

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

CIVIL & ARCHITECTURAL WORKS OF TG  
FOUNDATION AND TRANSFORMER  
YARD OF UNIT-1 AND UNIT-2 AT 2X800  
MW NTPC LARA STPP STAGE II,  
RAIGARH, CHHATTISGARH STATE,  
INDIA



# TECHNICAL CONDITIONS OF CONTRACT (TCC) CONTENTS

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## Chapter - I: PROJECT INFORMATION

Sl. No.	Description	Details
1	<b>Project Title</b>	2X800MW Lara Super Thermal Power Station, Stage-II
2	<b>Customer</b>	National Thermal Power Corporation Limited (NTPC Limited)
3	<b>Location</b>	The project is located in Raigarh district of Chhattisgarh State. The project is located south-east of Raigarh town near village Lara, bounded by villages Lara, Chhapora & Lhaxhang and on the western side of Odisha State boundary.
4	<b>Nearest Airport</b>	The nearest commercial airport, Jarsuguda is about 90 kms from the project site.
5	<b>Access By Road/Major Cities</b>	The project site is approachable from NH-200 (Raigarh-Sarangarh) via Kondatarai through State PWD Road..
6	<b>Temperature</b>	Mean of daily minimum temperature = 13.2°C Mean of daily maximum temperature = 41.8°C
7	<b>Seismic Zone</b>	The project site lies in zone III as defined in IS: 1893.
8	<b>Wind Speed</b>	Design wind speed is 39 m/sec as per IS: 875 Part III

<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.

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## Chapter - I: PROJECT INFORMATION

<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>	<p><b>Sub-PQR of Civil and architecture work of TG Foundation and Transformer Yard of Unit - 1 &amp; Unit - 2 at 2x800 MW NTPC Lara STPP.</b></p> <p>Successful bidder shall submit the following credentials in support of execution towards TG Deck, before commencement of any activity towards TG Foundation work.</p> <ol style="list-style-type: none"> <li>1. In case, bidder has executed the work of at least one (1) TG Foundation of 500MW or higher capacity (coal based/Lignite based) power plant / Nuclear Power Plant, bidder shall submit the work order and experience certificate to BHEL for approval before start of TG Foundation work.</li> </ol> <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> <li>2. The successful bidder can engage an agency (as per Clause No. 1.15.9 of GCC), who has executed the work of at least one (1) TG Foundation of 500MW or higher capacity (coal based/Lignite based) power plant / Nuclear Power Plant, bidder shall submit their work order and experience certificate to BHEL for approval before start of TG Foundation work.</li> </ol> <p>Note:</p> <p>The work completion of the said work shall be within last 10 Years from the date of bid submission.</p> <p>The bidder has to submit all the relevant documents pertaining to experience of TG deck of bidder or its agency to BHEL site for further approval as per Clause No.1.15.9 of GCC.</p> <p>Bidder shall submit a confirmation/declaration as per Annexure-I of Chapter-XII of TCC along with bidding documents.</p>

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<b>1.7</b>	Bidders may fix up their site visit in consultation with below mentioned contact person:		
	<b>Name:</b>	Sh. Abdul Munaf	Sh. Mohd Shoaib Mansoori
	<b>Designation:</b>	Sr. DGM	Manager
	<b>Location:</b>	PSWR Lara	PSWR HQ, Nagpur
	<b>Email:</b>	munaf@bhel.in	msmciv@bhel.in
<b>Ph. No.</b>	8884711993	9099073910	

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## Chapter – II: SCOPE OF WORKS

<b>2.0</b>	<b>Scope of Works:</b>
2.1	Civil and Architectural works of TG Foundation and Transformer Yard of Unit-1 and Unit-2 - <b>excluding Supply of Cement &amp; Reinforcement Steel (TMT) that shall be issued by BHEL free of cost as per BOQ Cum Rate Schedule.</b> Before commencement of any major foundations, the bidders have to check with mechanical/electrical drawings jointly with concerned BHEL Engineers.
2.2	<p><b>The brief scope of work is as follows:</b></p> <p>Civil and Architectural works for following major Buildings / Structures:</p> <ol style="list-style-type: none"> <li>1. TG Foundation consists of Raft, Column and Deck for Unit-1</li> <li>2. TG Foundation consists of Raft, Column and Deck for Unit-2</li> <li>3. Transformer Yard for Unit-1</li> <li>4. Transformer Yard for Unit-2</li> <li>5. Other Facilities in above areas</li> </ol>
2.3	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.
2.4	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, construction plans, equipment, supplies, transport, to and fro the site, fuel, electricity, compressed air, water, transit and storage insurance and all other incidental items and temporary works not shown on specified but reasonably implied or necessary for the proper completion, maintenance and handing over the works in accordance with the stipulations laid down in the contract documents and additional stipulations as may be provide by the engineer during the course of works.

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<b>2.5.5</b>	Manpower hired/deployed by contractor for this project shall be monitored through online project monitoring system. All Personnel entering in to NTPC site premises for carrying out any work shall be tracked. Tracking devices shall be provided by BHEL on chargeable basis to contractor. BHEL will provide tags free of cost at first instance. In case of damage or missing of issued worker tag, Rs. 1000/- per tag will be charged for issuing new worker tag.
<b>2.5.6</b>	The area of work shall be cleared of all vegetation, rubbish and other objectionable matter and materials. No separate payment for these operations shall be made for such works.
<b>2.5.7</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.
<b>2.5.8</b>	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.
<b>2.5.9</b>	All necessary arrangement for safety like Hard Barricading around deep structures of Under Ground Track Hopper, Tunnel & TP's with scaffolding pipes and providing of safety net on the slope of excavated area is in bidder's scope.
<b>2.5.10</b>	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.
<b>2.5.11</b>	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.
<b>2.5.12</b>	Carrying out topographic survey of the entire and establish levels and coordinates at suitable intervals from existing grid levels and coordinates furnished by the owner established bench marks, setting out the locations and levels of proposed structures, constructions and marking of reference pillars and other identification works etc., The contractor shall provide the owner/BHEL such a assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.
<b>2.5.13</b>	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.
<b>2.5.14</b>	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

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	shall be distributed / shared among the vendors working in Lara Project site proportionately based on contract value.
<b>2.5.15</b>	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.
<b>2.5.16</b>	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.
<b>2.6</b>	<b>Tentative Technical Staff Requirement:</b>
<b>2.6.1</b>	<ul style="list-style-type: none"> <li>• <b>Project Manager</b> - 01 Head with 15 Years' experience in Industrial Foundation, Building &amp; Power Plant Civil &amp; Architectural Works etc.</li> <li>• <b>Asst. Project Managers</b> - 01 Heads with 12 Years' experience in Industrial Foundation, Building &amp; Power Plant Civil &amp; Architectural Works</li> <li>• Experienced Civil Engineers - 03 heads</li> <li>• Experienced Foreman / Supervisors - 06 heads</li> <li>• Planning &amp; Billing Engineers - 01 head</li> <li>• Stores, Gate Pass - 01 head</li> <li>• Accounts &amp; Administration - 01 head</li> <li>• Quality Control Engineer - 02 head</li> <li>• Safety Engineer - As per HSE Plan</li> <li>• Surveyor - 1 head capable to handle total station</li> <li>• Operator, Licensed Electrician, Mechanic - As per requirement</li> <li>• Experienced Carpenters &amp; Helpers - lot for similar nature of work</li> <li>• Experienced Bar Benders &amp; Helpers - lot for similar nature of work</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.

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<b>2.6.3</b>	Engineer/ supervisor for other functions like store & purchase, material management, planning, 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>Supervisors / Engineer and Computer for exclusive use of BHEL:</b>
<b>2.7.1</b>	VOID
<b>2.7.2</b>	VOID
<b>2.7.3</b>	The bidder will have to provide <b>One (01) 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 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>
<b>2.7.4</b>	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).
<b>2.7.5</b>	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

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	<p>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.</p>
<b>2.8</b>	<b>Field Quality Assurance:</b>
<b>2.8.1</b>	<p>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.</p>
<b>2.8.2</b>	<p><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 &amp; 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></p> <p>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.</p>
<b>2.8.3</b>	<p>Minimum Testing Facilities to be arranged by contractor at site are as under:</p> <ol style="list-style-type: none"> <li>1. Soil Works: <ol style="list-style-type: none"> <li>1a. Facilities for HDD</li> <li>1b. Field Compaction Test (Core Cutter / Sand Replacement Method).</li> <li>1c. Atterberg Limit Test of Soil.</li> <li>1d. Grain Size Distribution Test.</li> </ol> </li> <li>2. Road Works: <ol style="list-style-type: none"> <li>2a. Facilities for mechanical strength of aggregates. <ol style="list-style-type: none"> <li>2a(i). Impact and Abrasion Value.</li> <li>2a(ii). Crushing Value.</li> <li>2a(iii). Water Absorption</li> </ol> </li> </ol> </li> <li>3. Concreting Works: <ol style="list-style-type: none"> <li>3a. Facilities for sieve Analysis for both fine and coarse aggregates.</li> </ol> </li> </ol>

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	3b. Facilities for workability test of concrete by Slump cone / BV. 3c. Facilities for Cube Strength.
<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>2.8.7</b>	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%.  The performance compliance of the Super-plasticizer should be ensured based on the following tests: a) Marsh cone test for optimum dosage of admixture with specific brand of cement. b) Slump retention test of concrete. c) Water reduction capability test by doing trial mix. d) Rheological properties of fresh concrete on trial mix.
<b>2.8.8</b>	In case ambient temperature is greater than 32 Degree Celsius, Placement temperature should be controlled with necessary temperature correction of concrete by introducing Chiller Plant along with Batching Plant.
<b>2.9</b>	<b>HEIRARCHY:</b>
<b>2.9.1</b>	In case of any conflict/deviations amongst various documents, the order of precedence shall be as follows:  1. Items Description in BOQ Cum Rate Schedule 2. Technical Conditions of Contract (TCC) 3. Technical Specifications for Customer LARA (Section-C) 4. IS Standard 5. BHEL's Standard Specification (Section-D)

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### 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 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>			
<b>3.2.1</b>	<b>Electricity for construction purposes (for Site/Project works only) 3 Phase 415/440 V (Chargeable) within project premises</b>			

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

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
a	Single point source (Chargeable)	Yes	For 1 <sup>st</sup> Five Months from start of work with DG Set.	Chargeable at prevailing tariff on project site at one point near the site at a distance of approx. 500 meter.
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 ( Chargeable ) within project premises</b>			
a	Single point source (Chargeable)	Yes	For 1 <sup>st</sup> Five Months from start of work with DG Set.	Chargeable at prevailing tariff on project site at one point near the site at a distance of approx. 500 meter.
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	
3.3	<b>Water Supply:</b>			

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Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
<b>3.3.1</b>	<b>For construction purposes:</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>3.3.2</b>	<b>Water supply for bidder's office, stores, canteen etc</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>3.3.3</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>			
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>Communication facilities for site operations of the bidder</b>			

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Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
a	Téléphone, fax, internet, intranet, e-mail etc.		Yes	
<b>3.6</b>	<b>Transportation</b>			
a	For site personnel of the bidder		Yes	
b	For bidder's equipment and consumables (T&P, Consumables etc.)		Yes	
<b>3.7</b>	<b>Erection Facilities</b>			
3.7.1	Engineering works for construction:			<b>Not Applicable</b>
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
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 & handover to BHEL on completion of work.
d	Shipping lists etc. for reference and planning the activities			Not Applicable
e	Preparation of site erection schedules and other input requirements as per Form-14.	Yes	Yes	In consultation with BHEL
f	Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly erection schedules based on Sl. No. e		Yes	In consultation with BHEL
h	Daily erection / 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	

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

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
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>3.8</b>	<b>Land/Open Space:</b>
<b>3.8.1</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.
<b>3.9</b>	<b>Labour and Staff Colony:</b> <b>Following are in the Bidder's scope of work for labour &amp; staff colony:</b>
<b>3.9.1</b>	<p>Labour colony is to be developed by bidder for all the labourers required to be deployed for the works. All labour colony set-up is to be developed as per attached drawing and in compliance of statutory requirements.</p> <p>Contractor shall construct/arrange Labour Hutment as per minimum specifications mentioned in the attached drawing, for which no separate payment shall be made by BHEL.</p> <p>Minimum One (01) set of labour hutment is to be completed within Three (03) months from the date of start of work.</p> <p>Payment of RA bill beyond the period of Three (03) months shall not be released without completion of One (01) set of labour hutment as per drawing.</p> <p>Ownership of the labour hutment shall be of the contractor and contractor shall keep BHEL indemnified from any statutory obligations / legal compliances w.r.t. labour hutment establishment during as well as after the completion of contract.</p>
<b>3.9.2</b>	<p>In case labour hutment is not completed as per the drawings and specification and any penalty is imposed by Customer, same shall be recovered from contract's RA Bill.</p> <p>Rectification and Corrections in labour hutment as pointed out by BHEL/Customer shall be bidder's responsibility and any cost incurred by BHEL to complete the works, in case of non-compliance of the instructions, same shall be recovered from his RA Bills along with 5% overheads.</p>

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

<b>3.9.3</b>	Land for labor colony shall be arranged by Contractor at their own cost as per availability outside project area within 5Km, Necessary levelling/dressing of land shall be done by the contractor. All arrangement for electricity and drinking/service water to be arranged by the contractor within his quoted price.
<b>3.9.4</b>	Development of Bidder's temporary staff colony and labour colony having adequate no. of rest rooms along with toilets & fencing etc. ( <b>drawing enclosed for ready reference</b> ).
<b>3.9.5</b>	All Civil and Structural work associated with drinking and service water for Bidder's labour and other personnel at the work site/colony/offices including pump houses, pipes, overhead tank, tube wells etc.
<b>3.9.6</b>	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 & staff colonies.
<b>3.9.7</b>	Development and maintenance of above facilities for construction workers deployed by the Contractor shall solely rest with the Contractor.
<b>3.10</b>	<p>Installation of necessary amenities- and temporary infrastructure for construction activities at Project site locations.</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> <ol style="list-style-type: none"><li>Labour rest sheds near work spot.</li><li>Canteen facility creation.</li><li>Drinking water facility.</li><li>Labour Bio toilets near work spot in sufficient nos. with regular cleaning &amp; maintenance arrangement.</li><li>Labour colony should have all hygienic condition, dining hall, toilets, proper sewerage system, good drinking water arrangements.</li><li>Royalty challan and statutory documents shall be submitted along with RA Bills for processing of Bills.</li></ol>
<b>3.11</b>	<b>Construction Power:</b>
<b>3.11.1</b>	<p>Construction power (three phase, 415 V/ 440 V) will be provided on chargeable basis at one point near the site at a distance of approx. 500M. Further, distribution shall be arranged by the contractor at his own cost and services. 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> <p>The charges for the actual energy consumed by the bidder (Energy Charges Only) shall be recovered by the BHEL based on prevalent rate of DISCOM and type of connection used.</p>

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

<b>3.11.2</b>	<p>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.</p> <p>Contractor shall provide at his own cost necessary calibrated energy meters (tamper proof, suitably housed in a weather proof box with lock &amp; key arrangement) at point of power supply along with calibration certificate from authorized/ accredited agency for working out the power consumption. In case of recalibration required for any reason the necessary charges including replacement by calibrated meters is to be borne by the contractor.</p> <p>Contractor is advised to maintain the calibrated energy measuring instruments and use their system as efficiently as possible to maintain the HT side input energy meter reading and LT side outgoing energy meter reading to sub-contractors as equal. Contractor shall also obtain approvals of appropriate authority and pay necessary fees, levies etc. towards the clearance of such installations, prior to use.</p>
<b>3.11.3</b>	<p>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.</p>
<b>3.11.4</b>	<p>Contractor shall make necessary arrangements for onward distribution of construction power taking due care of surrounding construction activities like movement of cranes &amp; 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.</p>
<b>3.11.5</b>	<p>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.</p>
<b>3.11.6</b>	<p>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 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.</p>
<b>3.11.7</b>	<p>Contractor to note that till construction power is made available by BHEL (approx. within 5 months from start of work); 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.</p>
<b>3.11.8</b>	<p>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.</p>

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

<b>3.11.9</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>3.11.10</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>3.11.11</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>3.12</b>	<b>Construction water:</b>
<b>3.12.1</b>	Construction water shall be arranged by bidder. Bidder has to make arrangement of further distribution of water at his own cost. No extra payment shall be made under this account.
<b>3.12.2</b>	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 batching plant and construction purposes.
<b>3.12.3</b>	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.

<b>4.1</b>	<b>For Civil Works</b>	
4.1.1	Hydraulic Excavator /Poclain	01 No.
4.1.2	Dumper	03 No.
4.1.3	Dozer	As per requirement
4.1.4	Trailer (20MT Capacity)	As per requirement
4.1.5	Automatic concrete batching plant with printing facility (30 Cum/Hr.) with silos of min. storage capacity of 300 MT	01 No.
4.1.6	Concrete Transit Mixer	03 Nos.
4.1.7	Concrete Boom placer min. 35m long of required Capacity	01 No.
4.1.8	Concrete Pump (60 Cum/Hr min capacity)	01 No.
4.1.9	Concrete Mixture Machine	As per requirement
4.1.10	Vibrators (electrical/diesel)	As per requirement
4.1.11	Reinforcement bending machine	As per requirement.
4.1.12	Reinforcement cutting machine	As per requirement.
4.1.13	JCB	02 No.
4.1.14	Farana crane (Required Capacity) *Note- Hydra is not allowed at project site	As per requirement
4.1.15	Self-priming Dewatering pump of various capacity (Diesel/Electric) From 2 HP to 15 HP	02 Nos.
4.1.16	Curing / dewatering pump – 1.5 / 2 HP	05 Nos.
4.1.17	De-watering pump (diesel operated) – 20 HP & 30 HP	01 No.
4.1.18	Hydraulic Excavator /Poclain with rock breaker arrangement	As per Requirement

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

4.1.19	Pneumatic rock breaker with jack hammer	As per Requirement
4.1.20	Ply Shuttering board with adequate supporting structure – (Old steel shuttering plates will not be allowed).	As per requirement
4.1.21	MS Scaffolding Pipes.	As per requirement
4.1.22	Motorized External Platform (Sky Climber)	As per requirement
4.1.23	Tractor mounted grader/ loader	As per requirement
4.1.24	Plate compactor	As per requirement.
4.1.25	Earth Compactor- 3MT Capacity	As per requirement.
4.1.26	Total Station	01 No.
4.1.27	Auto level & staff	02 Nos.
4.1.28	Road roller/Vibro roller	01 No.
4.1.29	Water Tanker with sprinkler attachment	01 No.
4.1.30	Man lift crane of Minimum 20m reach	As per requirement
4.1.31	DG Set of 125 KVA Capacity	01 No.
4.1.32	Electrical Winches with Building Hoist	As per Requirement
4.1.32	Construction Cable and Water Pipe Line	As per Requirement

<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 suggestive 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.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

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<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>	Heavy equipment will be tracked with real-time position location for fleet management. Deployment vs planned reports shall be generated. Equipment condition monitoring data like service meter reading, operation maps, loading, fuel levels, operating information, idle time etc. shall be captured. This data shall be captured through integrated online project monitoring system. All T&Ps and Equipment deployed by contractor will also be covered/ monitored through this system. Accordingly, minimum 5 signals per equipment should be made available to provide the input to integrated online project monitoring system. Necessary software/ hardware for aforesaid system shall be provided by BHEL.
<b>4.7</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

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### **5.0 LIST OF T&P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS:**

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>	<b>Initial Mobilization and Time Schedule:</b> <p>After issue of LOA (through 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 One (21) 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>	
<b>6.2</b>	<b>Schedule of Completion:</b> <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>Activity</b>	<b>Schedule of completion from date of start of work</b>
<b>6.2.1</b>	Completion of TG Raft for Unit-1	04 <sup>th</sup> Months
<b>6.2.2</b>	Completion of TG Raft for Unit-2	06 <sup>th</sup> Months
<b>6.2.3</b>	Completion of TG Columns up to Final Lift for Unit-1	07 <sup>th</sup> Months
<b>6.2.4</b>	Completion of TG Columns up to Final Lift for Unit-2	10 <sup>th</sup> Months
<b>6.2.5</b>	Completion of TG Deck for Unit-1	11 <sup>th</sup> Month
<b>6.2.6</b>	Completion of TG Deck for Unit-2	14 <sup>th</sup> Month
<b>6.2.7</b>	Completion of Transformer yard foundations for Unit-1	15 <sup>th</sup> Month
<b>6.2.8</b>	Completion of Transformer yard foundations for Unit-2	18 <sup>th</sup> Month
<b>6.2.9</b>	Completion of balance works and handing over	21 <sup>st</sup> Month
<b>6.3</b>	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.	

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VI: TIME SCHEDULE

<b>6.4</b>	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.	
<b>6.5</b>	<b>Intermediate milestones:</b>	
<b>6.5.1</b>	Two Major Intermediate Milestones are identified as M1 and M2 above.	
<b>Milestones</b>	<b>Activity</b>	<b>Schedule of completion from start of work</b>
<b>M1</b>	Completion of TG Deck for Unit-1	11 <sup>th</sup> Month
<b>M2</b>	Completion of TG Deck for Unit-2	14 <sup>th</sup> Month
<b>6.6</b>	<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>	
<b>6.6.1</b>	In case of slippage of these identified Intermediate Milestones, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones.	
<b>6.6.2</b>	<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>	
<b>6.6.3</b>	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.	
<b>6.6.4</b>	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.	
<b>6.6.5</b>	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.	
<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.	

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VI: TIME SCHEDULE

<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.
<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:             <ol 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> </ol> </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 Excavator &amp; Dumper, Transit Mixers, Boom Placer/Concrete Pump, Construction Materials (Sand, Aggregate, Admixture etc.) - 2.0%</li><li>2. For Mobilization of required T&amp;Ps and resources at site to start the work - 1.5%</li><li>3. For Installation and Erection of Site Infrastructure by contractor i.e. site office stores etc. - 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>
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# 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>	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.
<b>8.2.2</b>	The admissibility of GST, taxes and duties referred in this chapter or elsewhere in the contract shall be limited to direct transactions between BHEL & its Contractor. BHEL shall not consider GST on any transaction other than the direct transaction between BHEL & its Contractor.
<b>8.2.3</b>	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.
<b>8.2.4</b>	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.
<b>8.2.5</b>	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.
<b>8.2.6</b>	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 & 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.
<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.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

<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>a. Supply of goods and/or services have been received by BHEL.</li> <li>b. Original Tax Invoice has been submitted to BHEL.</li> <li>c. Contractor/ Vendor has submitted all the documents required for processing of bill as per contract/ purchase order/ work order.</li> <li>d. 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>e. 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>f. 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>g. 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 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.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

<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><b>TDS/TCS</b> 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.

<b>Annexure-I:</b>	
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

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

	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 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>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VIII: TAXES AND DUTIES

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>
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 per BOQ cum Rate Schedule: <ol style="list-style-type: none"> <li>1. Cement</li> <li>2. Reinforcement Steel and MS Round Bar (Earthing Rod)</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, deck plate, 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 lapse of storing will be because 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 and Reinforcement 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 Cement and Reinforcement steel procured by BHEL 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 (capacity minimum 300 MT/ 6000 Bags) for storing and stacking of cement issued by BHEL free of cost.
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

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IX: MATERIALS

	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	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.
9.3.8	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.
9.3.9	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.
9.3.10	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.
9.3.11	The contractor shall solely be responsible for the safety & security of material after it is handed over and issued to contractor by the BHEL.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IX: MATERIALS

9.3.12	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.
9.3.13	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.
9.3.14	Before commencement of work, Contractor has to satisfy/ensure the above design mix proportion through conducting trial mix. Contractor shall not be absolved from the responsibility of quality of concrete works as per relevant specification, standard and to ensure satisfactory performance as per terms and conditions of contract. Any issue raised regarding design mix after successful completion of trial mix shall not be entertained and contractor shall not be entitled for any cost or damages.
<b>9.4</b>	<b>Issue of Cement:</b>
9.4.1	Cement as received from the manufacturer/ stockiest will be issued free of cost to the contractor. The theoretical weight of each bag of cement for issued purposes will be considered as 50 kg, the contractor shall be accountable for the cement issued to 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.
9.4.2	In case cement is issued through bulkers being supplied from manufacturer/stockiest; the same shall be emptied in cement silos of batching plant and necessary assistance shall be provided by contractor.
9.4.4	In case BHEL supplies cement through Bulker, Bidder has to store cement in Silos of Suitable capacities as decided by Engineer in charge. Silos Capacities shall be finalized mutually.
9.4.5	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.
9.4.6	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.
9.4.7	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).
<b>9.5</b>	<b>Issue of Reinforcement Steel and MS Round Bar (Earthing Rod):</b> <b>Refer Chapter-VI "Material Handling, Storage &amp; Preservation" of SCC</b>
<b>9.6</b>	<b>Return of Cement, Reinforcement Steel and MS Round Bar (Earthing Rod):</b>

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IX: MATERIALS

	<b>Refer Chapter-VI “Material Handling, Storage &amp; Preservation” of SCC</b>		
<b>9.7</b>	<b>Consumption and Wastage of Cement, Reinforcement Steel and MS Round Bar (Earthing Rod):</b> <b>Refer Chapter-VI “Material Handling, Storage &amp; Preservation” of SCC</b>		
<b>9.8</b>	<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):		
<b>9.8.1</b>	<b>Sl. No.</b>	<b>Materials</b>	<b>Penal Rate (Rs.)</b>
	1	Cement (PPC)	5,000/- per MT
	2	Cement (OPC)	7,000/- per MT
	3	Reinforcement Steel / Earthing Rod	65,000/- per MT
<b>9.8.2</b>	<b>Penal Rate will be 1.05 times the actual cost to BHEL or Rate mentioned in Table 9.8.1 above, whichever is higher, shall be imposed.</b>		

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

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

<b><u>CONTENTS</u></b>	
Description	Remarks
<b>PART A:</b> Instructions to the Bidders	Instructions
<b>PART B:</b> % weightage for amount of individual items of Schedule of quantity	BOQ Cum Rate Schedule
<b>PART C:</b> Total Price for entire scope of Work	This part is implanted in the E- Procurement portal entitled as “Part-C of Vol-II Price Bid”.

<b><u>Part A:</u></b>	<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.	Bidder shall quote the total price in “Price Bid”.
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 price of Price Bid Vol-II.
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.
<b><u>PART B:</u></b>	% weightage for amount of individual items of BOQ CUM RATE SCHEDULE w.r.t. the total price (as quoted by the bidder in “Part C of Vol-II-Price Bid”)- attached separately.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XI: TECHNICAL SPECIFICATIONS AND DRAWINGS

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

- SECTION-C: CUSTOMER CONTRACT SPECIFIC TECHNICAL REQUIREMENTS
- SECTION-D: GENERAL TECHNICAL REQUIREMENTS
- WORKERS ACCOMMODATION DRAWING OF CUSTOMER
- 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 Customer and BHEL's Technical Specification. In case of ambiguity between BHEL and customer specification, customer specification shall prevail.
- Above documents have been uploaded Separately.

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter-XII: ANNEXURES**

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**Annexure-I**

**CONFIRMATION/DECLARATION**

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir/Madam,

Sub: DECLARATION REGARDING SUBMISSION OF CREDENTIALS PERTAINING TO SUB-PQR MENTIONED AT CLAUSE 1.6 OF TCC

Ref: NIT/Tender Specification No: BHEL/CPC/LRA/ TG FDN/25/010

I/We, \_\_\_\_\_ declare that, I/We shall submit the credentials pertaining to Sub-PQR mentioned at Clause No. 1.6 of TCC for qualification, before commencement of any activity towards TG Foundation work.

In case, I/We fail to submit the requisite documents, BHEL shall be entitled to take any contractual action.

Sign. of the AUTHORISED SIGNATORY

(With Name, Designation and Company seal)

Place:

Date:

## **PREAMBLE FOR BOQ CUM RATE SCHEDULE**

<b>1</b>	<b>Preamble for the Schedule of Quantities/BOQ Cum Rate Schedule:</b>
1.1	Details of the items in the BOQ Cum Rate Schedule shall be read in conjunction with the Corresponding Consultants/ Customer specifications, drawings and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
1.2	The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions, Drawings enclosed with these documents are only indicative giving some idea of the type of work involved. The layout, sizes and details of the building, structures and foundations shown in tender drawings may vary at a large extent during actual construction. Final drawings will be issued progressively during the execution of the work.
1.3	Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
1.4	Unless specifically mentioned otherwise in the contract, the contractor shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant , temporary works, labour materials, levies , taxes , transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
1.5	The rate shall also be inclusive of carrying out topography survey of site to establish levels and coordinates at suitable intervals, form existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references, pillars and other identification marks etc. No separate payment will be made towards the same.
1.6	The quantities of the various items mentioned in the BOQ cum Rate Schedule are approximate and may vary up to any extent or be deleted altogether. The overall variation in contract value on execution shall be dealt as per GCC. Contractor has to obtain prior approval of BHEL/ Customer before procurement of bought out items/ building materials.
1.7	BHEL Engineer's decision shall be final and binding on the contractors regarding clarification of items in BOQ cum Rate schedule with respect to the other sections of the contract.
1.8	In case of any discrepancy between item description, relevant specification, clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the contractor has quoted for the more stringent requirement.

## PROJECT: 2X800 MW NTPC LARA TPP STAGE II, RAIGARH, CHHATTISGARH STATE, INDIA

## BOQ CUM RATE SCHEDULE

**SCOPE OF WORK:- CIVIL & ARCHITECTURAL WORKS OF TG FOUNDATION AND TRANSFORMER YARD OF UNIT-1 AND UNIT-2 AT 2X800 MW NTPC LARA STPP STAGE II, RAIGARH, CHHATTISGARH STATE, INDIA**

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
100	<b>EARTH WORK: Earth work In excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.</b>					
101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	CUM	32101			0.9158596334
b	Depth exceeding 2 m but not exceeding 4 m	CUM	18117			0.6474155571
c	Depth exceeding 4 m but not exceeding 6 m	CUM	3200			0.1429410073
d	Depth exceeding 6 m but not exceeding 8 m	CUM	3000			0.1677251335
103	Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.					
b	Depth exceeding 2 m but not exceeding 4 m	CUM	50			0.0025418139
c	Depth exceeding 4 m but not exceeding 6 m	CUM	250			0.0152508833
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300mm compacted thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.					
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	37765			0.8735743596
109	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.					
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	3000			0.0103747505
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	6453			0.0223160884
A111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS 2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	1338			0.7593648791
B111	Supplying and filling clean and well graded sand (conforming to IS 383 with grading zone I to III) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	7248			4.6276989717

## PROJECT: 2X800 MW NTPC LARA TPP STAGE II, RAIGARH, CHHATTISGARH STATE, INDIA

## BOQ CUM RATE SCHEDULE

**SCOPE OF WORK:- CIVIL & ARCHITECTURAL WORKS OF TG FOUNDATION AND TRANSFORMER YARD OF UNIT-1 AND UNIT-2 AT 2X800 MW NTPC LARA STPP STAGE II, RAIGARH, CHHATTISGARH STATE, INDIA**

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
112	Extra over item no. 101 for shoring and strutting in trenches including packing cavities (wherever required as instructed by engineer) all complete as per specification and as directed by engineer in charge.					
a	upto depth of 2m	SQM	1500			0.1400591321
b	Depth exceeding 2 m but not exceeding 4 m	SQM	100			0.0116715943
200	<b>CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.</b>					
201	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level upto depth of 10m from FFL. (For depth greater than 10m from FFL, extra over for additional depth to be paid in Item No 224). (Cement shall be issued by BHEL free of cost)	CUM	1472			1.7944168512
205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc for any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing below finished floor level upto a depth of 10m from FFL(For depths greater than 10m from FFL, extra over for additional depth to be paid in Item No 224), for the following.					
b	M 25 Grade	CUM	6472			8.4659140107
206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in superstructure for any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing upto 10m level above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 225), for the following.					
b	M 25 Grade	CUM	892			1.2089685262
c	M 30 Grade	CUM	4525			6.1746696653
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system but including TG foundation Columns with addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing. (Cement shall be issued by BHEL free of cost)					

## PROJECT: 2X800 MW NTPC LARA TPP STAGE II, RAIGARH, CHHATTISGARH STATE, INDIA

## BOQ CUM RATE SCHEDULE

**SCOPE OF WORK:- CIVIL & ARCHITECTURAL WORKS OF TG FOUNDATION AND TRANSFORMER YARD OF UNIT-1 AND UNIT-2 AT 2X800 MW NTPC LARA STPP STAGE II, RAIGARH, CHHATTISGARH STATE, INDIA**

ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
b	M 35 Grade	CUM	4000			6.0323410565
A208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system) and top deck of TG foundation at all levels including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. (Cement shall be issued by BHEL free of cost) Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.					
Ad	M 50 Grade	CUM	5371			12.3348576199
A209	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 25 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	9371			3.1191990057
210	Extra over ST Nos. 205 to 207 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	428			0.0429238012
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.					
c	M30	CUM	145			0.3260236534
215	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.					
a	Plain cement concrete of all grades	CUM	26			0.0076389980
b	Reinforced cement concrete of all grades	CUM	107			0.0482388723

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ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	535			0.0112577931
217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	86			0.0001480477
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	54			0.0044722740
225	Extra over item no. 206 and 212 for height above FFL (Finished Floor Level) as per following:					
a	Height exceeding 10m from FFL but not exceeding 20m	CUM	3931			0.4112300386
300	<b>FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.</b>					
A301	Fairface form work with good quality water proof ply wood with Filmface of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams & slabs(for which scaffolding work not required for vertical support of bottom face of formwork), mass concrete, trenches, grade slab, paving etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge.					
a	Upto Depth 10m From FGL	SQM	26536			6.7486321734
A302	Fairface form work with good quality water proof ply wood with Film face of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended/intermediate floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge.					
a	For Height Upto 20m from FGL	SQM	8922			2.7308501250
A303	Plywood Formwork with filmface of required thickness and smooth surface for TG superstructure (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights.	SQM	6100			10.4722396572
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.					
a	Upto 150 mm depth	Each	50			0.0038268420
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	50			0.0063892613
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	50			0.0113716632

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d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	50			0.0177942101
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	50			0.0256327664
400	<b>REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>					
403	Transportation, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR or HCRM or any other Grade confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (BHEL to supply steel free of cost)	MT	3235			13.2661775289
500	<b>Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>					
A511	Providing and applying two coats of bitumen paint of minimum 150 micron DFT with suitable primer, conforming to IS 9862 with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces including surface preparation etc. all complete.	SQM	1730			0.0843371540
600	<b>JOINTS AND FILLERS: Joints &amp; fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>					
601	Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.					
d	50 mm wide joints	SQM	720			0.4203848914
603	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves (10 mm thick backer rod to be paid separately):					
a	25mmX25mm groov size	RM	519			0.0634173917
A605	Supply and instalation of Polystyrene flexible board confirming to IS 4671 as joint filler at joint of concrete including nailing, coating of both faces with coal tar pitch /butimen etc. all complete.					
a	100 mm thick	SQM	871			0.5521973043
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)					
d	230 mm wide and 6 mm thick	RM	77			0.0045712304
700	<b>MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>					

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701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	120			3.4012236303
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.					
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	32			0.2211804592
B	Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc.	MT	40			0.3012020628
704	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.					
a	MS pipes of all diameters	Kg	470			0.0109712987
b	PVC pipes / conduits of all diameters	Kg	570			0.0625856826
<b>1000</b>	<b>BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.</b>					
A1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting. (Cement shall be issued by BHEL free of cost)					
a	Using table moulded/machine made fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> and minimum percentage of fly ash 25% (including cost of cement for brick making)	CUM	189			0.2914552729
1005	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	2			0.0011423753
<b>1200</b>	<b>PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>					
A1201	Providing 18mm thick plaster in two layers outside the building/boundary wall/rough surface of internal wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	8922			0.8125020458

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<b>1300</b>	<b>FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>					
A1306	Providing and applying 2 or more coats of oil resistant paint(epoxy based & minimum 150 micron thickness) of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	767			0.0513939694
A1315	Providing and applying three coats of Solvent based (100% pure acrylic co-polymer resin based) paint (shall not contain any water sensitive ingredients)of approved brand and manufacture and required shade over one coat of primer or one coat of cement paint after necessary cleaning/ washing, removing loose & flaking materials, removing mould, algae, organic growth & grease, preparing the surface using coir brush/ wire brush, sand paper, including all required tools, material, scaffolding and other painting accessories, filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish. The final finished coating shall be fungus resistant, UV resistant, water resistant & repellant and extremely durable with color fastness as per the specifications/manufacturer's specifications, instructions and satisfaction of Engineer-in-charge	SQM	8922			0.6889297410
<b>1400</b>	<b>FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>					
A1436	Providing and fixing Rubber flooring over cement concrete floor min. 4mm thick conform to IS 809, consist of 100% virgin elastomer reinforcing agents, resins, curing agents, anti-oxidants and pigments.The rubber flooring shall be of tile/roll form, machine/hand made tupled un-cut loop pile and lay with suitable under lay and shall be laid as per manufacturer's recommendations, in matching grains, treated with anti fungus and anti-termite before laying etc all complete as per specifications. Rubber flooring shall have excellent abrasion resistance,comply to class-I fire rating,acid & alkali resistant and shall be of anti static grade.(Cement concrete flooring to be paid separately)	SQM	1270			0.9687604863
<b>1800</b>	<b>MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.</b>					

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A1801	Providing and Filling in trenches, plinths, area paving, grade slab and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	2294			1.1212292610
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	3046			2.8265777261
1853	Providing, laying and fixing rails and guide rails in concrete for transformer, rail track(52 kg/m) including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	145			3.6204838962
2000	<b>FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>					
A2003	Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating ) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2007/A2008)	RM	650			0.4995874660
A2008	Supply, fabrication and fixing of mild steel posts for fencing including painting with chlorinated rubber paint over a suitable primer etc all complete.	MT	64			1.8756811193
2010	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	3			0.0982281380
2300	<b>STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>					

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2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.					
a	Minimum galvanisation of 610 g/sqm	MT	10			0.3828859320
2311	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	KG	30			0.0010028926
2313	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	2			0.0049464505
2314	Addition to, alterations in and/or modification of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:					
a	In erected position	MT	2			0.0131113792
b	In fabrication yard	MT	2			0.0104450683
2315	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members (weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	2			0.0075574294
	<b>TOTAL AMOUNT</b>					<b>100</b>