stipulations as may be provided by the Engineer during the course of works.
<b>2.5.5</b>	All the works areas shall be adequately flood lighted to the satisfaction of the Engineer-in-Charge when the work is in progress during the night shifts.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

2.5.6	Drawings showing enough details for the construction as per the specification shall be furnished to the contractor in a phased manner as far as possible.
2.5.7	All necessary arrangement for safety like Hard Barricading around deep structures with scaffolding pipes and providing of safety net on the slope of excavated area is in contractor's scope. Contractor shall comply with all safety requirements as per statutes, BHEL and Customer specifications as applicable for execution of works. Safety rules and guidelines of BHEL and BHEL'S customer are provided elsewhere.
2.5.8	The Customer may depute their representative for checking and supervision of important stages of work. The contractor shall be required to provide all facilities for inspection of works at no extra cost to BHEL. Any defect in quality of work or deviations from drawings / specifications pointed out during such inspection shall be made good by the contractor in the same way as if pointed out by the BHEL Engineer, without any cost implication to BHEL.
2.5.9	Giving all notices, paying all fees, taxes etc., in accordance with the general conditions of contract, that is required for all works including temporary works.
2.5.10	<p><b><u>Royalty &amp; other fees:</u></b></p> <p>Royalty challan and statutory documents shall be submitted along with RA Bills for processing of Bills. In the event of non-availability of royalty/statutory documents along with RA Bill, BHEL site at its discretion may opt to withhold relevant amount from the running RA Bills and process the bill further to maintain proper cash flow and continuity of work.</p> <p>The Contractor shall pay and indemnify the Employer against any default in payment of Royalties or Seignorage Fee or Cess or other charges by the Contractor or the agency from which the Contractor purchases soil/earth, sand, stone/aggregates, metals, minerals or minor minerals.</p> <p>In the event of there being a statutory increase in the rates of royalty charges/fresh levy of royalty on materials, the same shall be reimbursed to the Contractor upon submission of original challan by him of having made the payments at revised rates. In the event of there being a decrease in such rates, the same shall be recovered from the Contractor. The base date for calculating the increase or decrease shall be the rate as on seven (7) days prior to the date of Techno-commercial (Envelope-I) bid opening. The total reimbursement (positive or negative) as specified above, to be paid or recovered, shall however be calculated on the quantity of materials actually accepted for payment), whichever is less, and on the basis of documentary evidence of Govt. Notification. However, the Contractor will settle claims, if any, on account of over charge by the State Authorities.</p>
2.5.11	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

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

	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.
2.5.12	Arranging for joint checking (with BHEL / BHEL's Customer / Consultant) of all site construction activities Preparation of joint protocols for each & every activity and maintaining quality records for audit/inspection as per approved FQP by BHEL.
2.5.13	<p>Medical/First aid center/medicine purchased for emergency/Doctor purpose along with ambulance services with fuel and operator (round the clock) shall be arranged by BHEL for handling medical emergencies. Cost against these facilities shall be distributed / shared among the vendors working in Koderma Phase-II Project site proportionately based on contract value.</p> <p>However, till the time the first aid arrangements &amp; ambulance are arranged by BHEL, the contractor to suitably arrange for necessary emergency/first aid facilities for their personnel.</p>
2.5.14	The complete works shall be carried out as per BOQ cum Rate schedule. If any work covered in the scope of contract cannot be executed using items available in BOQ, additional / extra items shall be made and rates for such items shall be worked out as per GCC clause 2.15.7. However, contractor shall be bound to execute all the works under the scope of the contract and decision whether an extra item is applicable or not, shall be taken by BHEL Engineer which will be binding on the contractor.
2.5.15	Any activity which is necessarily required for satisfactory execution of any item of BOQ in line with technical specifications shall be deemed to be included in BOQ item even if it is not described in the item description and no extra payment shall be made against such activity.
2.6	<b>Tentative Technical Staff Requirement:</b>
2.6.1	<ul style="list-style-type: none"><li>• <b>Project Manager</b> – 01 Head with 15 Years' experience in Industrial Foundation, Building, Chimney/NDCT/Tall Structures &amp; Power Plant Civil &amp; Architectural Works etc.</li><li>• <b>Asst. Project Managers</b> – 01 Heads with 10 Years' experience in Industrial Foundation, Building &amp; Power Plant Civil &amp; Architectural Works</li><li>• Experienced Civil Engineers – 02 heads</li><li>• Experienced Foreman / Supervisors – 04 heads</li><li>• Planning &amp; Billing Engineers – 01 head</li><li>• Stores, Gate Pass – 02 head</li><li>• Accounts &amp; Administration – 01 head</li><li>• Quality Control Engineer – 02 head</li></ul>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

	<ul style="list-style-type: none"> <li>• Safety Engineer – As per HSE Plan</li> <li>• Surveyor – 01 head capable to handle total station</li> <li>• Operator, Licensed Electrician, Mechanic - As per requirement</li> <li>• Experienced Carpenters &amp; Helpers – As per requirement</li> <li>• Experienced Bar Benders &amp; Helpers – As per requirement</li> <li>• Security Guards (Round The Clock) – As per requirement.</li> </ul> <p><b>Note: Above manpower requirement is tentative only. Contractor shall augment manpower to meet the project schedule/ milestones. Deployment of manpower shall be progressive to meet the project schedule.</b></p>
<b>2.6.2</b>	Deputation of above man-power shall be jointly decided at site in line with construction Schedule.
<b>2.6.3</b>	Engineer/ supervisor for other functions like store & purchase, material management, finance, administration etc. are to be provided as per site requirement and not considered in above list.
<b>2.6.4</b>	BHEL reserves the right to reject or approve the list of personnel proposed by the contractor. The persons whose bio-data have been approved by BHEL will have to be posted at site and deviation in this regard will not be permitted unless specific & reasonable justification is made.
<b>2.6.5</b>	In addition to above, a well experienced qualified engineer to be designated, as ‘Project Co-coordinator’, shall be deployed by the contractor. Such engineer shall have adequate exposure on the job and shall remain fully involved in all planning activities, guidance etc. to contractor’s own team during the complete execution period of contract.
<b>2.7</b>	<b>Laptop / Computer and Printer for exclusive use of BHEL:</b>
<b>2.7.1</b>	The bidder will have to provide <b>Two (02) No. of Laptops</b> (X-86 Architecture Based, 64-Bit Supported, Microprocessor with minimum 8 cores, On-board Graphics feature compatible with supplied OS, Minimum 8 GB RAM 2666 MHZ SDRAM upgradeable to 16 GB, 512 GB SSD M.2 Hard Drive or higher, 13" - 14" (both included) high definition anti-glare LED back lit Screen, OEM USB Optical Travel Mouse, Integrated High definition audio with integrated speakers and volume control (Hardware/Software). Single audio jack (single pin) for connecting ear phones and mic, Built-In HD Webcam with Built-In Microphone, integrated 100/1000 Mbps port, Integrated Wi-Fi 6, supporting industry standard IEEE 802.11ax + Bluetooth 5.0 or higher, Minimum 2xUSB 3.1 Ports, 1xType C, Stereo headphone/ microphone combo jack, 1 x HDMI Port. 1 x RJ – 45, Minimum 3-cell battery capable of providing 6 hours or more backup in standard business environment, ACPI Compliant, OEM AC Adaptor suitable for 230V supply, Should come pre-installed with Windows 11 Professional Edition or latest version with 64bit latest service pack, OEM carry bag

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

	to be supplied with OS Certification from Microsoft and required software like MS Office 2010 Professional, AutoCAD 2011, ADOBE PDF CREATOR (version 8.0) <b>with one laser jet printer compatible for A4 and A3 size printing with power backup at places, as per instruction of BHEL.</b>
2.7.2	These laptops/ printers shall remain contractor's property/ownership for all legal/technical purposes. However, contractor will be allowed to take out the same after completion of the site works. The computer/printer shall remain at BHEL offices during the contract period/ extended period (if any).
2.7.3	This facility has to be provided as directed by BHEL till completion of site works or as decided by BHEL. If contractor fails to provide computer/ printer as per requirement, for a continuous period of fifteen days or more, BHEL shall have the right to purchase it on behalf of contractor and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads.
2.8	<b>Field Quality Assurance:</b>
2.8.1	The contractor shall be responsible for day-to-day quality checks for civil, structural and architectural works including concrete and other building materials in line with approved Field Quality Plan (FQP) and Manufacturing Quality Plan (MQP) during the progress of work. All quality records and log sheets shall be maintained as per the requirement of BHEL/CUSTOMER and as per FQP/MQP approved by BHEL/CUSTOMER.
2.8.2	<b>Setting Up of Laboratory Works:</b> The contractor shall set up laboratory in the close vicinity of the work site as per required field QA & QC laboratory set up and as the directions of engineer-in-charge. The laboratory shall be equipped with latest testing equipment in sufficient number to carry out all the tests as required under a contract. The contractor should ensure that the equipment is available well in advance of starting of the work to avoid stoppage of work on this account. All the tests shall be carried out by the contractor in the presence of the Engineer's representative and a joint record of all observations and results thereof shall be maintained, and available with the Engineer. <b>Bidder shall tie up only with BHEL / Customer approved third party Lab for advance testing which are not feasible at site laboratory set-up.</b>  The laboratory set-up should consist of one AC lab (Approx. size 4.5mtr x 6mtr) for temperature and humidity control as required during testing of cement and other materials and one non-AC lab (Approx. Size 4.5 mtrx4.5 mtr.) in the field to carry out all relevant tests. Laboratory equipment as per requirement and as per NTPC specification to be arranged by the contractor within quoted rate for conducting day-to-day tests. The contractor may tie up with approved/registered inspection agencies for setting up test lab at site as described above.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

<b>2.8.3</b>	<p><b>Minimum Testing Facilities to be arranged by contractor at site are as under:</b></p> <p><b>A. Soil Works:</b></p> <p>A.1 Facilities for HDD A.2 Field Compaction Test (Core Cutter / Sand Replacement Method). A.3 Atterberg Limit Test of Soil. A.4 Grain Size Distribution Test.</p> <p><b>B. Road Works:</b></p> <p>B.1 Facilities for mechanical strength of aggregates. B.1.1 Impact and Abrasion Value. B.1.2 Crushing Value. B.1.3 Water Absorption</p> <p><b>C. Concreting Works:</b></p> <p>C.1 Facilities for sieve Analysis for both fine and coarse aggregates. C.2 Facilities for workability test of concrete by Slump cone / BV. C.3 Facilities for Cube Strength.</p>
<b>2.8.4</b>	Mix design for all concreting shall be carried out from NCCBM / IITs / NITs / other reputed laboratories approved by CUSTOMER/BHEL. Contractor has to ensure adding of high grade PCE based admixture to minimize the cement content in line with ASTM C 494 as advised by BHEL time to time without any additional cost.
<b>2.8.5</b>	In case of change of brand of cement in a particular design mix, contractor has to re-design the concrete mix with new brand of cement before actual usage at site, cost incurred will be borne by contractor.
<b>2.8.6</b>	The following specifications of PCE-type high performance super plasticizer shall be used for concrete works as per BOQ item.
<b>2.8.6.1</b>	<p>High performance super plasticizer PCE-based water reducing admixture of Type-G/F as per ASTM C-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30%.</p> <p>The performance compliance of the Super-plasticizer should be ensured based on the following tests:</p> <ul style="list-style-type: none"><li>a) Marsh cone test for optimum dosage of admixture with specific brand of cement.</li><li>b) Slump retention test of concrete.</li><li>c) Water reduction capability test by doing trial mix.</li><li>d) Rheological properties of fresh concrete on trial mix.</li></ul>
<b>2.8.7</b>	In case ambient temperature is greater than 32 Degree Celsius, Placement temperature should be controlled with necessary temperature correction of concrete by introducing

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II: SCOPE OF WORKS

	Chiller Plant along with Batching Plant ( <b>Note: -Contractor may make alternative arrangement for temperature control of fresh concrete.</b> )
<b>2.9</b>	<b>GENERAL NOTES FOR ELECTRICAL WORKS:-</b>
<b>2.9.1</b>	Various platforms shall be illuminated by dust tight LED luminaries. Average illuminations level shall be maintained as per specification. On staircases minimum 1 lighting fixture at each landing shall be provided. Any additional fixture to take care of dark patches/shadows shall also be provided. Lighting system shall be controlled through MCB provided in lighting panel.
<b>2.9.2</b>	Wiring installation for lighting fixture shall be of PVC insulated copper wires through galvanised steel conduits.
<b>2.9.3</b>	The aviation obstruction lighting system shall be of type FTB 205 and FTC 140 of Flash Technology Corporation of USA or equivalent. Aviation obstruction lighting shall be complete with lights, photo cell, controller, special cables, etc. For chimney, aviation warning lights as per AAI's recommendation shall be provided.
<b>2.9.4</b>	Cables shall be terminated using double compression type cable glands and solderless crimping type tinned copper cable lugs.
<b>2.9.5</b>	A temporary lightning protection system shall be provided during construction of the chimney till a permanent lightning protection system is installed. In no case reinforcement bars of Shell should be used as earthing Down Conductors
<b>2.9.6</b>	Schedule of Equipment has been indicated for reference only. All electrical items shall be supplied on as required basis for completion of chimney package.
<b>2.9.7</b>	Make of Aviation Light shall be subject to BHEL / end customer approval.
<b>2.10</b>	<b>HEIRARCHY:</b>
<b>2.10.1</b>	In case of any conflict/deviations amongst various documents, the order of precedence shall be as follows: <ol style="list-style-type: none"><li>1. Items Description in BOQ Cum Rate Schedule</li><li>2. Technical Conditions of Contract (TCC)</li><li>3. Technical Specifications for Customer DVC (Section-C)</li><li>4. BHEL's Standard Specification (Section-D)</li></ol>



**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)**

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
<b>3.1</b>	<b>Establishment:</b>			
<b>3.1.1</b>	<b>For Construction Purpose:</b>			
a	Open space for office (as per availability within project premises)	Yes		Location will be finalized after joint survey with owner.
b	Open space for storage (as per availability within project premises)	Yes		Location will be finalized after joint survey with owner.
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipment, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc.		Yes	
f	Firefighting equipment like buckets, extinguishers etc.		Yes	
g	Fencing of storage area, office, canteen etc. of the bidder		Yes	
<b>3.1.2</b>	<b>For living purpose of the bidder:</b>			
a	Open space for labour colony		Yes	Contractor has to make his own arrangements for land (outside the plant), shelter and transportation of labours as per requirement.
b	Labour Colony with internal roads, sanitation, complying with statutory requirements		Yes	Construction Plan shall be approved by BHEL
<b>3.2</b>	<b>Electricity:</b>			



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
3.2.1	<b>Electricity for construction purposes (for Site/Project works only) 3 Phase 415/440 V</b>			Construction power (three phase, 415 V/ 440 V) shall be provided <b>by BHEL free of cost at one point</b> near the site at a distance of approx. 500M tentatively 03 months from the date of start of work. Refer Cl 3.13.1
a	Single point source	Yes	Yes	
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	<b>Electricity for office, stores, canteen etc. of the bidder</b>			Shall be provided <b>by BHEL free of cost</b> at one point near the site at a distance of approx. 500M tentatively 03 months from the date of start of work. Refer Cl 3.13.1
a	Single point source	Yes	Yes	
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	<b>Electricity for living accommodation of the bidder's staff, engineers, supervisors, labour Hutment etc-</b>			<b>Contractor has to make his own arrangements.</b>
a	Single point source		Yes	
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Payment/Duties and deposits including statutory clearances if applicable		Yes	

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)**

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
<b>3.3</b>	<b>Water Supply:</b>			
<b>3.3.1</b>	<b>For construction purposes:</b>			BHEL shall provide <b>water supply free of cost (at single point source)</b> for construction purpose as and when made available by customer tentatively 03 months from the date of start of work. However, contractor may initially make his own arrangement for water supply till source is obtained from Customer.
a	Making the water available at single point	Yes	Yes	
b	Further distribution as per the requirement of work including supply of materials and execution.		Yes	
<b>3.3.2</b>	<b>Water supply for bidder's office, stores, canteen etc.</b>			
a	Making the water available at single point	Yes	Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
<b>3.3.3</b>	<b>Water supply for Living Purpose</b>			<b>Contractor has to make his own arrangement.</b>
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
<b>3.4</b>	<b>Lighting</b>			

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)**

Sl. No	Description  <b>PART I</b>	Scope		Remarks
		BHEL	Bidder	
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	
<b>3.5</b>	<b><i>Communication facilities for site operations of the bidder</i></b>			
a	Téléphone, fax, internet, intranet, e-mail etc.		Yes	
<b>3.6</b>	<b><i>Compressed air wherever required for the work</i></b>		Yes	
<b>3.7</b>	<b><i>Demobilization of all the above facilities</i></b>		Yes	
<b>3.8</b>	<b><i>Transportation</i></b>			
a	For site personnel of the bidder		Yes	
b	For bidder's equipment and consumables (T&P, Consumables etc.)		Yes	
<b>3.9</b>	<b>Erection Facilities and Site Construction Management:</b>			
3.9.1	Engineering works and planning for construction:			
a	Providing the erection/constructions drawings for all the equipment covered under this scope	Yes		
b	Drawings for construction methods	Yes	Yes	In consultation with BHEL

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)**

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
c	As-built drawings where ever deviations observed and executed and also based on the decisions taken at site		Yes	Changes are to be marked in drawing & handed over to BHEL on completion of work.
d	Shipping lists etc. for reference and planning the activities			Not Applicable
e	Preparation of site construction / erection schedules and other input requirements as per Form-14.	Yes	Yes	In consultation with BHEL
f	Review of performance and revision of site construction / erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly construction / erection schedules based on Sl. No. e		Yes	In consultation with BHEL
h	Daily work plan based on Sl. No. g		Yes	In consultation with BHEL
i	Periodic visit of the senior official of the bidder to site to review the progress so that works is 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	Preparation of preassembly bay		Yes	
k	Laying of racks for gantry crane if provided by BHEL or brought by the contractor /bidder himself		Yes	

<b>3.10</b>	<b>Land/Open Space:</b>
<b>3.10.1</b>	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. BHEL shall provide free of charge limited open space for office, storage shed and laydown area as and where made available by Customer. It is the responsibility of the contractor to construct sheds, fabrication yard, establish batching plant, provide all utilities and dismantle and clear the site after completion of work or as and when required, as a part of his scope of work.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

<b>3.11</b>	<p><b>Labour and Staff Colony:</b></p> <p><b>Following are in the Bidder's scope of work for labour &amp; staff colony:</b></p>
<b>3.11.1</b>	<p>Labour Shed (upto 2 Nos.) for approx. 2x125 labours shall be provided by BHEL free of cost in line with mobilisation/requirement at site. Contractor shall intimate mobilisation plan for labourers for Chimney Work and BHEL shall allot labour shed accordingly.</p> <p>The labour shed shall be equipped with bed with mattress, wiring &amp; fittings for electricity distribution, sanitary fittings, internal piping, etc. and handed over to agency for use during the contract period. Maintenance of the labour sheds shall be in the scope of agency and agency shall be responsible for upkeep of all the facilities provided by BHEL. The labour sheds shall be returned to BHEL after usage in good condition including all amenities as provided initially.</p> <p>Expenses regarding monthly maintenance/repair of common areas, electricity, water, cleanliness, etc, shall be distributed among all the agencies availing the facilities in Labour colony on prorata basis as per direction of BHEL.</p> <p>Contractor shall ensure establishment &amp; maintenance of workmen/labour colony in line with BHEL layout drawings &amp; Guidelines <b>(As per Annexure A - Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites)</b></p> <p>Any other facilities required for scope of work shall be arranged by the contractor at his own cost.</p>
<b>3.11.2</b>	<p>BHEL shall construct Medical Centre (24 x7 working), well finished &amp; furnished, of approx. 150sqm shall be constructed by the contractor in the labour establishment area for the workmen with ambulance at workmen establishment.</p> <p>Payments for medical staffs such as doctors, nurse, ambulance services, consumables, medical beds/emergency medical equipments/first aid instruments/devices &amp; running medicines shall be shared/distributed among the availing agencies as decided by BHEL site.</p>
<b>3.11.3</b>	<p>Providing and maintaining facilities for safety, welfare, drinking water and sanitation, hygiene, biennial health check-up etc. for construction workers at their workplaces as well as at labour &amp; staff colonies.</p>
<b>3.11.4</b>	<p>Any other development and maintenance of above facilities for construction workers deployed by the Contractor shall solely rest with the Contractor.</p>
<b>3.12</b>	<p><b>Installation of necessary amenities and temporary infrastructure for construction activities at Project site locations.</b></p> <p>Following are the minimum amenities to be provided by the bidder within the quoted price including removal/disposal of the same in environment friendly manner after its intended use/completion of scope of work:</p>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

	<ul style="list-style-type: none"> <li>i. Labour rest sheds near work spot. (Minimum 01 Nos. Rest shed shall be constructed by contractor as per approved drawings within 03 months from the date of start of work).</li> <li>ii. Canteen facility creation.</li> <li>iii. Drinking water facility.</li> <li>iv. Labour Bio toilets near work spot in sufficient nos. with regular cleaning &amp; maintenance arrangement. Exclusive arrangement of Bio toilets to be made at site for ladies</li> <li>v. Labour colony should have all hygienic condition, dining hall, toilets, proper sewerage system, good drinking water arrangements.</li> </ul>
<b>3.13</b>	<b>Construction Power:</b>
<b>3.13.1</b>	<p>Construction power (three phase, 415 V/ 440 V) shall be provided <b>by BHEL free of cost</b> at one point near the site at a distance of approx. 500M within 03 months from the date of start of work. Further, distribution shall be arranged by the contractor at his own cost and services.</p> <p>However, contractor has to deploy DG Sets to meet power requirement in case of delay in availability of single source or any kind of power interruptions during the course of the project at no extra cost to BHEL.</p> <p>If any other voltage level (other than normally available) is required, the same shall be arranged by the contractor from power supply as above. Contractor shall be responsible for fulfilment of all requirements including statutory requirements in this regard.</p>
<b>3.13.2</b>	Contractor shall deploy and install required energy meter, cables, fuses, distribution boards, switchboards, bus bars, earthing arrangements, protection devices and any other installation as specified by statutory authority/act.
<b>3.13.3</b>	Sufficient power factor compensation equipment like capacitor shall be provided by contractor for reactive loads like welding machines etc. In case of any fine/penalty on account of low power factor, same shall be shared by contractor proportionately according to power consumption.
<b>3.13.4</b>	Contractor shall make necessary arrangements for onward distribution of construction power taking due care of surrounding construction activities like movement of cranes & vehicles, civil work, fabrication/construction/assembly/ erection etc. and safety of personnel. It may become necessary to relocate some of the installations to facilitate work by other agencies or by him.
<b>3.13.5</b>	It shall be the responsibility of the Contractor to provide, maintain the complete installation on the load side of the supply with due regard to the safety requirements at site. All cabling and installations shall comply in all respects with the appropriate statutory requirements. The installation and maintenance of this shall be done by licensed and experienced electrician.
<b>3.13.6</b>	While reasonable efforts will be made to ensure continuous electric power supply, interruptions cannot be ruled out and no claim from the Contractor shall be entertained on this

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

### Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

	account such as idle labour, extension of time etc. The Contractor shall adjust his working shift accordingly and deploy additional manpower, if necessary, so as to achieve the target.
<b>3.13.7</b>	Contractor to note that till construction power is made available by BHEL; contractor shall make his own arrangement like DG set etc. The contractor shall also take the approval/permission of statutory authorities for his DG set installation. The Contractor has to make his own arrangement for the same as required to carry out the job under the scope of work within the quoted rate. Nothing extra shall be paid on this account of DG set up and running for construction and office, maintenance etc.
<b>3.13.8</b>	Contractor shall be well equipped with back-up power supply arrangement like DG set and diesel operated welding machine etc. to tackle situations arising due to failure of supplied power, so as to ensure continuity and completion of critical processes that are underway at the time of power failure or important activities planned in immediate future.
<b>3.13.9</b>	BHEL is not responsible for any loss or damage to the Contractor's equipment as a result of variations in voltage or frequency or interruptions in power supply.
<b>3.13.10</b>	The bidder will have to procure & install General mobile illumination system during construction right from start of his work. This system will include temporary pole lighting, portable lighting towers with DG back-up, within the quoted price. The illumination should be such that minimum illumination requirement as specified by Indian standards for general illumination is maintained.
<b>3.13.11</b>	Supply of electricity shall be governed by Indian Electricity Act and Installation Rules and other Rules and Regulation as applicable. The contractor shall ensure usage of electricity in an efficient manner and the same may be audited by BHEL time to time. In case of any major deviation from normally accepted norms is observed, BHEL will reserve the right to impose penalty as deemed fit for such cases.
<b>3.14</b>	<b>Construction water:</b>
3.14.1	BHEL shall provide <b>water supply free of cost (at single point source)</b> for construction purpose tentatively within 03 months from the date of start of work. Contractor has to make arrangement of further distribution. However, contractor shall make alternate arrangement of construction water till the same is made available by BHEL.
3.14.2	The Contractor should make arrangements for storage of sufficient quantity of water required for work. The agency should also construct sumps (if required) of suitable size for storage of construction water as per their requirement for use in construction purposes.
3.14.3	Contractor to satisfy himself that the water drawn by him is fit for construction / consumption and adequately treat such water at his cost when it is not found fit for the said purposes.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – IV: T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR

### 4.0 Tools and Plants:

Nos. of T&Ps to be deployed at site shall be decided w.r.t. monthly plan and review format (F-14) based on site requirement. Below given Nos. are tentative for planning purposes by the bidder.

4.1	For Civil Works	Tentative Requirement
4.1.1	Hydraulic Excavator /Poclain	As per requirement
4.1.2	Dumper	03 Nos
4.1.3	Pneumatic wagon drills with compressor for controlled blasting.	As per requirement
4.1.4	Portable magazine	As per requirement
4.1.5	Dozer	As per requirement
4.1.6	Trailer (20MT Capacity)	02 Nos. (Incl Flue Can Shifting)
4.1.7	Automatic concrete batching plant with printing facility (30 Cum/Hr.) with silos of min. storage capacity of 300 MT)	01 Nos.
4.1.8	Chiller Plant of adequate capacity for Temperature controlled concrete.	As per requirement
4.1.9	Cement Storage Sheds of Min. 300 MT / 6000 Bags Capacity (If required)	01 Nos.
4.1.10	Multi stage high lift water pump (for curing) (lifting height 150 meters). One shall be working type and other shall be stand by.	02 Nos.
4.1.11	Strand Jacks of required capacity (includes 4 nos. standby Jacks) with 01 nos. power Pack including strand Rope of adequate thickness & length	2 Set (To carry out erection of both flue cans in parallel)
4.1.12	Slip Form Shuttering System & Necessary Spare Parts	01 Set
4.1.13	Concrete Transit Mixer	02 Nos. (However, for large pours, bidder has to

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – IV: T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR

		arrange required nos. of Transit Mixers.)
4.1.14	Concrete Boom placer min. 35m long of required Capacity	01 No. Requirement till erection of winch for concrete
4.1.15	Concrete Pump (Capacity- Minimum 60 Cum/Hr.)	01 Nos.
4.1.16	Concrete Mixture Machine	As per requirement
4.1.17	Vibrators (electrical/diesel)	As per requirement
4.1.18	Reinforcement bending machine	As per requirement
4.1.19	Reinforcement cutting machine	As per requirement
4.1.20	JCB	01 No
4.1.21	Farana crane (Required Capacity) *Note- Hydra is not allowed at project site	01 No
4.1.22	Self-priming Dewatering pump of various capacity (Diesel/Electric) From 2 HP to 15 HP	As per requirement
4.1.23	Curing / dewatering pump – 1.5 / 2 HP	As per requirement
4.1.24	De-watering pump (diesel operated) – 20 HP & 30 HP	As per requirement
4.1.25	Well Point De-watering System	NA
4.1.26	Hydraulic Excavator /Poclain with rock breaker arrangement	NA
4.1.27	Pneumatic rock breaker with jack hammer	NA
4.1.28	0.47 mm thick color coated GI sheet should be used along with Slipform shutter plate.	01 sets (to be replaced if damaged during slipping)
4.1.29	MS Scaffolding Pipes.	As per requirement
4.1.30	Motorized External Platform (Sky Climber)	As per requirement
4.1.31	Tractor mounted grader/ loader	As per requirement
4.1.32	Plate compactor	As per requirement

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – IV: T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR

4.1.33	Earth Compactor / Mini Roller- 3MT Capacity	01 Nos.
4.1.34	Total Station	01 Nos.
4.1.35	Auto level & staff	02 Nos.
4.1.36	Road Roller/Vibro Roller/ Mini Roller	As per requirement
4.1.37	Water Tanker with sprinkler attachment	As per requirement
4.1.38	Man lift crane of Minimum 20m reach	As per requirement
4.1.39	DG Set of 125 KVA Capacity	01 Nos.
4.1.43	Electrical Winches with Building Hoist	As per Requirement
4.1.44	Construction Cable and Water Pipe Line	As per Requirement
4.1.45	Other Construction / Finishing Tools and Machines	As per Requirement
4.1.46	Welding Machine	As per Requirement
4.1.47	Cutting Sets	As per Requirement
<b>4.2</b>	<b>Structural Fabrication and Erection Works</b>	
4.2.1	TYRE MOUNTED CRANE 75 MT (For fabrication and erection of Flue cans)	01 Nos./As per requirement
4.2.2	Farana crane (Required Capacity) *Note- Hydra is not allowed at project site	02 Nos.
4.2.3	Power winch – 3 T - for structural erection/ concreting / passenger lift.	02 Nos.
4.2.4	Power winch – 5 T - for structural erection.	01 Nos.
4.2.5	Power winch – 10 T for structural erection	01 Nos.
4.2.6	Welding Machine (Sub-Merged Arc & MIG Machine)	As per Requirement
4.2.7	Cutting Sets	As per Requirement
4.2.8	Groove Cutting Machine	As per Requirement

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – IV: T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR

4.2.9	Motorized MS Plate bending machine (Suitable for bending standard width of MS plate)	01 Nos.
4.2.10	Motorized MS Angle bending machine	01 Nos.
4.2.11	Hole Drilling machine	As per Requirement
4.2.12	All equipments for area lighting like LED bulbs and Portable light Towers etc.	As per Requirement
4.2.13	Laser Beam for verticality check and also rotation (Capacity- up to 300 m heights)	01 Nos.

<b>4.3</b>	<b>Measuring and Monitoring Equipment (MMEs):</b> To be finalized as per site requirement.
<b>4.4</b>	T&Ps shown in the above-mentioned list is tentative requirement. However, mobilization schedule as mutually agreed at site for major T&Ps, have to be adhered to. Numbers/time of requirement will be reviewed from time to time at site and contractor will provide required T&Ps/equipment 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. Also on completion of the respective activity, demobilization of T&Ps in total or in part can be done with the due approval of Engineer-In-Charge. Retaining of the T&Ps during the contract period will be mutually agreed in line with construction requirement.
<b>4.5</b>	The contractor shall arrange crane operator, diesel, petrol and other consumables including electrical / water / air connections required for the tools and plants, equipment etc. Preventive and routine maintenance of T & P are also to be arranged by the contractor at his cost without any delay. Required number of experienced mechanics and helpers for routine maintenance of the above T&Ps shall be provided by the contractor within his quoted rate.
<b>4.6</b>	Other terms and conditions regarding T&Ps to be deployed by Contractor, shall be as per clause No. 4.2 of SCC.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – V: T&PS AND MMES TO BE PROVIDED BY BHEL

---

<b>5.0</b>	<b>LIST OF T&amp;P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS:</b>
<b>5.1</b>	BHEL shall not provide any T&Ps for this scope of work. All T&Ps required for handling of items / materials to be arranged by bidder.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VI: TIME SCHEDULE

<b>6</b>	<b>Time Schedule and Mobilization:</b>	
<b>6.1</b>	<p><b>Initial Mobilization and Time Schedule:</b></p> <p>After issue of LOA (though Fax/courier/email) the contractor shall report to the Construction Manager/Site In-Charge of BHEL at site within seven (07) days from date of LOA and submit detailed mobilization plan to start work within 15 days from date of LOA; unless instructed by BHEL to differ start of work in writing.</p> <p>The contractor has to subsequently augment his resources in such a manner that the entire works are completed within the contract period of <b>Twenty-Six (26) Months</b> from the date of start of work in a manner required by BHEL to match with the project schedule.</p> <p>Date of Start of work shall be considered as 15 days after date of LOA or as instructed by BHEL in writing.</p> <p>Note:-</p> <p>Start of Work is linked with readiness of Chimney Raft along with backfilling upto top of the chimney raft level. BHEL shall intimate contractor for mobilization in line with the same. The date as per written intimation by BHEL shall be reckoned as the Date of Start of Work.</p>	
<b>6.2</b>	<p><b>Schedule of Completion:</b></p> <p>The entire work under the scope of this contract shall be carried out in such a manner that the following listed major milestones are achieved as per completion schedule given against each activity &amp; released for erection by other agency.</p>	
<b>Sl No</b>	<b>Activity</b>	<b>Schedule completion from date of start of work</b>
<b>6.2.1</b>	Slip-form Assembly and Erection Completion	2nd Months
<b>6.2.2</b>	Completion of RCC shell & Installation of Temporary Aviation Light. (M1)	<b>11th Months</b>
<b>6.2.3</b>	Completion of platform beams fabrication and erection	16 th Month
<b>6.2.3</b>	Slipform Dismantling	17 th Months
<b>6.2.4</b>	Flue Can Fabrication and Erection (M2)	<b>23 th Months</b>
<b>6.2.5</b>	External Painting	25 th Month
<b>6.2.6</b>	Completion of all Balance Misc. Works like electrical item installation, including erection of elevator etc	26th Months

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VI: TIME SCHEDULE

6.3	The above schedule is only tentative. The above schedule shall be advanced, if there are requirements to advance the project schedule and 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.											
6.4	In order to meet the 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.											
6.5	Intermediate milestones:											
6.5.1	Two Major Intermediate Milestones are identified as M1 and M2 above.											
	<table><tr><td>Milestones</td><td>Activity</td><td>Schedule of completion from start of work</td></tr><tr><td>M1</td><td>Completion of RCC shell &amp; Installation of Temporary Aviation Light</td><td>11th Months</td></tr><tr><td>M2</td><td>Flue Can Fabrication and Erection</td><td>23th Months</td></tr></table>			Milestones	Activity	Schedule of completion from start of work	M1	Completion of RCC shell & Installation of Temporary Aviation Light	11th Months	M2	Flue Can Fabrication and Erection	23th Months
Milestones	Activity	Schedule of completion from start of work										
M1	Completion of RCC shell & Installation of Temporary Aviation Light	11th Months										
M2	Flue Can Fabrication and Erection	23th Months										
6.6	<b><u>Provision of Penalty in case of slippage of Intermediate Milestones:</u></b> <u>In case of slippage of Two Major Intermediate Milestones, mentioned as M1 &amp; M2 above, delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to F-14.</u>											
6.6.1	In case of slippage of these identified Intermediate Milestones, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones.											
6.6.2	<u>In case delay in achieving 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.</u>											
6.6.3	In case delay in achieving M2 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 3% of executable contract value, will be withheld.											
6.6.4	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.											
6.6.5	Amount required to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld out of respective milestone payment (corresponding RA Bill) and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.											



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VI: TIME SCHEDULE

<b>6.6.6</b>	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. Withheld amount, if any due to slippage of identified intermediate milestone(s) shall be adjusted against LD or released as the case may be.
<b>6.6.7</b>	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.
<b>6.7</b>	Common activities shall be completed in Phase wise manner/ Instruction of Engineer within the Contractual time.
<b>6.8</b>	Above milestone dates has to be completed in parallel.
<b>6.9</b>	Bidders are requested to submit Resource deployment plan Area wise with detail program in line with above schedule in the form of Bar Chart/ MS project planer along with their offer.
	*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.
<b>6.10</b>	<b>COMPLETION OF WORK AND COMMENCEMENT OF GUARANTEE PERIOD</b>
<b>6.10.1</b>	The works shall be completed to the entire satisfaction of the Engineer and in accordance with the completion schedule as specified in the Contract, and all unused stores and materials, tools, plant, equipment, temporary buildings, site office, labor hutments and other things shall be removed and the site and work cleared of rubbish and all waste materials and delivered up clean and tidy to the satisfaction of the Engineer at the Contractor's expenses.
<b>6.10.2</b>	BHEL shall have power to take over from the Contractor from time to time such sections of the work as have been completed to the satisfaction of the Engineer. Such work however shall not be treated as have been completed until the remaining / pending works are executed to the satisfaction of Engineer.
<b>6.10.3</b>	The Engineer shall certify to the contractor the date on which the work is completed and the date thereof for commencement of Guarantee Period. Guarantee Period shall be as given in GCC.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VII: TERMS OF PAYMENT

<b>7.0</b>	<b>Terms of Payment:</b>
<b>7.1</b>	<b>Progressive Payment/ Final Payment:</b> The payments for works under the scope of this contract shall be as per clause no 2.6; 2.22; 2.23 of General Conditions of Contract and Volume-IB, Chapter-X of SCC.
<b>7.1.1</b>	<p><b><u>Documents required for RA Bill:</u></b></p> <ul style="list-style-type: none"> <li>• GST Complied Invoice of the work done as per approved BBU.</li> <li>• WAM -6 for RA Bill.</li> <li>• Jointly signed Measurement sheet.</li> <li>• Power of Attorney before submission of Bill.</li> <li>• Validity of Bank Guarantees as applicable under the contract.</li> <li>• HR/IR compliance documents: <ul style="list-style-type: none"> <li>i. Wages payment sheet as per applicable minimum wages.</li> <li>ii. Proof of PF contribution submission.</li> <li>iii. Proof of ESI/ WC contribution submission</li> <li>iv. Proof of Bonus payment as per Bonus Act if applicable.</li> <li>v. Proof of EL payment if applicable.</li> <li>vi. Any other statutory document if applicable.</li> </ul> </li> </ul>
<b>7.1.2</b>	<p><b><u>Documents required for Final Bill:</u></b></p> <p>The final bill is drawn as soon as the entire work is completed. From the final amount due, all amounts already claimed up to the previous running account bill will be deducted. It should be ensured that in the final bill the following additional particulars have been provided:</p> <ul style="list-style-type: none"> <li>• Final Bill in WAM-7 Format.</li> <li>• ‘No claim’ certificate from the contractor.</li> <li>• Clearance certificates where ever applicable viz. Clearance Certificates from Customer, various Statutory Authorities like Labour department, PF Authorities, Commercial Tax Department etc.</li> <li>• Final Material re-conciliation statement duly approved by BHEL.</li> <li>• Indemnity Bond as per prescribed format.</li> <li>• Deviation statement showing the difference between the actuals and as per the contract.</li> <li>• Final Delay Analysis.</li> </ul>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VII: TERMS OF PAYMENT

7.2	<p><b>SECURED RECOVERABLE ADVANCES:</b></p> <p><b>Interest Free Secured Mobilization Advance as per GCC Clause No. 2.13.1</b> will be payable under exceptional circumstances on certification of BHEL Construction Manager at Site. Interest Free Mobilization Advance shall be disbursed in specifically mentioned stages of major resource mobilization as specified hereunder:</p> <ol style="list-style-type: none"><li>1. For Mobilization of Batching Plant, Cement Silo, Transit Mixture (01 no), JCB(01 no), - 2.0%</li><li>2. For Mobilization of Material Lifting Winch and Passenger Lift - 1.5%</li><li>3. For Mobilization of Hydraulic Jack Set with pump, Jack Rod, Recovery Jack, Laser Light, Hydraulic Pump and Turn Buckle Jacks. - 1.5%</li></ol> <p>Note:</p> <ol style="list-style-type: none"><li>1. BHEL Site-CM shall be the deciding authority for assessing the admissibility of advance payment to contractor.</li><li>2. In case contractor do not fulfil the agreed conditions of payment of 1st mobilization advance, BHEL Construction Manager will have the authority to not allow the 2nd mobilization advance to contractor.</li></ol>
7.3	<p><b>PRICE VARIATION COMPENSATION:</b></p> <p><b>Applicable as per GCC Clause no 2.17</b></p>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

<b>8.0</b>	<b>TAXES &amp; DUTIES</b>
<b>8.1</b>	<p>The contractor shall pay all (save the specific exclusions as enumerated in this clause) taxes, fees, license, charges, deposits, duties, tools, royalty, commissions, other charges, etc. which may be levied on the input goods &amp; services consumed and output goods &amp; services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes/duties, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.</p> <p>However, provisions regarding <b>GST</b> on output supply (goods/service) and TDS/TCS as per Income Tax Act shall be as per following clauses.</p>
<b>8.2</b>	<b>GST (Goods and Services Tax)</b>
<b>8.2.1</b>	<p>GST as applicable on output supply (goods/services) are excluded from contractor's scope; therefore, contractor's price/rates shall be <b>exclusive</b> of GST. Reimbursement of GST is subject to compliance of following terms and conditions. BHEL shall have the right to deny payment of GST and to recover any loss to BHEL on account of tax, interest, penalty etc. for non-compliance of any of the following condition.</p>
<b>8.2.2</b>	<p>The admissibility of GST, taxes and duties referred in this chapter or elsewhere in the contract shall be limited to direct transactions between BHEL &amp; its Contractor. BHEL shall not consider GST on any transaction other than the direct transaction between BHEL &amp; its Contractor.</p>
<b>8.2.3</b>	<p>Contractor shall obtain prior written consent of BHEL before billing the amount towards such taxes. Where the GST laws permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL shall have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor.</p>
<b>8.2.4</b>	<p>Contractor has to submit GST registration certificate of the concerned state. Contractor also needs to ensure that the submitted GST registration certificate should be in active status during the entire contract period.</p>
<b>8.2.5</b>	<p>Contractor/Vendor has to issue Invoice/Debit Note/Credit Note indicating HSN/SAC code, Description, Value, Rate, applicable tax and other particulars in compliance with the provisions of relevant GST Act and Rules made thereunder.</p>
<b>8.2.6</b>	<p>Vendor has to submit GST compliant invoice within the due date of invoice as per GST Law. In case of delay, BHEL reserves the right of denial of GST payment if there occurs any hardship to BHEL in claiming the input thereof. In case of goods, vendor has to provide scan copy of invoice &amp; GR/LR/RR to BHEL before movement of goods starts to enable BHEL to meet its GST related compliances. Special care should be taken in case of month end transactions.</p>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

<b>8.2.7</b>	Vendor has to ensure that invoice in respect of such services which have been provided/completed on or before end of the month should not bear the date later than last working day of the month in which services are performed.
<b>8.2.8</b>	<p>Subject to other provisions of the contract, GST amount claimed in the invoice shall be released on fulfilment of all the following conditions by the Contractor: -</p> <ol style="list-style-type: none"><li>Supply of goods and/or services have been received by BHEL.</li><li>Original Tax Invoice has been submitted to BHEL.</li><li>Contractor/ Vendor has submitted all the documents required for processing of bill as per contract/ purchase order/ work order.</li><li>In cases where e-invoicing provision is applicable, vendor/contractor is required to submit invoice in compliance with e-invoicing provisions of GST Act and Rules made thereunder.</li><li>Contractor has filed all the relevant GST return (e.g. GSTR-1, GSTR-3B, etc.) pertaining to the invoice submitted and submit the proof of such return along with immediate subsequent invoice. In case of final invoice/ bill, contractor has to submit proof of such return within fifteen days from the due date of relevant return.</li><li>Respective invoice has appeared in BHEL's GSTR - 2A for the month corresponding to the month of invoice and in GSTR-2B of the month in which such invoices has been reported by the contractor along with status of ITC availability as "YES" in GSTR-2B. Alternatively, BG of appropriate value may be furnished which shall be valid at least one month beyond the due date of confirmation of relevant payment of GST on GSTN portal or sufficient security is available to adjust the financial impact in case of any default by the contractor.</li><li>Contractor has to submit an undertaking confirming the payment of all due GST in respect of invoices pertaining to BHEL.</li></ol>
<b>8.2.9</b>	Any financial loss arises to BHEL on account of failure or delay in submission of any document as per contract/purchase order/work order at the time of submission of Tax invoice to BHEL, shall be deducted from contractor's bill or otherwise as deemed fit.
<b>8.2.10</b>	TDS as applicable under GST law shall be deducted from contractor's bill.
<b>8.2.11</b>	Contractor shall comply with the provisions of e-way bill wherever applicable. Further wherever provisions of GST Act permits, all the e-way bills , road permits etc. required for transportation of goods needs to be arranged by the contractor.
<b>8.2.12</b>	Contractor shall be solely responsible for discharging his GST liability according to the provisions of GST Law and BHEL will not entertain any claim of GST/interest/penalty or any

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

	other liability on account of failure of contractor in complying the provisions of GST Law or discharging the GST liability in a manner laid down thereunder.
<b>8.2.13</b>	In case declaration of any invoice is delayed by the vendor in his GST return or any invoice is subsequently amended/alterd/deleted on GSTN portal which results in any adverse financial implication on BHEL, the financial impact thereof including interest/penalty shall be recovered from the Contactor's due payment.
<b>8.2.14</b>	Any denial of input credit to BHEL or arising of any tax liability on BHEL due to non-compliance of GST Law by the Contractor in any manner, will be recovered along with liability on account of interest and penalty (if any) from the payments due to the Contactor.
<b>8.2.15</b>	In the event of any ambiguity in GST law with respect to availability of input credit of GST charged on the invoice raised by the contractor or with respect to any other matter having impact on BHEL, BHEL's decision shall be final and binding on the contractor.
<b>8.2.16</b>	<p><b><u>Variation in Taxes &amp; Duties:</u></b></p> <p>Any upward variation in GST shall be considered for reimbursement provided supply of goods and services are made within schedule date stipulated in the contract or approved extended schedule for the reason solely attributable to BHEL. However downward variation shall be subject to adjustment as per actual GST applicability.</p> <p>In case the Government imposes any new levy/tax on the output service/goods after price bid opening, the same shall be reimbursed by BHEL at actual. The reimbursement under this clause is restricted to the direct transaction between BHEL and its contactor only and within the contractual delivery period only.</p> <p>In case any new tax/levy/duty etc. becomes applicable after the date of Bidder's offer but before opening of the price Bid, 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.</p>
<b>8.3</b>	<p><b><u>Income Tax:</u></b></p> <p>TDS/TCS as applicable under Income Tax Act, 1961 or rules made thereunder shall be deducted/collected from contractor's bill.</p>

### **8.4 BOCW Act & Cess Act**

**8.4.1 BOCW Cess is not to be borne by contractor. Refer Annexure-I for BOCW Act & Cess Act.**

**Annexure-I:**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

Bidder may please note that the sub-contractor/bidder of BHEL engaging building or construction worker in connection with building or other construction work, are required to follow the procedures enumerated below:

1.	It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
2.	It shall be sole responsibility of the contractor engaging Building Workers in connection with the building or other construction works in the capacity of employer to apply and obtain registration certificate specifying the scope of work under the relevant provisions of the Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 from the appropriate Authorities.
3.	It shall be responsibility of the contractor to furnish a copy of such Registration Certificate within a period of one month from the date of commencement of Work.
4.	It is responsibility of the contractor to register under the Building and other Construction Workers' Welfare Cess Act, 1996 and deposit the required Cess for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 at such rate as the Central Government may, by notification in the Official Gazette, from time to time specify. However, before registering and deposit of Cess under the Building and other Construction Workers' Welfare Cess Act, 1996, the contractor will seek written prior approval from the Construction Manager.
5.	It shall be sole responsibility of the contractor as employer to get registered every Building Worker, who is between the age of 18 to 60 years of age and who has been engaged in any building or other construction work for not less than ninety days during the preceding twelve months as Beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996.
6.	It shall be sole responsibility of the contractor as employer to maintain all the registers, records, notices and submit returns under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
7.	It shall be sole responsibility of the contractor as employer to provide notice of poisoning or occupation notifiable diseases, to report of accident and dangerous occurrences to the concerned authorities under the Building and other Construction Workers' (Regulation of



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

	Employment and Conditions of Service) Act, 1996 and the rules made thereunder and to make payment of all statutory payments & compensation under the Employees' Compensation Act, 1923.
8.	<p>It shall be the responsibility of the sub-contractor as employer to make payment/deposit of applicable cess amount on the extent of work involving building or construction workers engaged by the sub-contractor within a period of one month from the receipt of payment. It shall also be responsibility of the Contractor to furnish BHEL on monthly basis, Receipts/ Challans towards Deposit of the Cess under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder along with following statistics:</p> <ul style="list-style-type: none"> <li>i) Number of Building Workers employed during preceding one month.</li> <li>ii) Number of Building workers registered as Beneficiary during preceding one month.</li> <li>iii) Disbursement of Wages made to the Building Workers for preceding wage month.</li> <li>iv) Remittance of Contribution of Beneficiaries made during the preceding month.</li> </ul>
9.	<b>BHEL shall reimburse the contractor the Cess amount deposited for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.</b> However, BHEL shall not reimburse the Fee paid towards the registration of establishment, fees paid towards registration of Beneficiaries and Contribution of Beneficiaries remitted.
10.	It shall be responsibility of the Building Worker engaged by the Contractor and registered as a beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 to contribute to the Fund at such rate per mensem as may be specified by the State government by notification in the Official Gazette. Where such beneficiary authorizes the contractor being his employer to deduct his contribution from his monthly wages and to remit the same, the contractor shall remit such contribution to the Building and other construction Workers' Welfare Board in such manner as may be directed by the Board , within the fifteen days from such deduction.
11.	<b>Bidders may please note that though the quoted price is exclusive of BOCW (which will be reimbursed by BHEL as per sub-clause 9 above) , however, If at any point of time during the contract period, non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder is observed, BHEL reserves the right to deduct the applicable cess (1%) on the contract value and penalty ( if any, imposed by Cess Authorities) from the payables on account of non-compliance.</b>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

---

- |     |   |
|-----|---|
| 12. | The contractor shall declare to undertake any liability or claim arising out of employment of building workers and shall indemnify BHEL from all consequences / liabilities / penalties in case of non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder. |
|-----|---|

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IX: MATERIALS

<b>9.0</b>	<b>MATERIAL</b>
9.1	Material to be issued by BHEL (Free of Cost) as specified in BOQ cum Rate Schedule: <ol style="list-style-type: none"><li>1. Reinforcement Steel (Unless Otherwise Noted Elsewhere)</li><li>2. Structural Steel Material (Plates for flue canes, Rolled Section Gratings etc.) (Unless Otherwise Noted Elsewhere)</li></ol>
9.2	All other materials required for proper completion of job shall be provided by the contractor and is deemed to be inclusive in the quoted price. Bidder's scope also includes following:
9.2.1	Furnishing samples of all materials required by the BHEL Engineer for testing/inspection and approval for use in the works. The samples may be retained by the Engineer for final incorporation in the works.
9.2.2	Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the engineer.
9.2.3	Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
9.2.4	Contractor shall set up suitable storage facilities for Cement, sand, bolts, aggregate, reinforcement steel, structural steel, handrail, grating, foundation bolts, shuttering item, inserts, water proofing material, admixture other BOI's etc. and all are stored properly as per IS recommendation/technical specifications/ manufacturer recommendation. Wastage due to inadequacy of storage will be on account of contractor.
<b>9.3</b>	<b>HANDLING OF MATERIAL ISSUED BY BHEL:</b> <b>Refer Chapter-VI "Material Handling, Storage &amp; Preservation" of SCC</b>
9.3.1	Cement, Reinforcement Steel & Structural Steel (wherever specified as free issue by BHEL) required for the tender scope shall be procured by BHEL and issued to contractor free of cost (As FOC Item). However, unloading, handling / storage of BHEL materials for this tender scope at site, Contractor's Stores, issuance of materials from BHEL Stores and further transportation from Stores to work area (including loading and unloading) will be in the scope of contractor. No Extra payment shall be made for this work.
9.3.2	The contractor shall take care of material issued by BHEL and shall protect the same from damage and weathering. Contractor shall construct waterproof cement store for storing and stacking of cement issued by BHEL free of cost.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IX: MATERIALS

9.3.3	The theoretical weight of each bag of cement for issued purposes will be considered as 50kg, the contractor shall be accountable for the cement issued to the contractor on this notional weight only. No claim whatsoever will be entertained because of difference between theoretical and actual weight of the bags of cement.
9.3.4	The empty cement bags duly accounted for against issue shall be the contractor's property and the same shall be disposed as per statutory regulation prevailing in the project.
9.3.5	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.
9.3.6	Contractor will be responsible for sampling and testing of cement as per Indian Standard / Specification / approved quality plan in the testing laboratory established by the contractor.
9.3.7	No cement will be issued on free basis for bought out item like Hume pipe, Interlocking Paver block, Fly ash brick etc. However, cement for mortar for fixing of these items if required will be issued on free basis.
9.3.8	One month shall be the limit for the maximum quantity of BHEL issued cement 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).
9.3.9	Contractor will be responsible for unloading the cement as soon as the arrival of cement in the weather proof cement storage sheds/ Silo's 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 are 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 the BHEL stores for having received cement.
9.3.10	The contractor shall in no case be entitled for any compensation on account of any delay in supply or non-supply thereof for all or any such materials. However, in case of non-availability of any specific material / section(s) which delays the completion of work, such cases shall be recorded separately in monthly planning format (F14) and shall be considered for time extension of contract.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IX: MATERIALS

9.3.11	Contractor will have to make his own arrangement at his own cost for procurement of any other materials except as mentioned above, as required for the works and of such quality as acceptable to BHEL.		
9.3.12	Contractor shall also carryout in complete association with BHEL, the material management functions and execution like day-to-day update of materials, issued to contractor, accounting for surplus/scrap material returned etc. These functions shall also be carried out through computerized system utilizing suitable software. Contractor shall engage experienced software personnel to associate on dedicated basis for efficient discharge of the same in time.		
9.3.13	The contractor shall solely be responsible for the safety & security of material after it is handed over and issued to contractor by the BHEL.		
9.3.14	BHEL reserves the right to recover from the contractor any loss of material issued by BHEL arising out of damage/ theft or any other causes during verification/stacking or at any time under the custody of the contractor.		
9.3.15	BHEL issued materials, shall not be under any circumstances whatsoever, and shall be taken out of the project site unless otherwise permitted by BHEL for outside job.		
9.3.16	The contractor shall maintain proper store account for all the BHEL issued materials and shall give Three (03) copies of monthly-computerized reconciliation statement of such account showing total receipt, consumption and balance at site to the BHEL. BHEL Engineer's certification for the reconciliation of steel shall be final.		
9.4	<b>Issue and Return of Cement, Reinforcement Steel, MS Round Bar (Earthing Rod) and Structural Steel.</b> <b>Refer Chapter-VI "Material Handling, Storage &amp; Preservation" of SCC</b>		
9.5	<b>Consumption and Wastage of Cement, Reinforcement Steel, Structural Steel and MS Round Bar (Earthing Rod):</b> <b>Refer Chapter-VI "Material Handling, Storage &amp; Preservation" of SCC</b>		
9.6	<b>Recovery of Materials (Penal Rates):</b> If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA Bills as per following penal rates (excluding GST):		
9.6.1	Sl. No.	Materials	Penal Rate (Rs.)
	1	Cement (PPC)	6500/- per MT
	2	Cement (OPC)	7000/- per MT

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IX: MATERIALS

	3	Reinforcement Steel / Earthing Rod	60,000/- per MT
	4	Structural Steel (Plates, Rolled Sections etc.)	68,000/- per MT
	5	Structural Steel Gratings	1,10,000/- per MT
9.6.2	Penal Rate will be 1.05 times the actual cost to BHEL or Rate mentioned in Table 9.6.1 above, whichever is higher, shall be imposed.		

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: BOQ CUM RATE SCHEDULE AND % WEIGHTAGE OF INDIVIDUAL ITEMS

This Chapter consists of Part A & Part B of Volume II “Price bid”:

<b><u>CONTENTS</u></b>	
<b>Description</b>	<b>Remarks</b>
<b>PART A:</b>	Vol-II Price Bid Total Price for entire scope of Work (Implanted in the E- Procurement portal entitled as “Vol-II Price Bid”).
<b>PART B:</b>	PREAMBLE, ‘BOQ CUM RATE SCHEDULE’, % WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS OF BOQ CUM RATE SCHEDULE (ATTACHED SEPARATELY)

<b><u>Instructions to the Bidders</u></b>	
1.	<b><u>Bidders shall quote Total Price for the entire scope of work in Rupees in VOL II PRICE BID at BHEL E-procurement Portal.</u></b> Any other entry elsewhere in the offer of the bidder shall be treated as Null and Void. The total value shall be automatically calculated on E-portal.
2.	Contract Value based on the price quoted by Bidder in Price Bid shall be as per Part-B.
3.	BHEL has fixed the % weightages as in “Part-B” for the amount of individual items of BOQ Cum Rate Schedule w.r.t. the total value quoted in price-bid.
4.	Based on the pre-fixed % weightages, amount of individual items shall be derived by BHEL. This amount shall not be rounded off.
5.	Based on the quantities of individual item and the amount arrived in Sl. No. 4 above, item rate of individual items shall be derived by BHEL. This item rate shall be rounded off up to two decimal places and shall be used to calculate the total amount of an item.
6.	Bidders to note that this is an ‘ <b><u>Item rate contract</u></b> ’. Payment shall be made for the actual quantities of work executed at the Unit rate arrived at as per serial no. 5 above.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XI: TECHNICAL SPECIFICATIONS AND DRAWINGS

---

### **11.0 Following Technical Specifications shall be integral parts of this tender (attached separately):**

- **SECTION-C: SPECIFIC TECHNICAL REQUIREMENTS (RCC CHIMNEY)**
- **SECTION-C: TECHNICAL SPECIFICATION FOR CHIMNEY (ELECTRICAL PORTION)**
- **SECTION-C: TECHNICAL SPECIFICATION – MECHANICAL PORTION FOR RACK & PINION TYPE ELEVATOR FOR CHIMNEY**
- **SECTION-D: GENERAL TECHNICAL REQUIREMENTS**
- **CHIMNEY GENERAL ARRANGEMENT DRAWING.**
- **PLOT PLAN (TENDER STAGE DRAWING FOR BIDDER'S INFORMATION ONLY. FINAL PLOT PLAN SHALL BE PROVIDED TO THE SUCCESSFUL BIDDER AFTER AWARD OF WORK).**

### **NOTES:**

- Contractor has to make him well conversant with the Technical Specifications of Customer (Section-C) and BHEL (Section-D). In case of ambiguity between BHEL's and Customer's specification, Customer's specification shall prevail.
- Above documents have been uploaded Separately.