

**1X800 MW DCRTTP
YAMUNANAGAR:
BALANCE CIVIL,
STRUCTURAL AND
ARCHITECTURAL WORKS
FOR BOP SYSTEMS AND
ROADS & DRAINS FOR**

Volume – IA

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Balance Civil, Structural and Architectural Works for Compressed Air System, Fire Protection System including Pump Houses, Fuel Oil System including Day Oil Tank and Pump House, Chemical Lab, Ammonia Unloading & Storage, H2 Cylinder Storage Shed, Raw Water System including Pump House, Fire Protection and Detection System, HVAC System including Air Washer Building, Security cum Main Gate Complex, Parking sheds for four wheelers and two wheelers, Main Plant and Peripheral Roads & Drains (Cast In-Situ, Pre-cast drains), Levelling & Grading, Pipe & Cable rack, paving and Miscellaneous works at 1X800 MW DCRTTP Yamuna Nagar, Haryana.

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)

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Chapter - I: PROJECT INFORMATION

Project Information is as follows:

Sl. No.	Title	Description
1	Project Title	1X800 MW DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, HPGCL, YAMUNA NAGAR, HARYANA.
2	Owner/Customer	HARYANA POWER GENERATION CORPORATION LIMITED (HPGCL), PANCHKULA, HARYANA.
3	Owner's Consultant	DESEIN PRIVATE LIMITED, NEW DELHI
4	Nearest Airport	The nearest major airport is Chandigarh at a distance of about 110 km from project site.
5	Access by Road/Rail/Major Cities	Nearest National Highway to the Project Site is NH- 344. The nearest major town is Yamuna Nagar, which is at a distance of about 08 Km from Project Site. The nearest railway station is Kalanaur at 2Km (Approx.).
6	Project Site Location	PLACE KALANAUR
		DISTRICT YAMUNA NAGAR
		STATE HARYANA
		COUNTRY INDIA
7	Nearest Water Body	Western Yamuna Canal, adjacent to site
8	Site Ambient Condition	Refer enclosed Climatological Table
9	Basic Wind Speed	Basic wind speed at project site is 47m/sec. as per IS:875 Part-3
10	Seismic data	Seismic analysis shall be carried out as per the latest edition of IS:1893 (Part 1 & 4). Zone-IV shall be considered.

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Chapter - I: PROJECT INFORMATION

1	INSTRUCTIONS TO BIDDERS:	
1.1	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.	
1.2	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.	
1.3	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.	
1.4	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.	
1.5	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.	
1.6	Bidders may fix up their site visit in consultation with below mentioned contact person:	
	Name:	Mr. Mukesh Kumar
	Designation:	Sr. Manager / Yamuna Nagar site
	Email:	mukeshk@bhel.in
	Ph no:	9721454917
	Name:	Mr. Rajeev Kumar
	Designation:	DGM
	Email:	rajeev.k@bhel.in
	Ph no:	7052001777

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Chapter – II: SCOPE OF WORKS

2.0	Scope of Works:
2.1	Balance Civil, Structural and Architectural Works for Compressed Air System, Fire Protection System including Pump Houses, Fuel Oil System including Day Oil Tank and Pump House, Chemical Lab, Ammonia Unloading & Storage, H2 Cylinder Storage Shed, Raw Water System including Pump House, Fire Protection and Detection System, HVAC System including Air Washer Building, Security cum Main Gate Complex, Parking sheds for four wheelers and two wheelers, Main Plant and Peripheral Roads & Drains (Cast In-Situ, Pre-cast drains), Levelling & Grading, Pipe & Cable rack, paving and miscellaneous works at 1X800 MW DCRTTP Yamuna Nagar, Haryana. EXCLUDING SUPPLY OF CEMENT, REINFORCEMENT STEEL AND STRUCTURAL STEEL WHICH SHALL BE ISSUED BY BHEL FREE OF COST AS PER BOQ CUM RATE SCHEDULE.
2.2	The brief scope of work is as follows:
2.2.1	Balance Civil, Structural and Architectural works for following major Buildings / Structures: 1. Raw Water System including Pump House 2. Fuel Oil System including Day Oil Tank, Pump House & Unloading System 3. H2 Cylinder Storage Shed 4. Chemical lab 5. Ammonia Unloading & Storage 6. Compressed Air System (Compressor House) 7. Air Washer Building 8. Security cum Main Gate Complex 9. Parking sheds for four wheelers and two wheelers 10. Main Plant and Peripheral Roads & Drains (Cast In-Situ, Pre-cast drains) 11. Levelling & Grading 12. Pipe and cable supporting structures and foundations for BOP area 13. Trenches, culverts, duct banks, pedestals, hume pipe & culverts, buried pipes, encasing of piping, culverts across rail/road tracks for pipes/ drains/ cables crossing, thrust blocks, rain water harvesting and any other facility etc. as well as other buildings / facilitates inside BOP area. 14. Area Paving in BOP area as mentioned elsewhere in specification. 15. Associated Miscellaneous Works for above areas in all respect. 16. Any other buildings/structures (if required) as per system completion requirement.
2.2.2	Site Fabrication & Erection Works: 1. Raw Water System including Pump House 2. Fuel Oil System including Day Oil Tank, Pump House & Unloading System

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	3. Ammonia Unloading & Storage 4. Compressed Air System 5. Air Washer Building 6. Parking sheds for four wheelers and two wheelers 7. Pipe & Cable Rack 8. Any other miscellaneous structure Note: Hard crusting of fabrication and pre-assembly area shall be done by contractor before commencement of fabrication activity at site, no extra payment shall be made to contractor against the same.
2.2.3	Balance Civil, Structural & Architectural works for FPS (Fire Protection Systems) as per following: - 1. Fire protection system including pump house (Booster and Foam Pump House). 2. Fire Protection & Detection System 3. Any other buildings/structures (if required) as per system completion requirement.
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.
2.5	The necessary precautionary measures shall be adopted by the contractor to prevent water logging in the area, while carrying out the site works, with consideration of the fact that the project site is adjacent to western Yamuna Canal. Dewatering as required in his work area shall be done by the contractor.
2.6	Contractor shall at all times ensure that his work area & approach / access roads are free from accumulation of water, so that the materials are safe and the erection/ progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate payments for dewatering of surface water or catchments water, if required, at any time during execution of the work including monsoon period shall be considered by BHEL Dewatering required for control of sub-soil water for construction of various foundations for the package shall be paid under relevant item(s) available in the BOQ cum rate schedule. Dewatering shall be planned and continued till backfilling is completed. For discharge of sub-soil water/ rain water, a suitable piping system with pumping arrangement shall be provided by the contractor with prior approval of BHEL/ Customer to the nearby western Yamuna Canal or as per instruction of BHEL Engineer in-charge. Contractor has to deploy dewatering diesel driven pumps/ DG sets of suitable capacity to take care of any exigencies in case of power disruption to the electrical driven dewatering pumps.

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2.7	General:
2.7.1	Providing all incidental items not shown or specified but reasonably implied or necessary for the successful completion of the work in accordance with contract.
2.7.2	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.
2.7.3	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.
2.7.4	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 provided by the Engineer during the course of works.
2.7.5	Contractor is required to monitor the entry/ exit of its workforce/ labour. BHEL may provide labour attendance system (biometric based) for capturing the attendance details of all the labour on daily basis at fixed entry/ exit points. Contractor shall ensure that the labour enters/ exits the project location from the designated locations in order to map/ monitor the movement of the labour/ workers. Apart from the above, Contractor shall be responsible for monitoring labour movement and submitting daily labour reports in format specified by BHEL Site In charge.
2.7.6	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. Adequate lighting facilities such as flood lamps, hand lamps and area lighting shall be arranged by the contractor at the site of construction, and contractor's material storage area etc. at his cost.
2.7.7	Drawings showing enough details for the construction as per the specification shall be furnished to the contractor in a phased manner as far as possible.
2.7.8	All necessary arrangement for safety like Hard Barricading around deep structures with scaffolding pipes and providing of safety net on the slope of excavated area is in contractor's scope. Contractor shall comply with all safety requirements as per statutes, BHEL and Customer specifications as applicable for execution of works. Safety rules and guidelines of BHEL and Customer are provided elsewhere
2.7.9	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.

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2.7.10	Giving all notices, paying all fees, taxes, statutory clearances/license/Certificates (like T&P load test, etc), etc., in accordance with the general conditions of contract, that is required for all works including temporary works is in the scope of bidder.
2.7.11	Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
2.7.12	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 assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.
2.7.13	Arranging for joint checking (with BHEL / BHEL's Customer / Consultant) of all site construction activities, Preparation of joint protocols for each & every activity and maintaining quality records for audit/inspection as per approved FQP by BHEL.
2.7.14	Medical/First aid center/medicine purchased for emergency/ Doctor purpose along with ambulance services with fuel and operator (round the clock) shall be arranged by BHEL for handling medical emergencies. Cost against these facilities shall be distributed/ shared among the contractors working in Project site proportionately based on contract value. However, till the time BHEL is arranging first aid arrangements & ambulance as said above, the contractor to suitably arrange for necessary emergency/first aid facilities for their personnel.
2.7.15	The complete works shall be carried out as per BOQ cum Rate schedule. If any work covered in the scope of contract cannot be executed using items available in BOQ, additional / extra items shall be made and rates for such items shall be worked out as per GCC clause 2.15.7. However, contractor shall be bound to execute all the works under the scope of the contract and decision whether an extra item is applicable or not, shall be taken by BHEL Engineer which will be binding on the contractor.
2.7.16	Any activity which is necessarily required for satisfactory execution of any item of BOQ in line with technical specifications shall be deemed to be included in BOQ item even if it is not described in the item description and no extra payment shall be made against such activity.
2.7.17	The area of work shall be cleared of all vegetation, rubbish and other objectionable matter and materials removed shall be burnt or otherwise disposed of as directed by the BHEL Engineer-in-Charge. No separate payment for these operations shall be made. The cost of all these operations shall be deemed to have been included in the unit rates rendered for the different items under bill of quantities.
2.7.18	Land for labour colony, laydown area for storage of equipment, fabrication yard or any other construction related activities is not available within the plant boundary. Hence, BHEL is developing the open storage yard, closed storage sheds, outside the boundary of the plant premises on the leased land.

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	BHEL has also taken the land on lease for labour colony and contractor's establishment purpose (for contractor's office, storage sheds, fabrication yard, batching plants etc.). Further, BHEL shall develop the labour colony for Yamuna Nagar Project including worker's accommodation sheds along with kitchen sheds including internal and external roads & drains, water supply network, internal and external electrification, common medical centre etc. Land for contractor's establishment and worker accommodation sheds along with kitchen shed (within the labour colony premises) shall be allocated to contractor on chargeable basis. Details of same are provided elsewhere in the tender. Contractor shall visit the site and make himself well aware of the location of BHEL's storage yard, land to be allocated to contractor for establishment purpose, worker's accommodation sheds area etc. Contractor shall make himself well aware of the approaches to BHEL's storage yards, contractor's establishment area, worker's accommodation area from plant premises and approaches from BHEL's storage yards to contractor's establishment area and all other relevant information as is necessary for execution of contract including statutory guidelines as applicable. No claim regarding lack of knowledge of site conditions or any other information related to area allocated to contractor shall be entertained after award of contract. All materials have to be transported from storage yard to fabrication area, construction area by the contractor at his own cost, using own Pick & Carry Crane (Farrana), crane and trailer etc.
2.7.19	Contractor shall take up housekeeping activity on regular basis to keep the site clear of rubbish/debris.
2.7.20	All necessary inputs with respect to all the changes carried out during the execution, for preparation of 'As built Drawings' are to be submitted by Contractor to BHEL for onward submission to BHEL's customer.
2.7.21	The scope of work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, engineering and construction management including high standard safety management (as per relevant clause of tender document) and green belt management (Project Management, HSE & Quality etc.) . The contractor should ensure successful and timely completion of the work. The contractor must have adequate quantity of tools, construction aids, equipment etc., in his possession. He must also have on his rolls adequately trained, qualified and experienced supervisory staff and skilled personnel. The manpower deployment identified by contractor shall match with above scope of works.
2.7.22	Documentation and Reporting: The Contractor shall maintain accurate records of material supplies, including delivery challans, invoices, and stock registers. These records shall be submitted periodically for verification and reconciliation by the BHEL
2.7.23	Quantity Assessment of Supply Items: - Supply of BOI material shall be based on assessment of the project status/requirement and shall be done only after written clearance of BHEL's Engineer-In-Charge. The supply quantities shall be calculated based on available drawings and work fronts. Contractor shall be the custodian of the BOI supplied items. In case, contractor fails to execute/install/fix/etc. the BOI items for recorded reasons, the contractor shall be liable to

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	handover the materials in good usable condition to BHEL Stores. Further, if the contractor denies to / doesn't handover the materials on the instruction of BHEL-In Charge, payment made against such supplies shall be recovered from the contractor. The decision of Engineer-In-Charge shall be final and binding to the contractor.
2.7.24	Reconciliation of Supply: The final quantities of BOI materials supplied shall be reconciled upon the final execution of the total scope of work. The measurement against supply portion shall be reconciled after final execution of total work and the actual executed quantities as per BOQ items shall be considered for final measurement for recording in measurement book.
2.7.25	The contractor has to intimate, share at-least two months in advance regarding any quantity variation in BOQ items for review by BHEL.
2.8	Technical Staff and Manpower Requirement:
2.8.1	Required experienced Engineers and Supervisors in sufficient numbers for execution of the site works and other functions like quality, safety, store & purchase, material management, planning, finance, administration etc. are to be provided as per site requirement. However, tentative staff requirement is as below: <u>A – Civil Works</u> 1. Project Manager/ Project In charge – 01 Head with minimum 15 Years' experience in Industrial Construction Projects preferably in Power Plant Civil & Architectural Works etc. 2. Asst. Project Managers – 01 Heads with minimum 12 Years' experience in Industrial Construction Projects preferably in Power Plant Civil & Architectural Works etc. 3. Experienced Civil Engineers – 04 heads (Minimum 2 years Experienced.) 4. Experienced Foreman / Supervisors – 10 heads (2 nos. for round the clock concreting activities, 2 nos. for centralized bar bending, 2 nos. for centralized formwork fabrication, balance 4 nos. for site supervision works) 5. Planning & Billing Engineers – 02 heads (1 experienced head with 1 nos. engineer (considering civil and structural works, preparation of BOM, maintaining DPRs, BOI procurement plan and overall execution plan vis-a vis financial plan and material requirements) 6. Stores, Gate Pass – 01 head 7. Accounts & Administration – 01 head 8. Quality Control Engineer– 02 heads (minimum 5 years of experience for contractor's scope of work at site.) 9. Safety Engineer – As per HSE Plan 10. Surveyor – 02 head capable to handle total station 11. Operator, Licensed Electrician, Mechanic — Minimum 2 Nos. 12. Security Guards (Round the Clock) – As per requirement.

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B –Site Fabrication & Erection works:

- **Asst. Project Managers** – 01 Heads with minimum 12 Years' experience in Industrial Construction Projects preferably in Power Plant Civil/ Structural Steel Fabrication and Erection Works etc.
- Minimum 2 years Experienced Civil/ Structural Engineers – 02 nos.
- Experienced Foreman / Supervisors – 04 nos.
- Safety Engineer – As per HSE Plan

C – Tentative Manpower Requirement for Civil & Structural Works:

Experienced Carpenters, Painter & Helpers	Approx. 50 nos.
Experienced Mason, Bar Benders & Helpers	Approx. 50 nos.
Experienced Erection Manpower including Fabricator, Rigger, Fitter & Helpers.	Approx. 20 nos.
Other manpower like Painters, Supervisors, Operators, Helpers, etc.	Approx. 30 nos.
Total	Approx. 150 nos.

Note: -

Manpower requirement shown in the above-mentioned list is suggestive requirement only. Deployment of manpower shall be progressive to meet the project schedule. However, manpower mobilization schedule as mutually agreed in Monthly Progress Review (F-14) at site, shall be decided (increased/decreased) based on front availability, drawing availability and erectable target completion to meet project milestones without additional financial implication to BHEL.

2.8.2	Deputation of above man-power shall be jointly decided at site in line with construction Schedule.
2.8.3	Engineer/ supervisor for other functions like purchase, material management, finance etc. are to be provided as per site requirement as the same is not considered in above list.
2.8.4	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 and accepted by BHEL.
2.8.5	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.
2.9	VOID

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2.10	Design Mix:
2.10.1	The Contractor shall get mix design approved from NCCBM / IITs / NITs / CBRI/ other reputed laboratories as 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. The design mix shall be made as per IS 456/10262 latest revision and specification using the cement as per technical specification and advance action should be taken by the contractor for Mix design approval using the locally available coarse & fine aggregates (from approved source), before commencement of the concreting works. The contractor shall get the design mix proportions approved by BHEL/BHEL's Customer/Consultant. The design mix proportion shall be used for concreting at this project. Note: Already approved valid mix designs for concrete grades as available with BHEL-Site, shall be provided by BHEL to contractor (without any cost implication to contractor). However, mix design for all other grades, which are not available at site shall be carried out by contractor at his own cost.
2.10.2	In case of change of brand of cement/ change in source of raw materials during any stage of the project in a particular design mix, contractor has to re-design the concrete mix before actual usage at site, cost incurred will be borne by contractor.
2.10.3	The following specifications of PCE-type high performance super plasticizer shall be considered for concrete works as per BOQ item:
2.10.4	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: - Marsh cone test for optimum dosage of admixture with specific brand of cement. - Slump retention test of concrete. - Water reduction capability test by doing trial mix. - Rheological properties of fresh concrete on trial mix.
2.10.5	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 or by adopting ice concrete. If ice is used, the ice water source test report shall be provided for review and approval of BHEL/Customer prior to use. (Note: - Contractor may make alternative arrangement for temperature control of fresh concrete.)
2.10.6	Before commencement of work, Contractor has to satisfy/ ensure the design mix proportions 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

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	after successful completion of trial mix shall not be entertained and contractor shall not be entitled for any cost or damages.
2.11	Field Quality Assurance:
2.11.1	The contractor shall be responsible for day-to-day quality checks for civil, structural and architectural works including concrete and other building materials in line with approved Field Quality Plan (FQP) and Manufacturing Quality Plan (MQP) during the progress of work. All quality records and log sheets shall be maintained as per the requirement of BHEL/CUSTOMER and as per FQP/MQP approved by BHEL/CUSTOMER.
2.11.2	Setting Up of Laboratory Works: The contractor shall set up laboratory in the close vicinity of the work site as per required field QA & QC laboratory set up and as the directions of engineer-in-charge. The laboratory must have qualified technicians to carry out all tests and 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. Contractor shall depute their representative QA/QC Engineer and Supporting Staff at site/lab during testing and documentation, etc. for satisfactory conductance of the routine test. 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. Bidder shall tie up only with BHEL / Customer approved third party Lab for advance testing which are not feasible at site laboratory set-up. 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 Customer/BHEL 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. Note: BHEL shall set up centralised civil quality laboratory within approximately 08 (Eight) months in the close vicinity of the site wherein routine test shall be performed by the service provider for all civil contractors working for the project. The contractor shall make necessary arrangements to carry out required testing in the centralised lab once the same is ready.
2.11.3	Minimum Testing Facilities to be arranged by contractor at site are as under: A. Soil Works: A.1 Facilities for HDD A.2. Field Compaction Test (Core Cutter / Sand Replacement Method). A.3 Atterberg Limit Test of Soil. A.4 Grain Size Distribution Test. B. Road Works: B.1. Facilities for mechanical strength of aggregates. (i). Impact and Abrasion Value.

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	(ii). Crushing Value. (iii). Water Absorption C. Concreting Works: C.1. Facilities for sieve Analysis for both fine and coarse aggregates. C.2. Facilities for workability test of concrete by Slump cone / BV. C.3. Facilities for Cube Strength. All tests related to MDD for backfilling, road sub-base, slump, cube for concrete and mortar, water, etc have to be carried out by the contractor from above mentioned laboratories as advised by BHEL/Customer without any extra cost to BHEL.
2.12	HEIRARCHY:
2.12.1	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. Customer's Technical specification (Section-C) 4.BHEL's Standard Specification (Section-D) 5.IS Standard
2.13	VOID
2.14	Structural Steel Fabrication and Erection:
2.14.1	The work to be carried out at quoted / accepted rates by the Contractor under the scope of these specifications, which covers the complete work of handling, loading and transporting of materials from project stores sheds / storage yards to site of fabrication, erection or preassembly yard and unloading at fabrication yard, pre-assembly /erection site, fabrication, blast cleaning, painting, checking, cleaning chipping and levelling of foundations, providing packers and shims/pre-assembling at the preassembly yard, inspection, minor rectification, preservation, erection, levelling, and other adjustments, cutting, edge / surface preparation, welding, fixing, grinding, wherever needed (as and where required). Application of Primer & Paint, including it's supply shall be paid separately as per BOQ cum Rate Schedule.
2.14.2	The works to be performed under this contract consist of providing all labour, supervision, material, scaffolding, construction equipment's, tools and plants, temporary works, supplies including Consumables, transportation and all incidental items not shown or specified but reasonably implied or necessary for the proper completion of work in all respects. Testing of all materials etc. are included in the rates of items of work. Works shall be carried out only with approved structural fabrication and erection drawings. The unit rates shall include all resources, consumables, equipment, fixtures, labour, construction plant, temporary works and everything whether of permanent or temporary nature necessary for the completion of job in all respects.

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2.14.3	Supervisors / Engineers, consumables etc., required for the scope of work shall be provided by the contractor. All the expenditure including taxes and incidentals in this connection will have to be borne by agency unless otherwise specified in the relevant clause. The contractor's quoted rates should be inclusive of all such contingencies.
2.14.4	It shall be specially noted that, the contractor may have to work round the clock (24x7) or may have to deploy additional manpower/resources to achieve the completion schedules / plans / targets during the entire course of works, which may involve considerable expenses including overtime. Hence contractor's quoted rate shall take into consideration of all expenses that will be incurred for such arrangement of personnel including labours, engineers / supervisors, T&Ps etc. Time is the essence of contract. Night shift working is envisaged for works not hazardous in nature with due permission of BHEL like- Erection works at low heights, Material shifting, Preassembly works etc.
2.14.5	The work shall conform to dimensions and tolerances given in various drawings and quality manuals provided by BHEL. If any portion of work is found to be defective in workmanship not conforming to drawings or other stipulations, the contractor shall dismantle and redo the work duly replacing the defective materials at his cost, failing which the job will be carried out by BHEL by engaging other agencies / departmentally and recoveries will be affected from contractor's bill towards expenditure incurred including BHEL's overhead charges (5%).
2.14.6	No member of the already erected structure/ platform, pipes, grills, platform, other component and auxiliaries should be cut without specific approval of BHEL engineer. In case it is necessary to cut, the contractor shall take prior approval of BHEL. If approved, after completion of work the contractor rectify / repair in a manner acceptable to BHEL / Customer without any additional cost.
2.14.7	During the course of erection, certain rework / modification / rectification / repairs / fabrication etc. will be necessary on account of feedback/revision from various relevant sources, and also on account of design discrepancies/ alterations, manufacturing defects, site operations/ maintenance requirements. This will also include modifications / re-works suggested by BHEL / customer / other inspection group. Contractor shall carry out such rework / modification / rectification / fabrication / repairs etc. promptly and expeditiously.
2.14.8	Contractor shall execute the work as per sequence and procedure prescribed by BHEL at site. The fabrication / erection manuals which are available with BHEL site office are to be referred for compliance and guidance before taking up the work. Any failure to comply with the above might lead to rework and the cost for the same shall be borne by the contractor only. BHEL engineer, depending upon the availability of materials, fronts etc., will decide the sequence of erection and methodology. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the method/sequence of erection adopted in erection of similar jobs or for any reason whatsoever.
2.14.9	The contractor shall provide the owner/BHEL such an 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.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

2.14.10	Contractor shall set up suitable guarded storage facilities. Contractor shall maintain one centralized fenced store cum fabrication yard. Contractor shall ensure the Storage of only those material at site which will be erected/Pre-assembled within 10 days OR as directed by BHEL Engineer. Any wastage due to lapse of storing shall be debited to contractor with 5% overhead.
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TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.0				
FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)				
Sl. No	Description	Scope		Remarks
		BHEL	Bidder	
3.1	Establishment:			
3.1.1	For Construction Purpose:			
a	Open space for office	Yes		BHEL shall take the land on lease outside plant boundary for contractor's establishments i.e. office, storage, batching plant, fabrication yards etc. BHEL shall provide limited open space / developed land for contractor's office and storage and construction facilities i.e. Batching Plant, Fabrication Yard etc. as and where made available (within the leased land outside plant premises) on chargeable basis. For details please refer to clause no. 3.10 below.
b	Open space for storage	Yes		
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	
h	Development of land provided for office, storage, fabrication yard, etc.		Yes	
3.1.2	For living purpose of the bidder:			

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

3.0				
<i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>				
Sl. No	Description	Scope		Remarks
		BHEL	Bidder	
	PART I			
a	Open space for labour colony	Yes	Yes	BHEL is developing labour colony for Yamuna Nagar Project, outside the plant boundary. 01 Nos. Worker's accommodation shed along with kitchen shed having capacity of approx. 120 worker's accommodation (within the labour colony) shall be allocated to bidder on chargeable basis. For details please refer to clause no. 3.10 below. In case requirement of labour shed shall be more than 01 Nos., the Contractor has to make his own arrangements for land (outside the plant), accommodation, shelter and transportation of labours as per requirement.

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

3.0				
<i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>				
Sl. No	Description	Scope		Remarks
		BHEL	Bidder	
b	Labour Colony with internal roads, sanitation, complying with statutory requirements	Yes		For Yamuna Nagar Project Labour colony with internal roads, electrification, water distribution network, sanitation etc. shall be developed by BHEL outside the plant premises on leased land taken by BHEL. 01 Nos. worker's accommodation shed along with Kitchen Shed shall be allocated to contractor on chargeable basis within the labour colony developed by BHEL. Further running and maintenance of worker's accommodation sheds and common facilities inside the labour colony will be in contractor's scope. For details please refer to clause no. 3.10 below.
3.2	Electricity:			
3.2.1	Electricity for construction purposes (for Site/Project works only) 3 Phase 415/440 V		Yes	

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

3.0 <i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>				
Sl. No	Description PART I	Scope		Remarks
		BHEL	Bidder	
a	Single point source	Yes	Yes	BHEL may provide electricity at single point source for construction works during execution stage on chargeable basis within 03 months from the date of start of work. However, in case of any delay in arrangement of construction power by BHEL, contractor has to arrange construction power at his own cost including DG Sets to meet the power requirement with in the quote price.
b	Further distribution for the work to be done which include supply of materials and execution		Yes	At contractor's own cost.
c	Distribution of Electricity for the office, stores, canteen, of the contractor which include supply of materials and execution		Yes	At contractor's own cost.
d	Supply, installation and connection of energy meter including operation and maintenance		Yes	At contractor's own cost. Calibration certificate to be provided.
e	Duties and deposits including statutory clearances if applicable		Yes	At contractor's own cost
f	Demobilization of all the facilities after completion of works		Yes	At contractor's own cost
3.2.2	Electricity for office, stores, canteen etc. of the bidder			
a	Single point source	Yes	Yes	Same as 3.2.1 (a) above.
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	At contractor's own cost
c	Duties and deposits including statutory clearances if applicable		Yes	At contractor's own cost
3.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors, labour Hutment etc.			

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

3.0				
FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)				
Sl. No	Description	Scope		Remarks
		BHEL	Bidder	
PART I				
a	Single point source	Yes	Yes	Same as 3.2.1 (a) above.
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	At contractor's own cost
c	Payment/Duties and deposits including statutory clearances if applicable		Yes	At contractor's own cost
3.3	Water Supply:			
3.3.1	For construction purposes:			
a	Making the water available at single point	Yes		Single Point Source for Construction Water within the plant premises shall be provided at a location as approved by Owner. Construction Water shall be provided on chargeable basis. Construction Water source for outside plant boundary shall be arranged by contractor at his own cost.
b	Further distribution as per the requirement of work including supply of materials and execution.		Yes	Contractor shall arrange construction water from single point source including all necessary piping, valves, water meter etc. shall be arranged by the contractor at his own cost.
3.3.2	Water supply for bidder's office, stores, canteen etc.			Contractor has to make his own arrangement at his own cost.
a	Making the water available at single point		Yes	At contractor's own cost
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	At contractor's own cost

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

3.0 FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)				
Sl. No	Description PART I	Scope		Remarks
		BHEL	Bidder	
3.3.3	Water supply for Living Purpose			Contractor has to make his own arrangement at his own cost.
a	Making the water available at single point		Yes	At contractor's own cost
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	At contractor's own cost
3.4	Lighting			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	At contractor's own cost
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	At contractor's own cost
c	Providing the necessary consumables like bulbs, switches, etc. during the course of project work.		Yes	At contractor's own cost
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	At contractor's own cost
3.5	Communication facilities for site operations of the bidder			
a	Téléphone, fax, internet, intranet, e-mail etc.		Yes	At contractor's own cost
3.6	Compressed air wherever required for the work		Yes	At contractor's own cost
3.7	Demobilization of all the above facilities		Yes	At contractor's own cost
3.8	Transportation			
a	For site personnel of the bidder		Yes	At contractor's own cost
b	For bidder's equipment and consumables (T&Ps, Consumables etc.)		Yes	At contractor's own cost
3.9	Erection Facilities and Site Construction Management:			

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

3.0 <i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>				
Sl. No	Description PART I	Scope		Remarks
		BHEL	Bidder	
3.9.1	Engineering works for construction:			
a	Providing the erection/constructions drawings for all the equipment covered under this scope	Yes		
b	Drawings for construction methods	Yes	Yes	In consultation with BHEL
c	As-built drawings where ever deviations observed and executed and also based on the decisions taken at site		Yes	Changes are to be marked in drawing & handed over to BHEL on completion of work.
d	Shipping lists etc. for reference and planning the activities			Not Applicable
e	Preparation of site construction / erection schedules and other input requirements as per Form-14.	Yes	Yes	In consultation with BHEL
f	Review of performance and revision of site construction / erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly construction / erection schedules based on Sl. No. e		Yes	In consultation with BHEL
h	Daily work plan based on Sl. No. g		Yes	In consultation with BHEL
i	Periodic visit of the senior official of the bidder to site to review the progress so that works is completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	
j	Preparation of preassembly bay		Yes	
k	Laying of racks for gantry crane if provided by BHEL or brought by the contractor /bidder himself		Yes	
3.10	Land/Open Space and Labour Colony:			
3.10.1	Land for contractor's establishment: Availability of land 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 erection agencies.			

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

	Land for labour colony, laydown area for storage of equipment, fabrication yard, batching plant or any other construction related activities is not available within the plant boundary. Therefore, BHEL is taking the land on lease basis within a distance of 03 Kms (Approx.) from the Plant Boundary. BHEL shall allocate such land (levelled, graded and compacted including necessary filling) to the contractors for construction of their office, storage sheds, laydown area, setting up of Batching Plant and other construction related activities on chargeable basis. For this tender, 1.4 Acres land (1Acre = 4046 SQM) shall be allocated to contractor for the following purposes: 01 Acre for development of contractor's office, storage sheds, fabrication yard, batching plant, storage sheds, laydown area etc. 01 No. worker's shed (being constructed by BHEL within leased land premises) shall be allocated to the contractor. Land required for construction of 01 No. worker's shed is 0.4 Acre (including land used in common facilities of labour colony). Hence, 0.4 Acre land is considered for allocation to contractor with respect to worker's accommodation sheds. Location of Land and worker's sheds to be allocated to contractor within the leased land premises shall be decided by BHEL engineer and same shall be binding on the contractor. Note: In case of delay in handing over of land by BHEL / additional land requirement, same shall be arranged by contractor at their cost. However, if additional land (within leased land premises) is available with BHEL, same may also be allocated to contractor on chargeable basis as per recovery rates given below. Allocation of additional land shall be at the discretion of BHEL. In case Land is provided by customer within the plant boundary for specific purpose (i.e. space for porta cabins, reinforcement bar cutting – bending, storage etc.) same shall be provided to contractor on free of cost basis.
3.10.1.1	<u>RECOVERY RATES FOR THE LAND ALLOCATED TO CONTRACTOR AND MODE OF RECOVERY FROM CONTRACTOR'S RA BILLS:</u> The Land shall be allotted to the contractor on chargeable basis as per following recovery rates. - Recovery rate for allocation of Leased Land to contractor for development of Fabrication Yard, Batching Plant, Office and Storage Shed, worker's shed etc. shall be Rs. 31,000 per acre per month + applicable GST. Recovery shall be made from contractor's monthly RA Bills on pro-rata basis. - Recovery rate with respect to cost incurred by BHEL for Development of leased land shall be @ Rs. 21,96,000 /- per acre + applicable GST. Total recovery amount for development of leased land allocated to contractor @ recovery rate mentioned above (i.e. Land allocated to contractor * recovery rate) shall be recovered from contractor's monthly RA bills @ '25% of each RA bill amount' up to recovery of complete amount. However, total recoverable amount shall be recovered maximum up to 10th RA Bill.
3.10.1.2	Land shall be allocated to contractor till completion period of this contract and subsequent extensions (if any) and recovery of the land charges shall be done accordingly.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

	In case the Land is not required for the complete contract period / extended period (if any), contractor may hand over the such unutilized land to BHEL cleared from all constructions, encumbrances, debris etc. in consultation with BHEL. In such case, further recovery of the Land handed over by the contractor (to the satisfaction of BHEL) shall not be made. However, recovery shall be made from the contractor till the time land is cleared from all constructions and handed over satisfactorily to BHEL.
3.10.1.3	It is the responsibility of the contractor to construct office, sheds, fabrication yard, establish batching pant, micro levelling and grading of the land, roads and drains (internal, approach), make necessary drainage arrangements, 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.
3.10.1.4	It is contractor's responsibility to provide watch and ward, security (including fencing/ boundary wall) for their equipment, material, stores etc. kept inside the land allotted for the scope of work under this tender. BHEL shall not be responsible for any theft / loss of contractor's properties from within the allotted land to contractor and no claim shall be entertained in this regard.
3.10.1.5	It will be mandatory for the contractor to hand over the land, cleared from all constructions, encumbrances, debris etc. to BHEL and take a satisfactory handing over certificate from BHEL Engineer. In case of default by contractor and expenses (if any) incurred by BHEL for clearing the land provided to the contractor shall be recovered from the contractor with overheads @ 5%.
3.10.2	Labour Colony / Worker's accommodation sheds: BHEL is developing the labour colony (outside plant boundary, within leased land premises, approx. 03 km from plant boundary) consisting of approx. 20 Nos. worker's accommodation sheds (each shed having capacity to accommodate approx. 120 persons) along with kitchen sheds, common medical center, bore well, service and drinking water arrangements, internal and peripheral roads & drains, internal and external electrification, including water supply network, plumbing, sewage connections, sanitary work, metal beds with mattresses, wiring & fittings, ceiling fans, illumination, painting, finishing work, almirahs / storage racks etc. Common Medical Centre inside Labour colony: BHEL shall construct 01 No. Medical Centre well finished & furnished, of approx. 160 sqm in the labour establishment area for workers. Payments for medical staffs such as doctors, nurse, ambulance services, consumables, emergency medical equipment/first aid instruments/devices & running medicines shall be made by the contractor/s and same shall be shared amongst the availing agencies on pro-rata basis (on the basis of shed allocated to the contractor/s). Out of the total worker's accommodation shed developed by BHEL within labour colony as indicated above, 01 Nos. worker's shed (capacity of approx. 120 persons) shall be allocated to contractor for this tender works on chargeable basis. Contractor shall intimate mobilization plan for Workers and BHEL shall allocate worker's accommodation shed accordingly. Contractor shall make his own arrangements and shall be liable for the following with respect to worker's accommodations: i.) To provide necessary furniture (for dining area), cooking gas, utensils, fire extinguishers etc.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

	ii.) 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. iii.) Electricity consumption charges for the allocated worker's sheds shall be recovered from contractor's RA Bills as per prevailing DISCOM rates (along with fixed charges). Necessary metering arrangements shall have to be ensured by contractors. iv.) Electricity consumption charges for the common area in labour colony shall be borne by BHEL. v.) Maintenance, regular housekeeping and other arrangements to keep the allocated worker's accommodation sheds in neat and clean condition. vi.) Common expenses related to monthly maintenance, repair of common areas, security guards, electricity, water, cleanliness, etc. shall be shared among all agencies availing the facilities in the labour/ workers colony on a pro-rata basis (on the basis of shed allocated to the contractor/s). vii.) BHEL shall regularly inspect the conditions of labour colony and medical facilities arranged by contractor/s for the medical center and discrepancies if any informed by BHEL shall be rectified by contractor promptly. In case of non-compliance BHEL may get the rectification done through other means and recover the actual cost incurred along with 5% overheads from contractor's RA Bills. viii.) Contractor/s shall work in good faith so as to provide good medical facilities for workers engaged by them. However, BHEL shall not be a party for resolution of any kind of disputes amongst the contractors or between workers and contractors.
3.10.2.1	<u>RECOVERY RATES FOR WORKER'S SHEDS ALLOCATED TO CONTRACTOR AND MODE OF RECOVERY FROM CONTRACTOR'S RA BILLS:</u> The worker's accommodation shed/s shall be allocated to the contractor on chargeable basis as per following recovery rates: Recovery rate towards allocation of worker's shed/s to contractor within the labour colony shall be Rs. 97,74,000/- for each shed + applicable GST. Total recovery amount for allocated worker's sheds @ recovery rate mentioned above (i.e. worker's sheds allocated to contractor * recovery rate) shall be recovered from contractor's monthly RA bills @ '25% of each RA bill amount' up to recovery of complete amount. However, total recoverable amount shall be recovered maximum up to 10th RA Bill. Note: 1. On completion of recovery of complete amount, ownership of worker's shed/s shall be transferred to contractor once the complete amount is recovered. 2. Running and Maintenance charges shall be borne by the contractors to whom the shed is allocated. 3. The contractor shall ensure dismantling / disposal of labour shed (along with sub-structure i.e. floor, foundations etc.) within reasonable time of completion of work or as directed by BHEL Engineer in Charge and no extra payment shall be made in this regard. 4. Dismantling / disposal of common facilities in labour colony (i.e. roads, drains, RO Systems, Bore well, external illuminations etc.) and common medical center shall be in the scope of respective contractor availing the facilities and same shall be decided by BHEL Site Engineer.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

3.10.2.2	In the event of delay in providing the worker's accommodation sheds by BHEL / BHEL is unable to provide the worker's accommodation sheds / additional requirement, the contractor will be responsible for arranging suitable labour accommodation in compliance with statutory norms, stipulated guidelines and drawings. Any additional facilities required for the scope of work must be arranged by the contractor at their own cost.
3.10.2.3	Contractor shall ensure maintenance of workmen/labour colony in line with BHEL' standard Guidelines (As per Annexure A- Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites).
3.11	Contractor shall maintain one centralized store cum bar bending yard at his own cost. Hard surfacing of this yard and all-around drains shall be carried out by the contractor at his own cost within the quoted rate. The construction of cement storage sheds for unloading of cement bags, stacking properly in the storage sheds shall be carried out by the contractor at his own cost within the quoted rate.
3.12	Installation of necessary amenities- and temporary infrastructure for construction activities at Project site locations. Following are the minimum amenities to be provided by the contractor within the quoted price including removal/disposal of the same in environment friendly manner after its intended use/completion of scope of work: - Labour rest sheds near work spot. - Canteen facility creation. - Drinking water facility. - Labour Bio toilets near work spot in sufficient nos. with regular cleaning & maintenance arrangement. Exclusive arrangement of Bio toilets to be made at site for ladies. - Labour colony should have all hygienic condition, dining hall, toilets, proper sewerage system, good drinking water arrangements. - Recreational facilities, etc.
3.13	Construction Power:
3.13.1	BHEL is in the process of obtaining the construction power connections through State Electricity Distribution Board (UHBVN / HVPN) for inside / outside the plant premises. The process may take time of approx. 03 months from the date of award of contract period for this tender. Construction power whenever made available, shall be provided to the contractor on chargeable basis at one single point (inside and outside plant premises). However, based on request of Contractor and requirement of project, BHEL Site in charge, at his discretion, may provide construction power at multiple point, if feasible. If, BHEL provides electricity at more than one point, it will be responsibility of the contractor to provide all the support necessary for enabling BHEL for extending such provision to contractor. Till such arrangement is made available by BHEL, the contractor should make his own arrangement for alternative source of power supply through power connection / deployment of adequate number of DG sets/usage of diesel operated machines, at their cost. No separate payment shall be applicable on account of the same.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

	In case, BHEL is not able to provide construction power after initial period of three (03) months from the commencement of this contract due to any reason whatsoever, contractor shall continue to make his own arrangement for the same without any cost and time implication to BHEL.
3.13.2	Contractor shall make necessary arrangements for onward distribution of construction power taking due care of surrounding construction activities like movement of cranes & vehicles, civil work, fabrication/construction/assembly/ erection etc. and safety of personnel. It may become necessary to relocate some of the installations to facilitate work by other agencies or by him.
3.13.3	Contractor shall deploy and install required cables, fuses, distribution boards, switchboards, bus bars, earthing arrangements, protection devices and any other installation as specified by statutory authority/act.
3.13.4	Distribution of supply shall be done by the contractor using underground cables. The contractor shall be responsible to provide complete LT distribution with Fuseless system including the supply of all materials like cables, necessary isolators/LCB, Switch boards, industrial receptacles/sockets, pipes, etc. observing the safety rules laid down by electrical authority of the State / BHEL / their customer with appropriate statutory requirements. All cables being used for construction power shall be armoured only. Buried cable shall be suitably identified by the route markers.
3.13.5	It shall be the responsibility of 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 with the appropriate statutory requirements in all respects. The installation and maintenance of this shall be done by licensed and experienced electrician.
3.13.6	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, office maintenance etc.'
3.13.7	Contractor himself shall be responsible for any loss or damage to their equipment as a result of variations in voltage or frequency or interruptions in power supply.
3.13.8	The contractor 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.
3.13.9	Further, as there are bound to be interruptions in regular power supply, power cut/load shedding as in any construction sites, contractor should make his own arrangement for alternative source of power supply through deployment of adequate number of DG sets/usage of diesel operated machines, at their cost during the power breakdown /failure to get urgent and important work to go on without interruptions. No separate payment shall be made for any contingency arrangement made by contractor, due to delay / failure in providing electricity.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

3.13.10	The Construction Power consumed by the contractor shall be charged based on prevalent rate of DISCOM (UHBVN / HVPN). Recovery of Construction Power shall be made from the monthly RA bills of the contractor.
3.13.11	The contractor has to provide necessary meter for measuring the power consumption. In case of any dispute, BHEL engineer's decision shall be final and binding on contractor. The meter used by the contractors shall be duly calibrated.
3.13.12	Necessary "Capacitor Banks" to improve the Power factor to a minimum of 0.9 shall be provided by the contractor at his cost. On account of the contractor's failure in maintaining the power factor as required by customer, penalty if any, levied by customer/ State Electricity Distribution Board will be recovered from contractor's bills.
3.13.13	Contractor has to make their own arrangements for electricity requirement for staff accommodations / other establishments outside the plant premises / BHEL's leased land premises at his own cost within quoted price.
3.14	Construction water:
3.14.1	Within the Plant Premises: Construction Water (Raw water) required for construction works within the plant premises shall be provided by BHEL / Owner at single point source on chargeable basis. Tentative location of construction water (single point source) is near the plant boundary of existing HPGCL plant (approx. distance 500 m from the work area). Gate valve and metering arrangement is required to be installed by the contractor for their own use. Further distribution of water from single point source including required pumps & accessories, pipes, water meter for drawing water from underground storage tank / single point source to construction area shall be arranged by the contractor at their own cost to ensure supply of water without interruptions. No extra payment shall be made under this account. Note: Construction Water shall be provided at the same rate as charged by customer from BHEL.
3.14.2	The Contractor should make arrangements for storage of sufficient quantity of water required for work. The agency should also construct sumps (if required) of suitable size for storage of construction water as per their requirement for use for execution and construction purposes.
3.14.3	Contractor to satisfy himself that the water drawn/ arranged 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.
3.14.4	In case of non-availability of water, the contractor shall make his own arrangements of water suitable for construction purpose to have uninterrupted work. No separate payment shall be made for any contingency arrangement made by contractor.
3.14.5	CONTRACTOR'S OBLIGATION ON COMPLETION On completion of work or as and when required by BHEL, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and levelled and debris shall be removed, as per

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

	instructions of BHEL, by the contractor at his cost. In the event of his failure to do so, the Engineer will get it done and expenses incurred shall be recovered from the contractor along with prevailing overheads. The decision of BHEL Engineer in this regard shall be final.
3.15	RECORDS TO BE MAINTAINED AT SITE
3.15.1	Record of Quantity of free/Chargeable items issued by BHEL must be maintained during contract execution. Also, reconciliation statement to be prepared at regular intervals.
3.15.2	The below mentioned Records/ Log-books/ Registers applicable to be maintained. a. Hindrance Register b. Site Order Book. c. Test Check of measurements. d. Steel and Cement Supply and Consumption Daily Register e. Records of Test reports of Field tests. f. Records of manufacture's test certificates. g. Records of disposal of soil/ rock generated during and after the work completion. h. Records of disposal of scraps generated during and after the work completion. i. List of T&Ps and MMEs.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

4.0	T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR
	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 contractor.

Sl. No.	Description of T&P	Tentative Quantity
A	T&Ps for Civil Works	
1.	Concrete Transit Mixer	02 Nos.
2.	Batching Plant (30 Cum/Hr.) with Sufficient Capacity of Silos.	01 No.
3.	Hydraulic Excavator /Poclain	02 Nos.
4.	Poclain with rock breaker arrangement	01 No.
5.	Pneumatic rock breaker with jack hammer	As per Requirement
6.	Mini excavator with dozing blade and auger arrangements and mini bucket arrangements	01 No.
7.	Back Hoe Loader (JCB)	02 Nos.
8.	Dumper (Capacity: 16-25 MT)	04 Nos.
9.	Concrete Pump of Suitable Capacity with Sufficient lift in order to pour concrete at roof of Transfer Points	01 No.
10.	Concrete Boom placer min. 35m long	01 No.
11.	Vibrators (electrical/diesel)	06 Nos.
12.	Self-priming Dewatering pump of various capacity (Diesel/Electric) From 2 HP to 7.5 HP	04 Nos.
13.	Curing / dewatering pump – 1.5 / 2 HP	06 Nos.
14.	De-watering pump (diesel operated) – 50 HP & 10 HP	01 No. Each
15.	Ply Shuttering board with adequate scaffolding supporting structure – (Old steel shuttering plates will not be allowed).	As per requirement & as per the direction of Engineer In charge.
16.	Farana crane (Required Capacity)	02 Nos.

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	*Note- Hydra is not allowed at project site	
17.	Trailer (20MT Capacity)	01 No.
18.	Tractor mounted grader/ loader	As per requirement
19.	Scaffolding Pipes, Clamps / Swivel Couplers (One/Two Way), Props, Jacks, Screw Heads, MS Pipes, Wooden Battens, Planks, Bullies, H Frames, Tie Rods with Nuts, Adjustable Achro Span (Considering Individual Areas)	Scaffolding Pipes with clamps– Min. 1000 Nos. for execution purpose for safety related other than Scaffolding Pipes – As per requirement.
20.	Reinforcement bending machine	02 Nos.
21.	Reinforcement cutting machine	02 Nos.
22.	Plate compactor	02 Nos.
23.	Earth Compactor- 3MT Capacity	02 Nos.
24.	Total Station	01 Nos.
25.	Auto level & staff	02 Nos.
26.	Road roller/Vibro-roller	01 No.
27.	Dozer (D-80) capacity	01 No.
28.	Water Tanker with sprinkler attachment	01 No.
29.	All equipment for area Lightning like LED/Halogen bulbs and Portable light Towers etc.	As per requirement
30.	Computer with printing/photocopy & CD writing facility	As per Requirement
31.	Man lift crane of Minimum 20m reach	01 No.
32.	DG Set of 125 KVA Capacity	01 No.
33.	DG Set of 250 KVA Capacity	01 No.
34.	Portable Welding Machine	As per requirement
35.	Builder Hoist	02 Nos.
36.	Electric winch 5T capacity	02 Nos.

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37.	Plate vibrators for slab concrete	02 Nos.
38.	T&Ps for hard rock blasting arrangements (controlled blasting)	As per Requirement
B	T&Ps for Structural Fabrication & Erection works	
1.	75 MT Capacity Tyre mounted Crane	01 No.
2.	40/45 MT Capacity Tyre mounted Crane	As per requirement
3.	Trailers with pulling unit 40 MT	As per requirement
4.	Trailers with pulling unit 20 MT	As per requirement
5.	Farana crane (Required Capacity) *Note- Hydra is not allowed at project site	As per requirement
6.	Power Winches	As per requirement
7.	Hand winch	As per requirement
8.	Welding Machine	As per requirement
9.	Heating Oven	As per requirement
10.	Portable Oven	As per requirement
11.	Portable grinding machine of various sizes	As per requirement
12.	Calibrated Power driven bolt tightening machines	Minimum 03 Nos.
13.	Manual Torque tightening machine	Minimum 02 Nos.
14.	Torque calibrator	As per requirement
15.	Bolt Tension Calibrator	As per requirement
16.	Impact wrench with socket (Pneumatic)	As per requirement
17.	Self-drilling cum tapping machine for screws	As per requirement
18.	Radiography arrangement with radioactive isotope source	As per requirement
19.	Pug Cutting machines	As per requirement
20.	Plasma Cutting Machine	01 No.

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21.	Rolling Machine	01 No.
22.	Chain pulley blocks	As per requirement
23.	Turn Buckles and Huck-Chuks	As per requirement
24.	Scaffolding materials with clamps for cladding fixing, etc. works	As per requirement
25.	Hoisting and pulley devices/pulleys	As per requirement
26.	Spanners / Eye Bolts (All Sizes)	As per requirement
27.	Wooden/Concrete sleeper 1.5-2.0 Mtr length	As per requirement
28.	Sufficient quantity of steel ladders for approach up to the top of each erected column to be required during erection of columns.	As per requirement
29.	Suspended working platform Size :7mX1mX0.5m, Rated load 800 kg to 1000 Kg,	As per requirement
30.	Theodolite of required accuracy	01 No.
31.	Air compressor/blower (electric/diesel operated)	01 No.
32.	Fill pump	As per requirement
33.	Hydraulic Test pumps/ Hand pumps Along with Suitable/ different ranges of calibrated Pr. gauges	As per requirement
34.	Shot Blasting Cleaning set up with copper slag	As per requirement
35.	Stud Welding Machine	As per requirement
36.	UT Machine	As per requirement
37.	Tractor with trolley	01 No.
38.	Airless gun spray for painting	As per requirement
C	List of suggestive Safety Equipment /PPEs:	
1.	Safety Net (Conforming IS 11057:1984) Safety Net (Net Size: 10m x 5m, Mesh Size: 25 mm, Mesh Rope: 2mm double cord, Border/Tie Cord: 12mm diameter polypropylene rope (tested as per IS: 5175). Two meters length shall be provided at all four corners.	25 Nos.

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2.	Fall Arrestor ‘Rope grab fall arrestor’ & anchorage line. Anchorage Line: 14mm- 16 mm diameter, three strand twisted Polyamide rope. Rope Grab fall arrestor: Openable & Guided type Fall Arrestor (on flexible line) conforming EN 353-2 & works on 14-16 mm diameter polyamide rope. Material: Nickel Chrome plated Steel Connector: Karbiner conforming to EN 362 (Minimum Strength 22 KN), material: Steel Retractable Fall arrestor Block (Range 6 Mtr to 15 Mtr)	10 Nos. of Rope Grab Fall arrestor’ and Karbiner each. 05 Nos. anchorage line, 30 metre long each, 05 Nos. anchorage line, 40 metre long each
3.	Horizontal life line Stainless Steel Wire rope of 8mm diameter. Minimum six nos. of steel U-bolt clips are required for clamping each wire rope to a rigid support (03 nos. of U-bolt clips at each end).	05 Nos. of wire rope, each 40m long. 05 Nos. of wire rope, each 25 metre long.
4.	Ladders on column The minimum design live load on metallic ladder shall be a single concentrated load of 100 kilo grams. All rungs shall have a minimum diameter of 16mm to 25 mm, and minimum clear length of rungs shall be 40.6 centimetres. The distance between rungs shall not exceed 30.5 centimetres. Each ladder shall have maximum height of 9.0 metre. The ladder shall have proper fastenings for attaching it to a column using positive means such as bolt, weld or other type of fasteners.	Cumulative length of ladders is 200 metres (approx..)
5.	Safety PPEs (Industrial Safety helmet & Industrial Safety Shoes): Industrial Safety Helmet (IS: 2925-1984 marked). Industrial Safety/Electrical Shoes (IS: 15298-2002 marked). Full body Safety Harness (conforming IS:3521)	150 Nos. Safety Helmets 150 Nos. Safety Shoes 50 Nos. Full Body Safety Harness
6.	Height Rescue Kit and Confined space rescue kit	01 No. each
7.	Lux Meter & Breathe Analyser	As per requirement
8.	Multi Gas Meter	01 No.

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9.	ELCB & RCCB Tester	01 No.
10.	Earth Resistance meter	01 No.
11.	Scaffolding materials as per EN 74 for hard barricading	As per requirement
12.	Oxygen Meter	01 No.
13.	Fire Blanket	As per requirement
14.	Fire resistant tarpaulins	As per requirement
15.	Safety Posters as per BHEL Guidelines	As per requirement and instruction of BHEL
16.	Fire Extinguishers: ABC – 6 Kg: 50 Nos, Co2 – 4.5 Kg: 20 Nos, Foam – 9 Kg: 5 Nos. Fire Bucket (set of ¾ buckets) with stand – 10 Nos	
17.	Rubber Mat as per IS 15652	100 Sqm
18.	Electrical rubber gloves	As per requirement
19.	Water Sprinkling tanker for dust suppression	01 No.
4.2	Measuring and Monitoring Equipment (MMEs): To be finalized as per site requirement.	
4.3	T&Ps, Safety Equipment shown in the above-mentioned list is tentative requirement. However, mobilization schedule as mutually agreed at site for major T&Ps, have to be adhered to. Numbers/time of requirement will be reviewed from time to time at site and contractor will provide required T&Ps / Equipment to ensure completion of entire work within schedule / target date of completion without any additional financial implication to BHEL. Contractor will give advance intimation & certification regarding capacity etc. prior to dispatch of heavy equipment. Also on completion of the respective activity, demobilization of T&Ps in total or in part can be done with the due approval of Engineer-In-Charge. Retaining of the T&Ps during the contract period will be mutually agreed in line with construction requirement.	
4.4	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&Ps 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.	
4.5	Contractor shall submit the T&P mobilization schedule indicating the quantity and duration of deployment on monthly basis for the entire contract period in mutual concurrence with BHEL Engineer at the time of commencement of work.	

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

4.6	Mobilization of concrete boom placer in place of concrete pump will be allowed based on-site requirement and discretion of BHEL.
4.7	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

5.0	LIST OF T&P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS:			
5.1	SN	DESCRIPTION	QUANTITY	REMARKS
	1	CRAWLER/MOBILE CRANE OF CAPACITY 75 MT OR ABOVE	Over and above quantity mentioned in Chapter – IV – (T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR.)	BASED ON WORK REQUIREMENT
5.2	Note: 1. The cranes may be BHEL owned or may be obtained on hiring basis including operating and maintenance crew. 2. Operator and O&M for BHEL owned crane will be provided by BHEL. 3. Operator and O&M for hired crane will be provided by the hiring agency. 4. Contractor shall provide the fuel for BHEL (Hired/owned) provided cranes for his use. 5. Contractor shall provide necessary manpower assistance for initial and final assembly & dismantling and for subsequent operations of boom extension and reduction during execution of work. Contractor shall also make necessary arrangements like laying of special sleeper beds and steel plates (material shall be provided by BHEL) for movement and operation of the crane (including initial movement/marching of crane within the plant premises).			
5.3	Cranes provided by BHEL will be on sharing basis with other agencies / contractors of BHEL. The allocation of cranes shall be the discretion of BHEL engineer, which shall be binding on the contractor. Cranes will be deployed at appropriate time and location within plant premises, as decided by BHEL for suitable duration and intended purpose. Augmentation of BHEL T&P under special circumstances shall be discretion of BHEL.			
5.4	All other T&Ps required for handling of items / material to be arranged by bidder.			

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Chapter – VI: TIME SCHEDULE

6.0	Time Schedule and Mobilization:	
6.1	Initial Mobilization and Time Schedule: After issue of LOA (though Fax/courier/email) the contractor shall report to the Construction Manager/Site In-Charge of BHEL at site within seven (07) days from date of LOA and submit detailed mobilization plan to start the work. The contractor has to subsequently augment his resources in such a manner that the entire works are completed within the contract period of Eighteen (18) Months from the date of start of work in a manner required by BHEL to match with the project schedule. Date of Start of work shall be considered as 15 days after date of LOA or as instructed by BHEL in writing.	
6.2	Schedule of Completion: 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 & released for erection by other agency.	
	Activity	Schedule completion from date of start of work
6.2.1	Priority Roads and Drains	02 Months
6.2.2	Security cum Main Gate Complex	06 Months
6.2.3	Raw Water System including Pump House (M1)	08 Months
6.2.4	Fuel Oil System including Day Oil Tank, Pump House & Unloading System	11 Months
6.2.5	Compressed air system (Compressor House) (M2)	12 Months
6.2.6	Air washer Building	12 Months
6.2.7	Ammonia Unloading & Storage	12 Months
6.2.8	Chemical lab	13 Months
6.2.9	H2 Cylinder Storage Shed	14 Months
6.2.10	Parking sheds for four wheelers and two wheelers	15 Months
6.2.11	FPS system and related works (Booster and Foam Pump House)	16 Months
6.2.12	Balance Main Plant and Peripheral Roads & Drains (Cast In-Situ, Pre-cast drains).	17 Months
6.2.13	Pipe and Cable rack, Supporting Structures and Foundations for BOP area	17 Months
6.2.14	Any other miscellaneous structure/ building/ foundation/ etc. and Handing Over of Entire Facilities	18 Months
6.3	The above schedule is only tentative. The above schedule shall be advanced, if there are requirements to advance the project schedule and the civil works in the scope	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: TIME SCHEDULE

	of the contractor is to be advanced to meet the project requirement. No extra payment whatsoever shall be paid on this account.	
6.4	The Contractor shall submit a detailed L-2 schedule for execution of the complete works covered under the scope of this tender at the BHEL site within fifteen (15) days from the date of issuance of the Letter of Acceptance (LOA). The L-2 schedule shall be reviewed and approved by the BHEL site. The L-2 schedule, duly approved by the BHEL Site-In-Charge/ Construction Manager, shall be a pre-requisite for signing of the contract. In order to meet the above schedule in general, and any other intermediate targets set, to meet customer/ project schedule requirements, Contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL Engineer.	
6.5	Intermediate milestones:	
6.5.1	Two Major Intermediate Milestones are identified as M1 and M2 above.	
Milestones	Activity	Schedule of completion from start of work
M1	Raw Water System including Pump House (M1)	08 Months
M2	Compressed air system (Compressor House) (M2)	12 Months
6.6	<u>Provision of Penalty in case of slippage of Intermediate Milestones:</u> <u>In case of slippage of Two Major Intermediate Milestones, mentioned as M1 & M2 above, delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to F-14.</u>	
6.6.1	In case of slippage of these identified Intermediate Milestones, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones.	
6.6.2	<u>In case delay in achieving M1 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 2% of executable contract value, will be withheld.</u>	
6.6.3	In case delay in achieving M2 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 3% of executable contract value, will be withheld.	
6.6.4	Amount already withheld, if any against slippage of M1 milestone, shall be released only if there is no delay attributable to contractor in achievement of M2 Milestone.	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: TIME SCHEDULE

6.6.5	Amount required to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld out of respective milestone payment (corresponding RA Bill) and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.
6.6.6	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.
6.6.7	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.
6.7	Common activities shall be completed in Phase wise manner/ Instruction of Engineer within the Contractual time.
6.8	Above milestone dates has to be completed in parallel.
6.9	Bidders are requested to submit Resource deployment plan Area wise with detail program in line with above schedule in the form of Bar Chart/ MS project planer along with their offer.
*	Executable Contract Value - Value of work for which inputs/ fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.
6.10	COMPLETION OF WORK AND COMMENCEMENT OF GUARANTEE PERIOD
6.10.1	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.
6.10.2	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.
6.10.3	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

7.0	Terms of Payment:
7.1	Progressive Payment/ Final Payment: 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. Measurements shall be recorded and certified building/structure-wise. Separate measurement sheets shall be prepared for each applicable building/structure and shall form part of each Running Account (RA) Bill. 1. <u>Additional Payment Terms for Stipulated Buildings/Structures: -</u> <u>Payment for Civil works of Steel Framed Buildings/Structures Like Power House Building, Mill & Bunker, etc.:</u> a. 75% of the certified RA Bill value for the respective building/structure shall be payable upon certification of measurements by the BHEL Engineer-in-Charge. b. Balance 25% shall be released upon certification by the BHEL Engineer-in-Charge as detailed below: - i. 15% on completion of raft and pedestals of the building/structure. ii. 10% on completion of backfilling & handing over to mechanical agency for erection works. <u>Payment for Civil works of RCC Framed Buildings:</u> c. 75% of the certified RA Bill value for the respective building/structure shall be payable upon certification of measurements by the BHEL Engineer-in-Charge. d. Balance 25% shall be released upon certification by the BHEL Engineer-in-Charge as detailed below: - i. 10% on completion of RCC Framework including roof slab & parapet wall. ii. 10% on completion of all internal finishing works like-brickwork, plastering, flooring, floor finish, false ceiling, doors & windows, painting, plumbing, sanitary & handing over with lock & key for electromechanical erection/usage of BHEL/Customer. iii. 5% on completion of external finishing works like roof treatment, rain water pipes, outside paint, plinth protection, garland drains, approach to building and closure of punch points for the building. <u>Note: -</u> Applicable Buildings/Structures falling under this additional payment terms category shall be as follows: - 1. Raw Water System including Pump House 2. Fuel Oil Pump House 3. H2 Cylinder Storage Shed

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	4. Chemical lab 5. Ammonia Unloading & Storage 6. Compressed Air System (Compressor House) 7. Air Washer Building 8. Security cum Main Gate Complex 9. Parking sheds for four wheelers and two wheelers 10. Pipe and cable Racks 11. Fire protection system including pump house (Booster and Foam Pump House). All other terms and conditions shall be governed by Clause Nos. 2.6, 2.22, and 2.23 of the General Conditions of Contract (GCC) and Volume-IB, Chapter-X of the Special Conditions of Contract (SCC).
7.1.1	<u>Documents required for RA Bill:</u> • GST Complied Invoice of the work done as per approved BBU. • WAM -6 for RA Bill. • Jointly signed Measurement sheet. • Power of Attorney before submission of Bill. • Validity of Bank Guarantees as applicable under the contract. • HR/IR compliance documents: i. Wages payment sheet as per applicable minimum wages. ii. Proof of PF contribution submission. iii. Proof of ESI/ WC contribution submission iv. Proof of Bonus payment as per Bonus Act if applicable. v. Proof of EL payment if applicable. vi. Any other statutory document if applicable.
7.1.2	<u>Documents required for Final Bill:</u> 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: • Final Bill in WAM-7 Format. • 'No claim' certificate from the contractor. • Clearance certificates where ever applicable viz. Clearance Certificates from Customer, various Statutory Authorities like Labour department, PF Authorities, Commercial Tax Department etc. • Final Material re-conciliation statement duly approved by BHEL. • Indemnity Bond as per prescribed format.

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Chapter – VII: TERMS OF PAYMENT

	• Deviation statement showing the difference between the actuals and as per the contract. • Final Delay Analysis.
7.2	SECURED RECOVERABLE ADVANCES: Interest Free Secured Mobilization Advance as per GCC Clause No. 2.13.1 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: 1. Mobilization of T&Ps for Civil Works - Batching plant (01 No.), Excavator (01 No.) & Dumper (02 Nos.), Transit Mixers (02 Nos.), Boom Placer/Concrete Pump (01 No.) & DG Set (01 Nos.) - 2.0% 2. Installation and Erection of Site Infrastructure by contractor i.e. site office & stores. - 1.5% 3. Mobilization of T&Ps for Fabrication & Erection Works - 75 MT Capacity Crane (01 No.), Trailer (01 No.), Farana (02 Nos.) – 1.5% Note: 1. BHEL Site-CM shall be the deciding authority for assessing the admissibility of advance payment to contractor. 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.
7.3	The contractor shall maintain the labour colony including worker's accommodation sheds for its workmen as per BHEL guidelines. 0.25 % of every RA Bill shall be linked on certification from BHEL for compliance with the guidelines of labour colony. Regular visit of workmen establishment shall be done by team from BHEL to ensure implementation of above guidelines. Any irregularities observed shall have to be rectified by agencies on immediate basis. In case, the report submitted by BHEL team is not satisfactory, necessary actions including recoveries (0.25% of RA Bill value) shall be done as per contract. In addition to the recoveries as per contract (0.25% of RA Bill value), expenses incurred (if any) for maintenance & rectification by BHEL shall be recovered from agency along with 5% overheads.
7.4	Provision of land for contractor's establishment and worker's accommodation sheds: - Deduction as per TCC Clause No 3.10 shall be applicable.
7.5	ROYALTY FOR CONSTRUCTION MATERIALS i. The Bid Price shall be inclusive of any Royalties or Seigniorage Fee or Cess or other charges payable on the quarried or mined metal, minerals, or minor minerals, as the case may be, at the rate(s) prevailing as on due date of Bid Submission.

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	ii. The contract price shall be inclusive of all applicable Royalty for Construction materials and the Bidder to quote their price accordingly. The Royalty amount will not be reimbursed by BHEL. iii. In the event of there being a statutory increase in the rates of royalty charges/ fresh levy of royalty on materials, the increase/ fresh levy shall be reimbursed to the Contractor upon submission of original challan of having made the payments at revised rates and necessary proof of payments. iv. In the event of there being a decrease in such rates, the decrease shall be recovered from the Contractor. v. The increase or decrease in Royalty shall be w.r.t the rate as referred in Clause No. 7.5 (i) above. vi. The total reimbursement of increase or decrease in royalty charges or new levies (positive or negative) as specified above, to be paid or recovered, shall however be calculated on the quantity of materials actually considered while making the royalty payments to the concerned authorities, or the theoretical consumption of these materials (calculated on the basis of the volume of concrete or fill accepted for payment), whichever is less, and on the basis of documentary evidence of Govt. Notification. vii. However, the Contractor will settle claims, if any, on account of over charge by the State Authorities. viii. If there is a demand by statutory bodies at a later date from BHEL/ contractor for payment of royalty for construction materials, the same will be paid by contractor or recovered from Contractor and paid by BHEL. BHEL's decision regarding modality of payment for the demand is with BHEL & binding on the Contractor. Any penalty levied by the statutory bodies in this regard or any other reason on account of royalty/ seigniorage fee for Construction materials will be to contractor's account. ix. The component of Royalties or Seigniorage Fee or Cess or other charges, if applicable in a running account bill, shall only be released by the Purchaser to the Contractor on submission of the following documents in original A) In case the Contractor is the primary license holder of the quarry / mines: i) Vehicle wise challan / transit permit and proof of payment of royalty, and ii) Any other document required as per the relevant Acts/Rules of the concerned state. B) In case the Contractor is the purchaser of soil/earth, sand, stone/aggregates, metals, minerals or minor minerals: i) Purchase voucher and vehicle wise challan / transit permit and proof of payment of royalty, and ii) Any other document required as per the relevant Acts/Rules of the concerned state. x. In case the Contractor fails to provide the required proof of royalty payment with the RA bill then an amount based on the prevailing rates of the royalty shall be deducted from the respective RA bill, which shall be refunded to the Contractor on
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	submission of proof of royalty payment. However, if the Contractor fails to provide the proof of royalty payment within a period of 60 days from the date of RA bill, BHEL shall issue a notice to the Contractor giving 30 days' time for submission of the proof of royalty payment. In case of non-submission of the proof of payment of royalty by the Contractor, the amount so deducted shall be deposited by BHEL to the concerned authority. In the absence of production of challan, the actual prevailing rate for royalty/ seigniorage fee as per the Haryana Government Gazette Notification shall be withheld from RA bill/ final bill and on production of challan, payment of relevant portion will be released.
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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: TAXES AND DUTIES

8.0	TAXES & DUTIES
8.1	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 & services consumed and output goods & services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes/duties, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit. However, provisions regarding GST on output supply (goods/service) and TDS/TCS as per Income Tax Act shall be as per following clauses.
8.2	GST (Goods and Services Tax)
8.2.1	GST as applicable on output supply (goods/services) are excluded from contractor's scope; therefore, contractor's price/rates shall be exclusive 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.
8.2.2	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.
8.2.3	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.
8.2.4	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.
8.2.5	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.
8.2.6	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.
8.2.7	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.

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8.2.8	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: - - Supply of goods and/or services have been received by BHEL. - Original Tax Invoice has been submitted to BHEL. - Contractor/ Vendor has submitted all the documents required for processing of bill as per contract/ purchase order/ work order. - 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. - 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. - 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. - Contractor has to submit an undertaking confirming the payment of all due GST in respect of invoices pertaining to BHEL.
8.2.9	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.
8.2.10	TDS as applicable under GST law shall be deducted from contractor's bill.
8.2.11	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.
8.2.12	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.
8.2.13	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.

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8.2.14	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.
8.2.15	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.
8.2.16	<u>Variation in Taxes & Duties:</u> 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. 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. 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.
8.3	<u>Income Tax:</u> TDS/TCS as applicable under Income Tax Act, 1961 or rules made thereunder shall be deducted/collected from contractor's bill.

8.4 BOCW Act & Cess Act

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

Annexure-I:

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

1.	It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
2.	It shall be sole responsibility of the contractor engaging Building Workers in connection with the building or other construction works in the capacity of employer to apply and obtain registration certificate specifying the scope of work under the relevant provisions of the Building and Other

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	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.	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: i) Number of Building Workers employed during preceding one month. ii) Number of Building workers registered as Beneficiary during preceding one month. iii) Disbursement of Wages made to the Building Workers for preceding wage month. iv) Remittance of Contribution of Beneficiaries made during the preceding month.

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9.	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. 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.	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.
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.

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9.0	MATERIAL
9.1	Material to be issued by BHEL (Free of Cost) as specified in BOQ cum Rate Schedule: 1. Cement 2. Reinforcement Steel and MS Round Bar (Earthing Rod) 3. Structural Steel (Note: Material required for the Maintenance of Labour sheds shall be in the scope of the bidder)
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	ACCEPTANCE CRITERIA FOR SUB VENDORS FOR ALL CIVIL ITEMS (Except for Cement, Reinforcement steel, Structural Steel materials) a. It should confirm to relevant Indian/international Standards. b. It should be of reputed makes supplied to similar construction/ infrastructure projects. c. The Contractor should furnish documentary evidence to prove (a) and (b) above. d. For make / sub vendor for specific civil items, BHEL / Customer's approval shall be final and binding on contractor.
9.2.2	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.
9.2.3	Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the engineer.
9.2.4	Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
9.2.5	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 on account of contractor.
9.2.6	BHEL free supplies shall be provided only for incorporation in the permanent works of the project.
9.2.7	Embedment/ inserts required for the works in general shall be supplied by the contractor and payment shall be made as per corresponding item in BOQ.

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	If BHEL provides Structural Steel for embedment/ inserts from scraps (if available), payment shall be made as per corresponding item in BOQ. Contractor shall use the scrap materials for embedment/inserts etc. after necessary store issue formalities and shall be accounted for in monthly reconciliation. If BHEL provides fabricated embedment/ inserts as supplied by BHEL manufacturing units, payment for fixing of those shall be made as per corresponding item in BOQ.
9.2.8	In general, the steel will be issued to the agency in standard lengths. In any instance of supply of non-standard lengths of steel or supply of 8mm, 10mm & 12mm dia. Reinforcement steel in coil form, no extra claims will be entertained against any such issues of Non-standard lengths of steel and de coiling of 8mm, 10mm & 12mm dia. Steel. Areas of work requiring cut to length steel in order to minimize scrap generation and wastage, has to be specifically identified in consultation with BHEL site engineer and contractor shall furnish the requirement to BHEL well in advance of such requirement.
9.2.9	If any matching sections of steel are not available with BHEL, contractor may arrange these sections from Customer approved suppliers and the landing cost of these sections at site will be reimbursed based on production of supporting documents like Tax invoice, MTC, etc. and any other billing documents as required by BHEL. This Clause shall be operated if required, at the discretion of BHEL.
9.3	HANDLING OF MATERIAL ISSUED BY BHEL: Refer Chapter-VI “Material Handling, Storage & Preservation” of SCC
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. If required, bidder has to provide the services for escorting the cement/steel vehicle from source to site. 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. a.) The cement shall be provided normally in bulkers and shall be unloaded in the silos to be installed by the contractor nearer to their batching plants. For cement supplies in bags, Contractor shall construct waterproof cement store for storing and stacking of cement issued by BHEL. Cement has to be kept over wooden raised platform. Stacking of cement is to be done as per IS codes with proper illumination and locking arrangements. b.) All Structure Steel and Reinforcement Steel shall be stacked section / diameter wise over sleepers.

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	Clotting of cement and excessive rusting of steel must be avoided. In case, due to lack of preservation on the part of contractor, rusting of steel (issued by BHEL)/ clotting of cement (issued by BHEL) takes place rendering the same unusable, then cost of such quantity of steel/ cement shall be recovered from the interim payment at the penal rate specified in the tender.
9.3.3	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.
9.3.4	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.
9.3.5	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.
9.3.6	The contractor shall solely be responsible for the safety & security of material after it is handed over and issued to contractor by the BHEL.
9.3.7	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.
9.3.8	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.
9.3.9	The contractor shall maintain proper store account for all the BHEL issued materials and shall give Three (03) copies of monthly-computerized reconciliation statement of such account showing total receipt, consumption and balance at site to the BHEL. BHEL Engineer's certification for the reconciliation of steel shall be final. Contractor shall also maintain Cement register and other free issue item register and update on daily basis and share with BHEL.
9.3.10	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.
9.4	ISSUE OF CEMENT
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

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	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	The cement shall be provided normally in bulkers and shall be unloaded in the silos to be installed by the contractor nearer to their batching plants. Silos Capacities shall be finalized mutually. Cement unloading arrangements to silo or in stores (in case of cement bags) and necessary assistance & manpower support shall be provided by the contractor at his own cost.
9.4.3	On advance request of the contractor, the cement shall be supplied in 50kg tamper proof sealed Bags for other than RCC works like masonry, flooring works, etc. The theoretical weight of each bag of cement for issue purposes will be considered as 50kg, the contractor shall be accountable for the cement issued to the contractor on this notional weight only. No claim whatsoever will be entertained because of difference between theoretical and actual weight of the bags of cement.
9.4.4	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.
9.4.5	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.
9.4.6	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.
9.4.7	Contractor will be responsible for unloading the cement as soon as the storage 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 contractor. 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.
9.4.8	No cement will be issued on free basis for bought out item like Hume pipe, Interlocking Paver block, fly ash brick, Kerb stone etc. or any other BOI which involves cement and is procured from outside of plant premises. However, cement for mortar for fixing of these items if required will be issued on free basis.
9.4.9	The contractor shall submit to the engineer, a statement indicating estimated quantity of cement required during a quarter, at least two months in advance of the quarter. In addition, the contractor shall also furnish the estimated requirement of

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	cement during a month by the third week of the previous month indicating his requirement.		
9.4.10	One month shall be the limit for the maximum quantity of BHEL issued cement that would be with the contractor at any point of time when work is in progress (excluding what has already been incorporated in the works).		
9.5	Issue of Reinforcement Steel, MS Round Bar (Earthing Rod) and Structural Steel Refer Chapter-VI "Material Handling, Storage & Preservation" of SCC		
9.6	Return of Cement, Reinforcement Steel, MS Round Bar (Earthing Rod) and Structural Steel Refer Chapter-VI "Material Handling, Storage & Preservation" of SCC		
9.7	Consumption and Wastage of Cement, Reinforcement Steel, MS Round Bar (Earthing Rod) and Structural steel: Refer Chapter-VI "Material Handling, Storage & Preservation" of SCC		
9.8	Scrap & Serviceable Materials Refer Chapter-VI "Material Handling, Storage & Preservation" of SCC		
9.9	Reconciliation of Materials Refer Chapter-VI "Material Handling, Storage & Preservation" of SCC		
9.10	Recovery of Materials (Penal Rates): If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA Bills as per following penal rates (excluding GST):		
9.10.1	Sl. No.	Materials	Penal Rate (Rs.)
	1	Cement (PPC)	5,500/- per MT
	2	Cement (OPC)	6,500/- per MT
	3	Reinforcement Steel / Earthing Rod	60,000/- per MT
	4	Structural Steel (Plates, Rolled Sections etc.)	70,000/- per MT
	5	Anchor / Foundation Bolts	1,00,000/- per MT
9.10.2	Penal Rate will be 1.05 times the actual cost to BHEL or Rate mentioned in above Table, whichever is higher.		

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

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

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

<u>Part A:</u>	<u>Instructions to the Bidders</u>
1.	<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> 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 used to calculate the total amount of an item.
6.	For the convenience of bidders, BHEL has issued an excel sheet with all requisite formulae as detailed above. However, this excel sheet shall not form part of contract document. Further, this sheet should not be uploaded at the e-Portal.
7.	Bidders to note that this is an ‘ Item rate contract ’. Payment shall be made for the actual quantities of work executed at the Unit rate arrived at as per serial no. 5 above.
<u>PART B:</u>	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.

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Chapter-XI: TECHNICAL SPECIFICATIONS AND DRAWINGS

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

- SECTION-C: CUSTOMER CONTRCT SPECIFIC TECHNICAL REQUIREMENTS
- SECTION-D: GENERAL TECHNICAL REQUIREMENTS
- STANDARD GUIDLINES FOR WORKER'S ACCOMODATION/ESTABLISHMENT AT BHEL'S PROJECT SITES **(ANNEXURE-A)**.
- TYPICAL LAYOUT DRAWING FOR WORKMEN'S SHED (120 NOS).
- RATES FOR HIRE CHARGES ON ISSUE OF CAPITAL TOOLS & PLANTS
- CLIMATOLOGICAL TABLE
- PLOT PLAN (TENDER STAGE DRAWING FOR BIDDER'S INFORMATION ONLY. FINAL PLOT PLAN SHALL BE PROVIDED TO THE SUCCUESSFUL 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.