

SCOPE OF WORK

SECTION - III

SPECIAL CONDITIONS OF CONTRACT

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SPECIAL CONDITIONS OF CONTRACT**34.0 GENERAL SCOPE OF WORK****34.1 BHEL has been awarded the work of R&M of 2X110 MW GNDTPS, BHATINDA PUNJAB.**

This tender specification covers complete scope of Civil, Structural and Architectural works for Main Plant, BTG Area and ESP Area. The work involves dismantling/demolishing of existing conc. foundations, floor slabs, columns etc. & construction works including supply of all construction materials including steel, cement, all finishing materials, consumables (inclusive of loading, unloading), complete for all buildings, equipment and facilities, providing all construction equipments, tools & plants, labor, transportation and storage, sample testing etc. all complete.

The bidder's scope shall include excavation in soil and rock (without blasting as per the site conditions), dewatering, dressing to required profile, sheet piling or shoring/strutting, backfilling around completed structures and plinth filling, plinth protection, disposal of surplus earth and rock, concreting including reinforcement and formwork, masonry work, plastering, painting, un-insulated/sandwiched insulated metal wall cladding, , flooring, acid and alkali resistant lining, doors/windows, ventilators, fire proof doors, under deck insulation, false ceiling in all AC areas, roof water proofing, dismantling of existing structures (below ground and above ground-sheeting, structural steel, other facilities), RCC and brick/ block masonry and steel structures, fabrication and erection of all structural steel and miscellaneous steel (i.e. steel stair case, cable/duct/pipe supports, ladders, walkways, railing, chequered plate/grating floor, inserts, anchor bolts, etc.),paving, gravel filling, precast covers, trestle, cable ducts/duct banks, expansion joints, rain water pipe, water supply, toilet fittings, sewerage, insulation, gates/valves, damp proofing, water proofing of under ground structures, anti-weed and anti-termite treatment, drainage, trenches, landscaping, final grading and site clearance before handing over to Owner and other auxiliary items of work, etc. all complete including supply of all materials, consumables, labour, Tools and plants, transportation and storage, sample testing etc. all complete as per BOQ, specifications and drawings for proper and successful execution of the job.

The detailed scope of work & the technical requirements for work to be executed shall be as per the technical and general specifications for civil work (part I & part II) and specification for dismantling and demolition works enclosed with this tender document. (Annexure-III)

34.2 The scope under this package covers but is not limited to buildings/ structures / systems / facilities related bunker bay, main control room, ESP control room, Lecture hall extension, dismantling of existing foundations/ RCC structures, rectification of damaged supports, pile work, foundations of static / rotating part, Storm water drains, & O&M Building . The scope of work will also include such other related works although they may not be specifically mentioned in the specifications and all such incidental items not specified but reasonably implied and necessary for completion of the job as a whole and as desired and as directed by the engineer. The detail scope of work covered above is not a

comprehensive list of items of work involved. The detail scope of work may vary considerably depending on the actual construction requirements.

34.3 The scope of work covered in this specification in general comprises of civil works in RCC and structure steel works for rectifying parts of existing corroded /distressed structures. Replacing existing corroded /distressed structures in parts or full for various structures and foundations of 1x110 MW, units 4 of stage II of GNDTP plant of PSEB at Bhatinda, Punjab, as a part of rectification & modernization works of plant. The works covered in this section consists of construction, fabrication, erection and testing including supply of all materials (except BHEL unit's supply), tools labor etc. complete in all respect. The civil works shall also include those required for installation, commissioning, testing, operation and maintenance of the system. The scope will cover but not limited to the following buildings/structures/systems/facilities.

(a)	Dismantling of RCC and structural steel work in Mill & Bunker Bay at +0.0 M and +8.0 M level (Refer detailed specifications as/ enclosure-I).
(b)	Dismantling of existing column footings and structures fouling with proposed footings (detailed specification for (a) shall be applicable).
(c)	Equipment foundation and dismantling for PA Fan, ID Fan, FD Fan (Construction and dismantling of foundations, 02 Nos. each. existing foundations to be dismantled up to the FFL) & column footings as per requirement etc
(d)	Piling work for foundations of specified diameter in the BTG area including initial load tests and routine load tests.
(d)	Bowl mill foundation (Construction of 4 Nos. new foundations coming on existing 3 nos. foundations with re-bars including dismantling of the existing mill foundations 3 nos. up to the pile cap as per drawings & specification attached), modifying & re-erection/ construction of Structural steel and RCC work at 9m floor and approach platforms in mill bay area for raising the floor from 8m to 9m floor.
(e)	Extension of existing lecture hall. (Includes dismantling and construction)
(f)	Main control room modification for housing of control panels and MCC as per approved layout. UPS battery Room, battery charger Room, SWAS Room, Engineering Section (Includes dismantling and construction)
(g)	ESP control room modification/construction. (Includes dismantling and construction)
(h)	General rectification works for concrete works & structural steel works of turbine generator, Boiler and their auxiliaries and other related areas.
(i)	Rectification of the damaged pipe supports, replacement of damaged RCC cover slab, providing pre-cast RCC slab with edge angle all-round over the drains in the ESP area wherever missing including checking and rectifying the clogging of drains due to ash in ESP area

The scope of work will also cover the following.

34.3.1 The existing steel supporting structure of the boiler house ,ceiling plates and supporting purlins of pent house are corroded in patches, pipe hanger and other supports appears to be weak and some of the members are buckled. The scope of rectification works involved is to carry out the strengthening/replacement of structures based on the analysis/studies done at site.

34.3.2 The necessary works to be carried out by the contractor in conc. and structural steel are given below.

a) Conc. Work

- i) Removal of carbonated zones of conc. and replacing the same by structural grade polymer modified mortars.
- ii) Epoxy injection grouting of loose pockets, honeycombs, cracks etc.
- iii) Applying bipolar corrosion inhibitors.
- iv) Removal of corroded portion of exposed or internal reinforcement and replaced with new reinforcement. Apply anti corrosive epoxy primer to exposed reinforcement and cover it with mortar.
- v) Increase the overall size of members by providing extra reinforcement and conc. to carry the design load.

b) Structural Steel Works

- i) Dismantling corroded portion of steel plates /members from any elevation and replace the dismantled portion with new plates or members of size and thickness design and specifications.
- ii) Provide the proper connection between old and replaced new plates /members by welding/ bolting as per drawings and design.
- iii) Proper cleaning by means of wire brushing, sand blasting chemical cleaning etc. to remove corrosion, coal dust, ash from rest of the portion of structure. Apply corrosion resistant painting.

34.3.3 Civil works relating to the installation of new C & I system by way of making/modifying floor cut outs , grouting of new panels , making some new cut outs and making of separate rooms for SWAS, UPS, 24 Volt DC supply system, UPS battery bank etc as per BHEL drawings..

34.3.4 All materials including cement, reinforcement steel, structure steel, admixtures, chemicals, paints, T&P, shall be arranged by contractor after getting it approved from BHEL.

34.4 ALSO INCLUDED IN THE SCOPE

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

- a) Furnishing all labour, materials, supervision, construction plans, equipment, supplies, transport, to and from the site, fuel, electricity, compressed air, water, transit and storage



MECHANICAL/ELECTRICAL/CIVIL

insurance and all other incidental items and temporary works not shown on specified but reasonably implied or necessary for the proper completion, maintenance and handling over the works, except in accordance with the stipulations laid down in the contract documents and additional stipulations as may be provided by the engineer during the course of works.

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

- h) **The contractor shall provide 2(two) nos. of computers from starting of work to closing of the contract having Microsoft operating system with WINDOWS-XP or equivalent and minimum MS- 2007 professional and other software's loaded for record keeping and generation of reports related with project. The configuration of computers must be at least Dual core 2.2, 160 GB hard disk & 1GB RAM along with CD Writer. 2(two) nos. laser printers having fax and scanning facility will be provided . The reports related with project will be submitted to the BHEL office through the CD/PEN DRIVE/ HARD COPY regularly.**

All necessary software/hardware's & consumable like ribbons, floppy, CD, printer cartridge etc. required will be arranged by the contractor for entire period of project. However stationary will be arranged by the BHEL.

The overall maintenance of these computers & printers will be the responsibility of the contractor at his cost to ensure uninterrupted service.

The computer systems will be put at disposal of BHEL. However it will remain the property of contractor and same can be taken back by contractor after closing the contract.

In case contractor fails to provide above mentioned equipments , BHEL shall have the right to hire these equipments /services from any other agencies at the risk and cost of the contractor and charges for the same along with overheads will be deducted from running/final bill of contractor.

i) The contractor under this contract shall also provide free of cost to BHEL, services of skilled/semiskilled/helper/computer operator/attendant / workmen for working in office, Guest house and for any other purpose for a total period of 60 man months detailed as follows:

- | | | |
|-------------------------|---|--------------|
| 1) Computer Operator | - | 12 Manmonths |
| 2) Skilled Workmen | - | 18 Manmonths |
| 3) Semi-Skilled Workmen | - | 12 Manmonths |
| 4) UnSkilled Workmen | - | 18 Manmonths |

Workmen provided under this clause shall be fully trained and experienced in the nature of work for which they are deployed.

In case contractor fails to provide above-mentioned manpower as desired by BHEL, the latter shall have the right to hire such services from other agencies at the risk and cost of the contractor. However, if BHEL does not utilize the man months as per above provision, fully or partly; recovery at the rate of the prevailing minimum wages at site for the categories given plus 10% will be made from the final bill of the contractor.

34.5 The Customer Punjab State Electricity Board (PSEB) and / or their Consultant 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.

34.6 The work under this contract shall be carried out as per BOQ Cum Rate Schedule. In case the description / specifications as per BOQ are found to be incomplete, CPWD specifications shall be followed. Quantities mentioned in the rate schedules are approximate only and liable for variation due to change of scope of work / variation in schedule of quantities, changes in design etc. The tenderers shall undertake to execute actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually erected at site and payments will also be regulated for the same. The quantities indicated against each item may vary to any extent and no compensation will be payable in variation of Individual quantity.

34.6.1 **GUARANTY PERIOD**

CONTRACTOR is to provide a minimum guaranty period of 90days after the handing over for all the repairs and replacement works done by him. If during the guaranty period any damage, loosening, alterations, palling off, chemicals reactions and subsequent damage to adjoining portion of member etc. does happen which are not attributable to owner, the same shall be rectified /replaced and finished good to its original shape and size by Contractor as per ENGINEERS satisfaction and approval free of cost.



his subcontractors under condition provided by the contractor and under proper use and arising solely from faulty design of material or workmanship.

34.7 Health, Safety & Environment management (HSE)

34.7.1 BHEL-Power Sector (NR) is ISO 9001, ISO 14001, OHSAS 18001, ISO 27001 and SA-8000 certified company. Quality of work, to customer's satisfaction and system requirements is the essence of these certifications. The contractor in all respects will organize his work, systems, environment, process control documentation, tools, plant, inspection, measuring and testing equipments etc. as per instructions of BHEL engineer.

The contractor shall also comply with applicable legislation and regulations with regards to Health, Safety and Environmental aspects for minimizing risk arising from occupational health & safety hazards, controlling pollution and wastage. The Contractor will be responsible for Health, Safety & Environment management (HSE) at site for the construction activities to be carried out by them in accordance with requirements given under section I (a) of GCC and elsewhere in this tender document. The contractor, who is awarded the work, shall have to sign an MOU w.r.t. implementation of HSE conditions with BHEL (Safe Work Practices).

34.7.2 Besides provision with regard to SAFETY under Clause 27 of GCC, the contractor will be responsible for Health, Safety & Environment management at site for the construction activities to be carried out by them in accordance with requirements **given under section I (a) of GCC of this document**. The contractor shall continuously take special care to ensure the safety and prevention of human and equipment accidents and maintain good sanitary conditions in and around the site. All the construction work and plant operation must be carried out in the safest possible manner. The Engineer reserves the right to stop any process which, in the Engineer's opinion, is being performed dangerously. In this case the contractor must immediately adhere the requisite safety precautions and any delays attributed to the work stoppage on this account shall not affect the agreed contractual finishing dates.

The contractor shall appoint dedicated full-time Qualified Safety Officers who shall have full authority to ensure that all necessary safety precautions are observed by the Contractor's employees and sub-contractors. These appointees shall have full responsibility for the safety of all personnel within the contractor's area of the works.

34.7.3 Some of the common safety rules to be followed during working are as follows:-

- No body is allowed to enter at construction site without Safety Shoe.
- Never enter work area without Safety helmet & chin strap in place.
- No climbing/working allowed without proper safety belt above 2 m. height.
- Do not exceed the speed limit 25 Kmph within premises.
- No debris obstacles allowed on the roads & passages.
- Do not walk on pipelines or false ceiling.
- Maintain good Housekeeping at work site.
- No photography/ Videography allowed without permission



- All Site supervisors & engineers (including subcontractors) must be imparted structured training on construction safety before start of the job & record to be maintained.
- Availability of qualified & trained Site Engineer at site during all working hours.
- Site Safety training to be imparted to all workers & plan to be made to cover every worker.
- Tools box talk (5-15 minutes) by supervisor prior to commencement of any job.
- All accident / incidents(Near Miss) to be reported & investigated.(formats & procedure should be finalized)
- Daily Safety Checking by Each Site Engineer along with Safety engineer.
- Weekly co-ordination meeting of all Safety engineers with BHEL safety officer.
- Monthly safety meeting with Site In-charges.
- All Safety equipment must be ISI marked & checked by Safety officer before use.
- Tag system for erection & use of scaffoldings.
- Bamboo/wooden Scaffolding material not allowed.
- LPG cylinders not allowed for gas cutting.
- Good House keeping. Separate waste bins to be used for flammable & non flammable material.
- Safety awareness programs for workers by display of boards, posters, competitions, talks etc.
- Deployment of Safety Supervisors for every 250 workers and part there of at work site.
- Display of List of First Aid trained persons.
- Testing certificates for lifting tools & tackle.
- Provision & maintenance of fire extinguishers at construction site & material stores.
- Display of emergency telephone numbers at various locations.
- For work in confined space use 24 V lamp fitting & use tools with air motors or electric tools with max. 24 V.
- For confined space entry Gas test must be done before & at regular intervals.
- Checking & tag of equipment like grinding machine, welding machine, gas cutting set etc. by supervisors before use.

34.7.4 **Contractor shall ensure following:**

1. Contractor has to ensure pre employment medical check for all staff & workers.
2. Contractor shall arrange suitable first aid measures such as first aid box, trained personal to give First Aid and install fire protection measures such as adequate number of steel buckets with sand and water to the satisfaction of BHEL/Owner.
3. Contractor shall ensure participation of his Resident Engineer/Site-In –Charge in the safety Committee/HSE committee meeting arranged by BHEL/Owner. The compliance of any observations shall be arranged urgently. He shall assist BHEL/Owner to achieve the targets set by them on HSE during the project execution.
4. Contractor shall be fully responsible for planning and implementing HSE requirement. Contractor as a minimum requirement shall designate/ deploy the following to coordinate the above.

No. of workers deployed	Designate
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Up to 250	-----	one safety supervisor
250-500	-----	one qualified and experienced safety engineer/ officer
Above 500	-----	one additional safety engineer/ officer (for every 500 or less)

34.7.5 The Contractor shall be fully responsible for accidents caused due to him or his agents or workmen's negligence or carelessness in regard to the observance of the safety requirements and shall be liable to pay compensation for injuries. **It may be noted that non-compliance to HSE requirements will result in penal action. In case of violations of safety requirements, the Contractor shall be liable for a penalty of Rs. 500/- for the first violation and Rs. 1000/- for the subsequent violations. For serious lapses, as decided by BHEL Engineer, fines up to Rs. 5000/- at a time can be imposed.**

The amount towards penalties as above will be deducted from running bills of the Contractor. The amount so collected above will be utilized for supporting the safety activities at site. The decision of BHEL on above will be final and binding on the Contractor.

34.7.6 **The contractor shall comply with following towards Social Accountability;**

- (a) The contractor shall not employ any employee less than 15 years of age in pursuant to ILO convention. If any child labour were found to have been engaged , the Contractor shall be levied with expenses of bearing his education expenditure which will include stipend to substantiate appropriate education or employ any other member of family enabling to bear the child education expenditure.
- (b) The contractor shall not engage Forced/Bonded Labour and shall abide by abolition of Bonded Labour System (Abolition) Act, 1976.
- (c) The contractor shall maintain Health & safety requirement as stipulated in the Contract and Contract Labour(Regulation & Abolition) Act,1970.
- (d) The Contractor shall abide by UN convention w.r.t. Human Rights and shall be liable for Discrimination/Corporal punishment for failure in meeting with relevant requirements.
- (e) The Contractor shall abide the requirement of Contract Labour(Regulation & Abolition) Act,1970 for working hours.
- (f) The Contractor shall abide by the statutory requirement of Minimum Wages Act 1948, payment of Wages Act 1936.
- (g) The Contractor shall arrange potable drinking water to its employees & workers.

34.7.7 In order to meet the environmental concerns it is expected that the contractor shall plant, protect and maintain at least **100 trees** in the vicinity of the project as per the available space and as per the advise of Engineer . In case no area is earmarked for tree plantation, the contractor may take up any other equivalent environment related project after due approval of the BHEL Engineer for the entire duration of contract.



35.0 INSTRUCTIONS TO TENDERERS

- 35.1 The Tenderer are advised to physically visit the site and fully acquaint themselves with site conditions, transportation routes, various distances and the fact that other contractors would be working in this area their structures are to be protected. The material brought and stacked for construction should not make hindrance to other contractors. **Necessary precaution and arrangements including sprinkling of water during work as acceptable to BHEL for safety & security for the above have to be made by the contractor. 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.**
- 35.2 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.
- 35.3 Before execution of work, completion of all formalities like submission of indemnity bond on the stamp paper, obtaining form V for labour license and depositing of license fees etc will be sole responsibility of contractor. Contractor will depute an experienced person for completing above formalities before start of work at site. There will be no relaxation to contractor on this issue.

36.0 CONTRACTOR'S SUPERVISION

- 36.1 The Contractor shall either himself supervise the execution of the Contract or shall appoint a competent Engineer / agent approved by the Engineer to act in his stead.
- 36.2 The Contractor shall employ an Engineer/ Agent having at least a 'Degree of Bachelor in Civil Engineering' from a recognized university (for any work with a contract value exceeding Rupees Twenty Lacs) or having at least a 'Diploma in Civil Engineering' from a recognized college (for work with a contract value exceeding Rs. Two lacs but not exceeding Rupees 20 Lacs).
- 36.3 The employment of an Engineer / Agent as aforesaid shall not be necessary if the Contractor himself is in possession of a recognized technical qualification and is in the opinion of the Engineer capable of receiving instructions of the Engineer and of executing the work to the satisfaction of the Engineer.
- 36.4 If the Contractor fails to appoint a suitable Engineer /Agent as aforesaid, the Engineer shall have full powers to suspend the execution of work and stop payment of any money that may have become due until such date as a suitable Engineer / Agent is appointed and the Contractor shall be held responsible for the delay caused to the work and no extension of time on this account shall be given to him.
- 36.5 Orders given to the Contractor's Engineer / Agent shall be considered to have the same force as if they had been given to the Contractor himself.



- 36.6 The Contractor or his Agent shall be in attendance at the site during all working hours and shall superintend the execution of work with such additional assistance in each grade as the Engineer may consider necessary.
- 36.7 The Contractor or his accredited Agent shall attend, when required and without making any claim for doing so, either the office of the Engineer or the work site to receive instructions.
- 36.8 The BHEL Engineer shall have full powers to instruct the Contractor to arrange for immediate termination of services, in connection with this contract, of any Agent, servant or employee whose continued employment is, in his opinion, undesirable, without assigning any reason.

37.0 SUPERVISORY STAFF AND WORKMEN

- 37.1 The contractor shall deploy all the experienced skilled, semiskilled and unskilled workmen required for all the works under this specification. BHEL reserves the right to decide on the suitability of the workers and other personnel who will be deployed by the contractor. BHEL reserves the right to insist on removal of any employee of the contractor at any time, if they find him unsuitable and the contractor shall forth with remove him. The deployment of unskilled workmen by contractor shall be preferred from local areas.
- 37.2 The supervisory staff including qualified Engineers deployed by the contractor shall ensure proper out-turn of work and discipline on the part of the labour put on the job by the contractor and in general see that the works are carried out in a safe and proper manner and in coordination with other labour and staff deployed directly by BHEL or other contractors of BHEL / BHEL's Client / other agency.
- 37.3 The work shall be executed under the usual conditions like rain, insufficient space, improper approach roads etc. and effecting major construction work and in conjunction with numerous other operations at site. The contractor and his personnel shall cooperate with other personnel / contractor, coordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.
- 37.4 The contractor's supervisory staff shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. The contractor shall be responsible to ensure that assembly and workmanship conform to the dimensions and tolerances given in the drawings /documents / instructions given by BHEL Engineer from time to time.
- 37.5 It is the responsibility of the contractor to engage his workmen in shifts or on overtime basis for achieving the targets set by BHEL. The contractor's finally accepted rates shall include all these contingencies.
- 37.6 During the course of construction, if the progress is found unsatisfactory, or in the opinion of BHEL, if it is found that the skilled workmen like welder, fitters, technicians etc. deployed are not sufficient, BHEL after giving reasonable opportunity to the contractor, will induct on the work the required workmen in addition to contractor's workmen to improve the progress and recover from the contractor's bills



- 37.7 If the contractor or his workmen or employees shall break, deface, injure or destroy any part of a building, road kerb, fence, enclosure, water pipes, cables, drains, electric or telephone posts or wire, trees or any other property or to any part of erected components etc., the contractor shall make the same good at his own expense or in default, BHEL may cause the same to be made good by other workmen or by other means and deduct the expenses (of which BHEL's decision will be final) from any money due to the contractor.
- 37.8 The month wise manpower deployment plan to be submitted as per format (at Annexure-C to general conditions of contract) is only to assess the capability as well as understanding of the contractor to execute the work. It shall be the contractor's responsibility to deploy the required manpower, for timely and successful completion of the job, to any extent over and above those indicated in the above deployment plan (including those which are not covered in the plan submitted) without any compensation on this account.

38.0 TOOLS AND PLANTS / IMTEs

- 38.1 For full completion of work, contractor shall arrange all necessary false work erection tools, machine tools, suitable type of piling rigs, power tools, tackles, hoists, cranes, derricks, cables, slings, skids, scaffolding, workbenches, tools for rigging, cribbing, welding machines, instruments, appliances, materials and supplies required for unloading, transporting, storing, erection, testing, crane & hydra etc. at his own expenses. BHEL will not supply any type of machinery, T & Ps & IMTEs.
- 38.2 For Execution of work contractor shall arrange all types of machinery like trailers, tractors and cranes etc. (crawler crane, hydra crane, mobile crane and overhead cranes etc as per site requirements) at his own expenses. Maintenance of the machinery, T & Ps & IMTEs arranged by him will be the responsibility of contractor.
- 38.3 In the event of failure of contractor to bring necessary and sufficient machinery, T & Ps and IMTEs, BHEL will be at liberty to arrange the same at risk and cost of contractor including transportation cost of same from any BHEL site /place and charges as applicable with overheads shall be deducted from contractor's bill. Decision of BHEL in this regard shall be final and binding on contractor.
- 38.4 All distribution boards, connecting cables/welding cables, wire ropes and houses etc. including temporary air/water/electrical connections etc. shall have to be arranged by the contractor at his own cost.
- 38.5 All supervision and labour required for maintenance and for attending breakdowns will be arranged by the contractor at his own cost.
- 38.6 Contractor shall ensure deployment of serviced and healthy T & Ps including cranes, lifting tackles, wire ropes, manila ropes, winches and slings, road rollers, JCB etc. History card and maintenance record for major T & Ps will be maintained by the contractor and will be made available to BHEL Engineer for inspection as and when required.
- 38.7 Contractor shall ensure deployment of reliable and calibrated IMTEs. The IMTEs shall have test/calibration certificates from authorized / govt. approved/ accredited agencies traceable to National/ International standards. Each IMTE shall have a label indicating calibration status i.e. date of calibration, calibration agency and due date of calibration. A list of such



instrument deployed by contractor at site with its calibration status is to be submitted to BHEL engineer for control.

- 38.8 Retesting/ recalibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer with in the contract price. The contractor will also make alternate arrangements for such IMTE so that work does not suffer when the particular instrument is sent for calibration. Also if any IMTEs is not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to deploy proper item and if required repeat the readings taken by that instrument, failing which BHEL may deploy IMTEs and retake the readings at contractor's cost.
- 38.9 BHEL shall have lien on all machinery, T& Ps, IMTEs & other equipment of the contractor brought to the site for the purpose of construction. BHEL shall continue to hold the lien on all such items throughout the period of contract. The contractor or his representative shall remove no material/ T&Ps/ IMTEs from the site without the prior written approval of the Engineer.

39.0 MATERIALS

- 39.1 The contractor shall make all arrangements to unload, handle, transport, load and store all materials at site in a proper manner so as to avoid contamination and deterioration. The contractor shall make his own arrangements for cranes/trailers/hydras etc required for material handling. For storage, open space shall be given by BHEL/ Customer and contractor shall make its own covered shed. Security of storage sheds, construction materials, office etc shall be the sole responsibility of the contractor. The places at site where materials are to be stored shall be subject to the approval of the Customer/ BHEL Engineer-in-charge. The store should have proper illumination, record keeping and locking arrangements for safe custody of the materials. The store should be made before arrival of the materials at site. Space required for stores may be conveyed during the offer stage. The Contractor shall be required to maintain minimum inventory for 30 days of various construction materials for smooth execution of the work.
- 39.2 **The contractor shall at his own expenses arrange for all construction materials e.g. Cement, reinforcement / structural steel, paints, welding electrodes etc. required for the work.**
- 39.3 It shall be the responsibility of the contractor to obtain prior approval of BHEL, regarding suppliers etc. before procurement of **cement, reinforcement / structural steel**. On receipt of electrodes at site these shall be subjected to inspection and approval by BHEL. All materials to be provided by the Contractor shall be of the best kind in conformity with the specifications laid down in the contract or as per relevant Indian standard and the Contractor shall, if requested by the Engineer, furnish proof to the satisfaction of Engineer that the materials so comply.
- 39.4 The Contractor shall, at his own expense and without delay, supply to the Engineer samples of materials proposed to be used in the works. The Engineer shall within seven days of supply of samples or within such further period as he may require will intimate to the Contractor in writing, whether samples are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange to supply to the Engineer for his approval fresh samples complying with the specifications laid down in the Contract. Any delay in

approval of samples (original or fresh ones) shall not make the contractor eligible for any compensation.

- 39.5 The BHEL Engineer shall have full powers for removal of any or all of the materials brought to site by the Contractor which are not in accordance with the Contract specifications or do not conform in character or quality to samples approved by him. In case of default on the part of the Contractor in removing rejected materials, the Engineer shall be at liberty to have them removed by other means. The BHEL Engineer shall have full powers to procure other proper material to be substituted for rejected materials and in the event of the Contractor refusing to comply, he may cause the same to be supplied by other means. All costs, which may attend upon such removal and / or substitution, shall be borne by the Contractor.
- 39.6 The Contractor shall indemnify BHEL, its representatives or employees against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties or other charges which may be payable in respect of any article or material or part thereof included in the Contract. In the event of any claim being made or action being brought against BHEL or any agent, servant or employee of BHEL in respect of any such matters as aforesaid, the Contractor shall immediately be notified thereof, provided that such indemnity shall not apply when such infringement has taken place in complying with the specific directions issued by BHEL but the Contractor shall pay any royalties or other charges payable in respect of any such use, the amount so paid being reimbursed to the Contractor only if the use was the result of any drawings and / or specifications issued after submission of the tender.
- 39.7 The Engineer shall be entitled to have tests carried out as specified in the Contract for any materials supplied by the Contractor other than those for which, as stated above, satisfactory proof has already been furnished, at the cost of the Contractor and the Contractor shall provide at his expense all facilities which the Engineer may require for the purpose. If no tests are specified in the Contract, and such tests are required by the Engineer, the Contractor shall provide all facilities required for the purpose and the charges for these tests shall be borne by the Contractor only. The cost of materials consumed in tests shall be borne by the Contractor in all cases except when otherwise provided.
- 39.8 In addition the Contractor shall perform / submit at his own cost such tests / samples as may be required by the Engineer out of the materials used by the company except for the costs of materials used in such tests / samples.
- 39.9 After acceptance of the Contract, if Contractor desires BHEL to supply any other materials, such material may be supplied by BHEL, if available, at rates to be fixed by the Engineer along with prevailing departmental charges (current rate of 30%). BHEL reserve the right not to issue any material. The non issue of such material will not entitle the Contractor for any compensation whatsoever either in time or in cost.
- 39.10 Material required for the works, whether brought by the Contractor or supplied by BHEL, shall be stored by the Contractor only at places approved by the Engineer. Storage and safe custody of material shall be the responsibility of the contractor.
- 39.11 BHEL's officials concerned with the Contract shall be entitled at any time to inspect and examine any materials intended to be used in or on the works, either on the Site or at factory or workshop or other place(s) where such materials are assembled, fabricated,



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specifications as applicable. In case of conflict, the decision of the Engineer shall be final & binding.

- 42.2 The Engineer will communicate or confirm his instructions to the Contractor in respect of the execution of the work in a "Work Site Order Book" maintained at his office and the Contractor shall visit this office daily and shall confirm receipt of such instructions by signing the relevant entries in this book. Such entries will rank as order or notices in writing within the intent and meaning of these conditions.
- 42.3 Only BHEL approved make of electrodes will be used. All electrodes shall be heated and dried in the electric electrode drying oven to the required temperature for the period specified by the Engineer before these are used in erection work. All welders shall have electrodes drying portable oven at the work spot. The electrodes brought to site will have valid manufacturing test certificate. The test certificate will have co-relation with the lot no. / batch no. given on electrode packets. No electrodes will be allowed to be used in the absence of above requirement. The thermostat and thermometer of electrode drying oven will be also calibrated and test certificate from Govt. approved / accredited test house traceable to National / International standards) will be submitted to BHEL before putting the oven in use. Periodical calibration for the same shall also be arranged by the contractor within the finally accepted rates.
- 42.4 **APPROVAL OF LOCAL MATERIALS FOR USE** - Before bringing any material (locally purchased) to site in bulk for civil works, infrastructure, plant services, etc, contractor shall have to bring a sample first and get it approved by Engineer. Any material brought to site in contravention of this condition shall be rejected forthwith and no payments shall be made.

42.4 SETTING OUT

- 42.4.1 All the works shall be set out to the true lines, grades and elevation indicated on the drawing. The contractor shall be responsible to locate and set out the works. Only one grid reference line and bench mark all be made available for setting out the works under the contract. This reference lines shall be used as datum for the works under the contract and the contractor has to establish for his work area at available points horizontal and vertical control points. The contractor shall inform BHEL well in advance of the times & places at which he wishes to do work in the area allotted to him so that suitable datum points established by him are checked by BHEL / Customer to enable the contractor to proceed with the works. Any work done without being properly located may be removed and / or dismantled by BHEL / Customer at contractors' expense.
- 42.4.2 The contractor shall at his own expense take all proper and responsible precautions to preserve and maintain these datum marks to its true position. In the event of these marks being disturbed or obliterated by accident or due to any other cause whatsoever, the same may be deemed necessary placed by BHEL / Customer at contractor's expenses.

42.5 SITE DRAINAGE

- 42.5.1 All water including sub-soil water which may accumulate on the Site during the progress of the works or in trenches and excavations, including monsoon period shall be removed by the contractor from the Site to the satisfaction of the Engineer. It will also be responsibility

[REDACTED]

of the contractor to de-water all the foundation pits, trenches with suitable de-watering methods like, pumping out, well point system etc. considering the depth of water table at plant site. All such expenditure on de-watering shall be deemed to be included in quoted rates.

42.6 INSPECTION AND STAGE APPROVAL OF THE WORK

42.6.1 The owner or his duly authorized representative shall have at all reasonable times access to the contractor's premises or works and shall have the power to inspect drawings or any portion of the work, examine the materials and workmanship and shall have the authority to reject any work. This would be implemented through joint inspection by the representative of the owner and BHEL and in the form of joint protocols without any extra claims and loss of time and amount.

42.6.2 All work embracing more than one process shall be subject to examination and approval at each stage thereof and the Contractor shall give due notice in writing to the Engineer when each stage is ready. In default of such notice being received, the Engineer shall be entitled to approve the quality and extent thereof at any time he may choose and in the event of any dispute, the decision of the Engineer thereon shall be final and conclusive.

42.7 UNCOVERING AND MAKING GOOD

42.7.1 The Contractor shall uncover any part of the Works and/or make openings in or through the same as the Engineer may from time to time direct for his verification and shall reinstate and make good such part to the satisfaction of the Engineer. If any such part has been covered up or put out of view after being approved by the Engineer and is subsequently found on uncovering to be executed in accordance with the Contract, the expenses of uncovering and / or making opening in or through, reinstating and making good the same shall be borne by BHEL. In any other case all such expenses shall be borne by the Contractor.

42.8 DISCREPANCIES AND ADJUSTMENT OF ERRORS

42.8.1 The several documents forming the Contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small-scale drawings and figures dimensions in preference to scale and special conditions in preference to general conditions.

42.8.2 In case of discrepancies between schedules of quantities, the specification and / or the drawings, the following order of preference shall be observed.

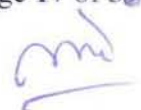
(a) Description in schedule of quantities.

(b) Special conditions

(c) Drawings

(d) Technical Specifications

(e) General conditions of contract



42.11 MATERIAL OBTAINED FROM EXCAVATION

42.11.1 Materials of any kind obtained from EXCAVATION on the Site shall remain the property of BHEL / its client and shall be disposed of as the Engineer may direct, at no extra cost.

42.12 TREASURE, TROVE, FOSSILS etc.

42.12.1 All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site shall be the absolute property of BHEL / BHEL's client and the Contractor shall take reasonable precautions to prevent his workmen or any other person from removing or damaging any such article or thing, shall immediately upon discovery thereof and before removal acquaint the Engineer with such discovery and carryout the Engineer's directions as to the disposal of the same.

42.13 PROTECTION OF WORKS

42.13.1 Trees designated by the Engineer shall be protected from damage during the course of the Works and earth level within 1 meter of each such tree shall not be charged. Where necessary, such trees shall be protected by providing temporary fencing.

42.13.2 The contractor shall provide and maintain at his own expense all lights, guards, fencing and watching when and where necessary or required by the Engineer for the protection of the Works or for the safety and convenience of those employed on the Works or the public.

42.13.3 The contractor shall have total responsibility for protecting his works till it is finally taken over by the Engineer. No claim will be entertained by the Engineer for any damage or loss to the contractor's works and the contractor shall be responsible for the complete restoration of the damaged works to its original condition to comply with the specifications and drawings. Should any such damage to the contractor's works occur because of other party not under his supervision or control, the contractor shall make his claim directly with the party concerned. The contractor shall not cause any delay in the repair of such damaged works because of any delay in the resolution of such disputes. The contractor shall proceed to repair the work immediately and no cause thereof will be assigned pending resolution of such disputes.

42.14 RECORD FOR MATERIALS CONSUMED

42.14.1 The contractor shall maintain and furnish to the Engineer the RECORD OF MATERIALS consumed in the works for each activity. The statement showing the theoretical vis-à-vis actual consumption of specified materials, such as structural /reinforcement steel, cement, bitumen, lead, paint etc., shall be enclosed along with the running bills submitted by the contractor. Contractor has to also furnish the test results of the materials used in the work as per IS specifications.

42.15 PROTECTION OF EMBEDMENTS, BOLTS ETC.

42.15.1 The contractor shall ensure proper protection to the satisfaction of the Engineer, of all bolts, inserts, embedment's etc. from weather etc/ by greasing, rapping them with gunny



bags or canvas or by any other means as directed by Engineer. Cost of such protections shall be deemed to be included in the rates quoted for the item.

42.16 CLEARANCE OF SITE AND REPAIRS.

42.16.1 Contractor has to clear the site / area where mechanical and electrical erection work is to be commenced / or in progress. The contractor shall remove construction materials and equipment lying in the vicinity and causing obstruction in the erection work within 24 hrs. notice. In case, he fails to clear the site, this will be done at his risk & cost by BHEL.

42.17 QUALITY ASSURANCE

42.17.1 The contractor has to establish / arrange at site the field testing facilities for testing of civil construction materials and concrete cubes for ensuring the proper quality, grade and strength of the materials used in the construction in line with approved field quality check list of BHEL/ its client. Contractor has to submit detailed report for testing of all material used etc. All testing shall be done as per IS code specifications/ BHEL's quality plan. If further test is required by the engineer to be carried from outside laboratory, the cost of the same shall be borne by the contractor.

42.18 COMPLETION OF WORK

42.18.1 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, labour 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.

42.18.2 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 extra works are executed to the satisfaction of Engineer. The Guarantee period shall commence only after handing over of the entire works.

42.18.3 The Engineer shall certify to the contractor the date on which the work is completed and the date thereof.

42.18.4 The work under the contract will be deemed to be completed in all respect only when the trial runs of all equipments, testing and commissioning , synchronization and trial operations have been completed and unit taken over by customer . The contractor shall obtain no dues from concerned BHEL / Customer department.

42.19 RECORDS AND MEASUREMENTS

42.19.1 All items having a financial value shall be entered in BHEL measurement Book so that a complete record is obtained of all works performed under the Contract.

42.19.2 Lump sum omissions will be entered for deduction. Measurement shall be restricted to that required to ascertain the financial liability of BHEL under the contract.



- 42.19.3 Work which fails to be measured in details shall be measured physically without reference to any local custom that may obtain excepting where it may otherwise be directed in the tender documents. The measurements shall be taken jointly by any person duly authorized on the part of BHEL and by the Contractor.
- 42.19.4 The Engineer shall give reasonable notice in writing to the Contractor of appointment for measurement.
- 42.19.5 The Contractor shall, without extra charge, provide assistance with appliances and other things necessary for measurement and shall bear all the cost of measurement of his work.
- 42.19.6 Measurement shall be entered in BHEL Measurement Book and signed and dated by both parties each day at the site on completion of measurement. If the Contractor objects to any of the measurements recorded on the behalf of BHEL, a note to that effect will be made in BHEL Measurement Book or against the item or items objected to and such note shall be signed and dated by both the parties engaged in taking the measurement.
- 42.19.7 If, as a result of such objection, it becomes necessary to re-measure the work wholly or in part the expense of such re-measurement shall be borne by the contractor.
- 42.19.8 If the Contractor's representative fails to attend when required, the Engineer shall have power to proceed by himself to take measurements and in that case these measurements shall be accepted by the Contractor as final.
- 42.19.9 The Contractor shall, once in every month, submit to the Engineer details of his claims for the work done by him up to and including the previous month which are not covered by this Contract Agreement in any of the following respects:
 - (a) Deviation from the items and Specifications provided in the Contract documents.
 - (b) Extra items/new items of work.
 - (c) Quantities in excess of those provided in the Contract Schedule.
 - (d) Items in respect of which rates have not been settled.

43.0 METHOD OF MEASUREMENT

- 43.1 Method of measurements shall be as per standard specifications included in the tender. For other items measurements shall be as per relevant IS Codes.

44.0 DEVIATION

- 44.1 The Contractor shall not make any alteration in, addition to or omission from the work as described in the tender documents except in pursuance of the written instructions of the Engineer. No such deviation from the work described in the tender documents shall be valid unless the same has been specifically confirmed and accepted by the Engineer in writing and incorporated in the Contract.
- 44.2 The Engineer may deviate, either by way of addition or deduction, from the work so described, provided that the Contract sum be not thereby varied on the whole by more



than the percentage set out in the tender documents. The value of all additions and deductions shall be added to or deducted from the Contract sum. (Whenever the Engineer intends to exercise such a right his intentions shall specify the deviations which are to be made, the lump sum assessment or the proposed basis of payment, the extra time allowed, if any, and the date for completion of the entire contract). Any objection by the contractor to any matter concerning the order shall be notified by him in writing to the Engineer within seven days from the date of such order, but under no circumstances shall the work be stopped (unless so ordered by the Engineer) owing to differences or controversy that may arise from such an objection. In the absence of such a notification of objection by the Contractor, he will be deemed to have accepted the order and the conditions stated therein.

45.0 VALUATION OF DEVIATIONS

Rates for deviated items or new items of work shall be as follows:

- 45.1 If the rates for the additional, altered or substituted work are specified in the Contract for the work, the Contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the Contract for the work.
- 45.2 If the rates for the additional, altered or substituted work are not specifically provided in the Contract for the work, the rates will be derived from the rates for a similar class of work as are specified in the Contract for the work.
- 45.3 If the derivation of rate of an extra item is not possible as per (a) above, the same shall be derived from latest version of Delhi Schedule Of Rates (CPWD DSR) with applicable escalation if any in the area where site is located.
- 45.4 If the rates for the altered, additional or substituted work cannot be determined in the manner specified in above clauses the rate for such part or parts will be determined by the Engineer on the basis of prevailing market rates when the work was done and the decision given in this behalf shall be final and binding on the Contractor. Rate analysis will be worked on CPWD manual of rate analysis as guidance.
- 45.5 If the rates for the altered, additional or substituted work cannot be determined in the manner specified in above clauses, then the contractor shall within 7 days of the date of receipt of order to carry out the work inform the Engineer of the rate at which it is his intention or charge for such class of work, supported by analysis of the rate or rates claimed, and the Engineer shall determine the rate or rates on the basis of prevailing market rates and pay the Contractor accordingly. However, the Engineer, by notice in writing, will be at liberty to cancel his order to carryout such class of work and arrange to carry it out in such manner as he may consider advisable. But under no circumstance the Contractor shall suspend the work on the plea of non-settlement of rates falling under the clause or claim any compensation on that account. Elements of profit, overheads, and supervision and establishment charges will be taken as 15% over direct cost.

46.0 COMPLIANCE TO REGULATIONS AND BYELAWS

- 46.1 The Contractor shall conform to the provisions of any statute relating to the work and regulations and bylaws of any local authority and of any water and lighting Companies or



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Undertaking with whose system the work is proposed to be connected. He shall, before making any variation from the drawings or the specifications that may be necessitated for such connections give the Engineer, notice specifying the variation proposed to be made and the reasons therefore and shall not carry out any such variation until he has received instructions from the Engineer in respect thereof. The Contractor shall be bound to give all notices required by statute, regulations or bye-laws as aforesaid and to pay all fees and taxes payable to any authority in respect thereof.

47.0 FACILITIES TO BE PROVIDED BY BHEL / CONTRACTOR

- 47.1 BHEL shall provide rent free limited open space, for office & storage shed, as and where made available by customer. It is the responsibility of the contractor to construct sheds, 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.
The safe custody of office, materials, storage sheds etc shall be the responsibility of contractor.
- 47.2 Contractor shall be responsible for providing all necessary facilities like residential accommodation, transport, electricity, water, medical facilities etc. as required under various labour laws and statutory rules and regulations framed there under to the personnel employed by him.
- 47.3 **Construction power, for bonafide construction purposes only will be provided free of cost at one point near erection / construction site from supply point. Further distribution of power shall be done by contractor at his cost. However for office and stores electricity is not free and contractor will apply for and obtain metered supply from concerned distribution agency of PSEB after completing all formalities and make payments for the electricity consumed in office and stores. All wiring must comply with local regulations and will be subject to BHEL's inspection and approval before connecting supply.** Contractor is also required to make backup arrangement (providing DG set etc) for power supply to ensure smooth progress of work even during non-availability of construction power.
- 47.4 Provision of distribution lines of power from the central points to the required place with proper distribution boards observing the safety rules laid down by the authorities of the state shall be done by the contractor, supplying all the materials like cables, distribution board, switch boards, TPN, CBS, ELCBS/ MCCBS / Copper / Brass clamps, copper conductor, change over switches pipes etc. at his own cost. If any failure is caused in supply of the power and water, it is the responsibility of the contractor to make alternate arrangements at his cost. The contractor shall adjust his working shift / hours accordingly and deploy additional manpower if necessary so as to achieve the targets.
- 47.5 In case of power cuts / load shedding no compensation for idle labour or extension of time for completion of work will be given to contractor.
- 47.6 Adequate lighting facilities such as flood lamps, hand lamps and area lighting shall be arranged by the contractor at the site of construction, contractor's material storage area etc. within finally accepted rates.
- 47.7 No claim for damages will be entertained by the Company on account of interruptions of water supply or limitation of quantity of water as aforesaid or on account of the water so

taken being not fit for construction purposes or on any other account in connection with such water supply.

- 47.8 **BHEL will make available water for construction/ testing purposes close to the construction areas free of charge at a single point in site. Any further distribution shall be the responsibility of the contractor. In case any rerouting of such distribution lines is needed to facilitate work at site, the contractor shall do so at his own cost.**
- 47.9 The Contractor should make arrangements for storage of sufficient quantity of water required for work.
- 47.10 The Contractor shall during the progress of the work, provide, erect and maintain at his own expenses all necessary temporary workshops, stores, consumables, offices, etc. required for the proper and efficient execution of the work. The planning, setting and erection of these buildings shall have the approval of the Engineer and the Contractor shall at all times keep them tidy and in a clean and sanitary condition to the entire satisfaction of the Engineer.
- 47.11 On completion of work or as and when required by BHEL, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and leveled and debris shall be removed as per instruction of BHEL by the contractor at his cost. In the event of his failure to do so, same will be got done by the Engineer and expenses incurred shall be recovered from the contractor along with prevailing overhead. The decision of BHEL Engineer in this regard shall be final.
- 47.12 Open space for building the office and stores of the contractors will be made available depending upon the availability from the owner.
- 47.13 Contractor has to make his own arrangement for accommodation of his engineers/ supervisory staff/workers as well as labor. Contractor shall not be provided any type of accommodation by BHEL.

48.0 PROGRESS REPORTING

- 48.1 Contractor is required to draw mutually agreed monthly programme in consultation with BHEL well in advance. Contractor shall ensure achievement of agreed programme and shall also timely arrange additional resources considered necessary at no extra cost to BHEL.
- 48.2 Weekly progress review meetings will be held at site during which actual progress during the week vis-a-vis scheduled programme shall be discussed for actions to be taken for achieving targets. The programme for subsequent week shall also be presented by contractor for discussions. The contractor shall constantly update / revise his work programme to meet the overall requirement. All quality problems shall be discussed during above review meetings. Necessary preventive and corrective action, shall be discussed and decided upon in such review meetings and shall be implemented by the contractor in time bound manner so as to eliminate the cause of non-conformities.
- 48.3 The contractor shall submit weekly and monthly progress reports, materials reports, consumables (gases / electrodes) report and other reports as per proforma considered necessary by the Engineer.
- 48.4 The progress report shall indicate the progress achieved against planned , with reasons indicating delays , if any, and shall give the remedial actions which the contractor intends

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to take to make good the slippage or lost time , so that further works again proceed as per the original programme and the slippages do not accumulate and effect the overall programme.

- 48.5 The daily manpower reports shall clearly indicate the manpower deployed, category wise specifying also the activities in which they are engaged.
- 48.6 during execution of work contractor shall submit the daily progress report to the BHEL in format as specified by BHEL indicating the progress per day. If called for by the BHEL/Owner, contractor shall submit the resource data and any other information in order to ascertain progress, in specified format and frequency.

49.0 DRAWING AND DOCUMENTS

- 49.1 The detailed drawings, specifications available with BHEL engineers will form part of this tender specification. These documents will be made available to the contractor during execution of work at site. The contractor will also ensure availability of all drawings / documents at work place.
- 49.2 Necessary drawings / documents by BHEL to carry out the construction work will be furnished to the contractor by BHEL (except those proposed to be prepared by contractor, as mentioned in this contract) on loan which shall be returned to BHEL Engineer at site after completion of work. Contractor shall ensure safe storage and quick retrieval of these documents.
- 49.3 The contractor shall maintain a record of all drawings and documents available with him in a register as per format given by BHEL Engineer. Contractor shall ensure use of pertinent drawings / data / documents and removal of obsolete ones from work place and return to BHEL.
- 49.4 The data furnished in various annexure enclosed with this tender specification are only approximate and for guidance. However, the change in the design and in the quantity may occur as is usual in any such large scale of work.
- 49.5 Should any error or ambiguity be discovered in the specification or information the contractor shall forthwith bring the same to the notice of BHEL before commencement of work. BHEL's interpretation in such cases shall be final and binding on the contractor.
- 49.6 Deviation from design dimensions should not exceed permissible limit. The contractor shall not correct or alter any dimension / details, without specific approval of BHEL.

50.0 DELAY AND EXTENSION OF TIME

- 50.1 If, in the opinion of the Engineer, the work is delayed
- (a) By reason of abnormally bad weather, OR
 - (b) By reason of serious loss or damage by fire, OR
 - (c) By reason of civil commotion, local combination of workmen, strike or lockout, affecting any of the trades employed on the work, OR



- [REDACTED]
- (d) By delay on the part of the agency or tradesmen engaged by the BHEL in executing work not forming part of the Contract, OR
- (e) By reason of any other cause which in the absolute discretion of the Engineer is beyond the Contractor's control, then in any such case, the Engineer (or higher authority) may make fair and reasonable extension in the completion dates of the individual items of work or the Contract as a whole. Such extension which will be communicated to the Contractor by the Engineer in writing shall be final and binding on the Contractor. No other claim in this respect for compensation or otherwise howsoever is admissible. Upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer but shall nevertheless use constantly his best endeavor to prevent or make good the delay and shall do all that may reasonably be required to the satisfaction of the Engineer to proceed with the work.

51.0 PRICE VARIATION

The rate quoted by tenderers shall **remain firm** during contract period and extended period, if any.

52.0 TAXES AND DUTIES

- 52.1 **TDS under Income Tax, Sales Tax, VAT and surcharge etc**, if any, shall be deducted at prevailing rates on gross invoice value from the running bills unless Exemption Certificate from appropriate Authority / Authorities is furnished.
- 52.2 **Price quoted shall be inclusive of all taxes except service tax.** The service tax along with education cess, if any, will be paid against contractor's proper cenvettable invoice. However, contractor shall have to submit proof of service tax deposited by them immediately after the deposit but not later than the next bill submitted after the due date of deposit. The contractor shall furnish proof of Service Tax registration with Central Excise Division covering the services covered under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by contractor on BHEL for this project. The contractor shall obtain prior approval of BHEL before billing the service tax amount and should submit proper CENVATABLE invoice as per Service Tax Rules.
- 52.3 In VAT applicable States, "Tax Invoice" if required under the relevant State VAT law shall be submitted alongwith other compliances as per concerned VAT Act.
- 52.4 Contractor shall get his organization registered with concerned sales tax/VAT authorities within 15 days of award of this contract, if applicable. The delay on this account and delay in bringing the material shall be to contractor's account and no extension of time shall be allowed on this account. The sales tax/VAT registration for this contractor shall be forwarded to BHEL within 30 days from the date of LOI. In case the contractor is already registered for sales tax/VAT with Govt. Authorities he must quote his registration no, while submitting their tender.

[REDACTED]

52.5 Contractor has to make his own arrangement at his cost for completing the formalities (Including arrangement of Road Permits, if any), if required, with Sales Tax/VAT Authorities, for bringing their materials, plants, and equipment at site for the execution of the work under this contract.

53.0 TIME SCHEDULE

53.1 The contractor is required to commence the work within **7 days** from the date of issue of letter of intent unless BHEL decides to fix any other later date.

53.2 TIME SCHEDULE FOR -

Unit #4-After the shut down of unit 4 , R&M civil works of the unit will be completed within next **5 months** and site handed over to erection agency for equipment erection.
Total time for the completion for all works from date of start of work shall be 7 months.

The contractor will mobilize the site in such a way that works, which doesn't require shutdown or not related with operation or shutdown of the units must be carried out immediately after award of the contract with mutual consent of customer and BHEL. These types of work include the making of new foundations, Renovation of ESP and main Control room, Extension of Lecture Hall, other repair works, etc. wherever possible as per drawings supplied.

53.3 Entire work as detailed in tender specification shall be completed as per the programs / milestones indicated by BHEL. Contractor has to mobilize adequate resources to meet BHEL's commitments to their customer as indicated from time to time. **In case due to reasons not attributable to the contractor, the work gets delayed and additional manpower / resources have to be mobilized so as to expedite the work to meet various milestones, same shall be done within the quoted rates as per Rate Schedule, at no extra cost to BHEL. In the event the contractor fails to respond to these requirements, BHEL shall take appropriate actions to meet customer's commitments in line with the provisions of General Conditions of Contract.**

53.4 In case due to reasons not attributable to the contractor, the work gets delayed and scheduled completion gets extended, time extension may I be granted by BHEL but in no case over run compensation will be payable.

53.5 The work under the scope of this contract is deemed to be completed in all respects, only when all the works are carried out as per satisfaction of BHEL. The decision of BHEL on completion date shall be final and binding on the contractor.

54.0 TERMS OF PAYMENT

54.1 **DELETED**

PROGRESSIVE PAYMENTS

[REDACTED]

54.2 The Contractor shall be paid monthly running bill to a maximum of 95% of the value of the work actually executed on site provided the work has been executed to the satisfaction of the Engineer. The Engineer may after a measured bill allow & certify payment to the contractor on the basis of abstract measurement bill submitted by the contractor. Contractor will also submit the floppy / CD containing abstract & measurement sheets of the bill which will be returned to him after correction for further resubmission of bill. From this amount recovery such as advances, security deposit taxes etc. would be made. The certificate of the Engineer regarding such approval and passing of sums so payable shall be final and conclusive against the contractor.

54.3 The 2.5% Final contract value (worked out based on actual work carried out) shall be payable on completion of all pending work, rework wherever required, site clearing and reconciliation of materials.

54.4 The balance 2.5% of final contract value will be payable on submission and passing of Final bill. The certificate of Engineer regarding such approval and passing of sums shall be final and conclusive against the contractor.

NOTE: Above payments shall be released after working out the contract value based on actual work carried out.

54.5 Any certificate relating to the work done may be modified by any subsequent interim certificates or by the final certificates and no certificate of the Engineer supporting an advance payment shall of itself be conclusive evidence that any work or materials to which it relates are in accordance with the contract.

55.0 INSURANCE

Besides provisions under clause no. 29.0 of GCC regarding insurance, the following shall also be applicable. The contractor shall also take care of the same while submitting their offer.

55.1 TENDERER shall arrange for insuring the materials e.g. cement, steel reinforcement, door windows and all required materials for full completion of work brought by him, covering the risks during transit, storage, erection and commissioning.

55.2 It shall be the sole responsibility of the contractor to get insured the property, materials, machineries, tools & tackles etc. belonging to him.

55.3 It shall be the sole responsibility of the contractor to insure his workmen against risks of accidents and injury while at work as required by the relevant rules and to pay compensation, if any, to them as per Workmen's Compensation Act. The work will be carried out in a protected area and all the Rules and Regulations of BHEL / its customer in the project Area which are in force from time to time shall be followed by the contractor.

55.4 The contractor may note that BHEL T&Ps / IMTEs are not insured. The Contractor will take necessary precautions and due care to protect the same while in his custody from any damage/ loss till the same is handed over back to BHEL. In case the damage / loss is due

59.0 SECURITY DEPOSIT

59.1 The contractor shall submit Security Deposit within 15 days from the date of issue of LOI as per clause no. 16.2 of the General Conditions of Contract (GCC). In case the contractor opts to furnish Bank Guarantee as a part of Security Deposit, the BG shall be issued as per the Performa enclosed as per Annexure-H of the GCC and also that the BG should be issued preferably through any of the Member Banks listed on Page No. 34(a) of the GCC; For BG through any other Nationalized Bank (Not covered in the list of Member Banks of GCC), the discretion of its acceptance shall lie solely with BHELL.

60.0 OTHERS

- 60.1 In case of any contradiction between General Conditions of Contract (GCC) and Special Conditions of Contract (SCC), the latter shall prevail.
- 60.2 The tenderer shall specifically confirm he has inspected the site of work and is fully conversant with the prevailing conditions under which work is to be executed and will not raise claim of any nature due to lack of knowledge of site condition. He will also confirm that local taxation laws at the site have been clearly understood by him.
- 60.3 The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of pre-qualification evaluation / Techno-commercial bids. BHEL reserves the right to reject the bidders with unsatisfactory past performance in the execution of a contract. BHEL's decision in this regard shall be final & binding.

61.0. OVERRUN COMPENSATION

61.0.1 Over Run Compensation (ORC) is payable by way of rate revisions for periods beyond original contract period due to reasons not attributable to sub-contractor, subject to the following terms and conditions.

61.0.2 Rates shall be increased by 10% for the first twelve months of one or more extensions beyond original contract period. For the next twelve months of further extensions if any, rates shall be increased as above by 10% over the previous twelve months, and similarly for each subsequent twelve months extension.

61.0.3 The amount of increase payable per month due to rate revisions is subject to a minimum of Rs.1,00,000/- per month and a maximum of Rs 10,00,000/- per month.

61.0.4 Should there be any 'Time extension' for reasons attributable only to the contractor, then the work shall be executed by the contractor at the rates applicable for the period the work was planned.

61.0.5 Payment of ORC shall be regulated as follows:

- i) Contractor is entitled to Over Run Compensation (ORC) only for the portion of backlog attributable to BHEL.
- ii) 50% of the compensation as per clause 2.0.2.3 is allocated for deployments of resources agreed as per the joint programme drawn vide 2.0.2.4. Payment shall however



Annexure-I

INDICATIVE LIST OF T & Ps TO BE ARRANGED BY THE CONTRACTOR AT HIS OWN COST

1	CONCRETE MINI BATCHING PLANT (MIN. 15 CUM PER HOUR)	AS PER SITE REQUIREMENT
2	TRANSIT MIXTURE WITH MATCHING DUMPERS	2 NOS.
3	CONCRETE PUMPS	1 NO.
4	CONCRETE MIXTURE M/C	AS PER REQUIREMENT
5	CONCRETE VIBRATORS	AS PER REQUIREMENT
6	CRAWLER CRANE 75 MT	AS PER SITE REQUIREMENT
7	HYDRA CRANE 8 / 10 T	AS PER SITE REQUIREMENT
8	MOBILE CRANE 15/18 T	AS PER SITE REQUIREMENT
10	15/20 MT TRAILORS WITH PULLING UNIT	AS PER SITE REQUIREMENT
11	GANTRY CRANE (OR EQ. FOR FABRICATION YARD)	AS PER SITE REQUIREMENT
12	WATER TANKER	AS PER REQUIREMENT
13	DE WATERING PUMP	AS PER REQUIREMENT
14	POWER / HAND WINCHES	AS PER REQUIREMENT
15	WELDING MACHINES	AS PER REQUIREMENT
16	HEATING OVEN	AS PER REQUIREMENT
17	PORTABLE OVENS	AS PER REQUIREMENT
18	PILING RIGS	15 SETS
19	EXCAVATORS	AS PER REQUIREMENT
20	EARTH COMPACTOR	AS PER REQUIREMENT



NOTES:

- 1 The above list is only indicative and additional T & P /machinery e.g. trucks & devices, tackles, machines, measuring instruments etc. in good and safe working conditions which are required for satisfactory & timely completion of work shall also be deployed by the contractor within finally accepted rate / price
- 2 Other terms and conditions regarding above items please also refer clause 38 T&P/IMTEs).

A handwritten signature in blue ink, consisting of stylized cursive letters.

Annexure-II

INDICATIVE LIST OF IMTEs TO BE ARRANGED BY THE CONTRACTOR AT HIS OWN COST

SL NO	EQUIPMENT	QTY
1	THEODOLITE ONE SECOND ACCURACY	1 NO.
2	DUMPY LEVEL UPTO 350 MM	2 NOS.
3	COMPRESSION STRENGTH TESTING EQUIPMENT	1 NO.
4	CONSTRUCTION MATERIAL TEST EQUIPMENT	AS PER REQUIREMENT
5	CONCRETE CUBE MOULD (150 X 150 X 150) mm	3 SET
6	CONCRETE slump cone	3 SET
7	COARSE AGGREGATE SIEVES & SAND SIEVER	1 SET
8	SIEVE SHAKER	1 NO.
9	AGGREGATE IMPACT TEST MACHINE	AS PER REQUIREMENT
10	HEATING OVEN	1 NO.
11	PHYSICAL ELECTRONIC BALANCE FOR LAB WORK	1 NO.

NOTES:

1. The above list specifies only major IMTEs (may not be complete to be deployed by the contractor). Contractor has to set up the field laboratory with facilities required for material & concrete testing. Tentative list of Site Laboratory equipments is as per Annexure-II a-1 & Annexure-II a-2. All additional / other IMTEs / measuring instruments etc. in good and safe working conditions which are required for satisfactory & timely completion of work shall also be deployed by the contractor within finally accepted rate / price.
2. Other terms and conditions regarding above items please also refer clause 38 T&P/IMTEs).

Annexure-II-a-1

Concrete Testing Equipment				
Sl. No	Name of test	Name of Equipment	Size of Equipment	IS reference
1	Initial & final setting time, Consistency of cement	Vicat Apparatus with desk pot	Standard	IS 5513
2	Shrinkage of cement, Auto Clave Test	i.e. Chatelier's apparatus, Auto Clave Equipment	Standard	IS 5514
3	Abrasion value test	Los Angeles Abrasion testing machine	Standard	IS 2386
4	Aggregate impact value test	Aggregate impact value testing machine with blow counter	Standard	IS 9377
5	Aggregate crushing value test	Crushing value apparatus	Standard	IS 2386
6	Flakiness index	Thickness gauge for measuring flakiness index	Standard	IS 2386
7	Elongation Index	Elongation gauge	Standard	IS 2386
8	Bulk density, voids and bulking apparatus	Measuring cylinders	3, 5, 10 & 15 liters cylinders	
9	Concrete compressive test	Digital Compressive Testing Machine with 2000 kN capacity.	2000KN capacity	IS 2505
10	Cement mortar cube casting	Mortar Cube mould	70.6 x 70.6x70.6mm, minimum 06 sets desired.	IS 10086
11	Concrete cube casting	Concrete cube mould	150x150x150mm, minimum 20 sets desired considering TG Raft major concreting activity.	IS 10086
12	Workability of concrete	Slump cone	Standard, atleast 04 nos	IS 456
13	Specific gravity of aggregates	Pycnometer	Standard, atleast 02 nos	IS 383
14	Cement mortar cube vibrating	Motorised vibration machine for cement testing	Standard	IS 4031
15	Course aggregate Sieve analysis (Concrete & Road Works)	Sieve set	450 mm dia GI Frames Size: 125 mm, 90 mm, 75 mm, 63 mm, 53 mm, 40 mm, 20 mm, 16 mm, 12.5 mm, 10 mm, 4.75 mm, Pan and cover	IS 383
16	Fine aggregate sieve analysis	Sieve set	200 mm dia Brass sieves, Size 4.75 mm, 2.35 mm, 1.18 mm, 600 micron, 300 micron, 150 micron, 75 micron, Pan and cover	IS 383
17	Sieve Shaker	Motorised Sieve shaker	Mfg Catalogue	
18	Silt content check	Sand silt content beaker	Standard	
19	Ultrasonic pulse velocity test	UPV apparatus for concrete	Standard	

Annexure-II a-2

Soil Testing Equipment (Levelling & Grading)				
1	Liquid limit test	Liquid limit apparatus	Standard	IS 2720
2	Core cutter test	core cutter apparatus	Rammer, 6 nos of std core cutter mould, doily	IS 2720
3	Proctor density test	Std proctor compaction apparatus	Standard	IS 2720
4	Moisture Content	Rapid moisture meter	Standard, atleast 04 nos.	IS 2720

Process Control Accessories				
1	Hot air oven	Temperature range 50° C to 300° C	600 x 600 x 600mm (min size)	
2	Electronic balance	3 nos	500g x 0.01g, 10kg and 50 kg	
3	Physical balance	5 kg capacity	Weights upto 5 kg	
4	Thermometer	Temperature range 0° C to 150° C	Digital	
5	Poker Thermometer(Concrete,Road)	Temperature range 0° C to 50° C, & 150° C	02 nos each required	
6	Measuring jars	2 nos set of each size	100ml, 200ml, 500ml & 1000ml	
7	Gauging trowels	4 nos	100mm & 200 mm with wooden handle	
8	Sptula	2 nos each size	100mm & 200 mm with long blade wooden handle	
9	Stainless steel scoop	2 nos each	2 kg and 5 kg	
10	Vernier calipers	2nos each	12" and 6 "Sizes	
11	Digital pH meter	01 nos	0.1mm least count	
12	Digital micrometer	01 nos	0.01mm least count	
13	Digital paint thickness meter for steel	02 nos	500 micron Range	
14	G11 ay	02 nos each	600x450x50mm, 450x300x40mm, 300x250x40mm	
15	Electric mortar mixer	01 nos	0.25 CUM capacity	
16	Rebound hammer test	01 nos	Digital rebound hammer	IS 15353
17	Screw Gauge	02 nos	0.1mm-10mm, Least count 0.05	
18	Digital paint thickness meter for masonry/concrete painting measurement	02 nos	150 micron range	

LIST OF DRAWINGS & SPECIFICATIONS ENCLOSED.

S.NO	TITLE
1.	Specifications for civil works (part I)
2.	Specifications for civil works (part II)
3.	Specifications for Dismantling and Demolishing
4.	Drawings related with BTG Package enclosed with tender document