



**The West Bengal Power Development Corporation Limited**

(A Government of West Bengal Enterprise)

CIN No. U40104WB1985SGC039154

**Registered & Corporate Office: Bidyut Unnayan Bhaban**

Plot No. : 3/C, L.A. Block, Salt Lake City, Sector – III, Kolkata : 700 098.

Phone : 033-2339 3621, Fax : 033 – 2339 3607 (M&C)

Email. [pchatterjee@wbpdcl.co.in](mailto:pchatterjee@wbpdcl.co.in)

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp.

Dated: 25.02.2015.

## **TENDER DOCUMENT**

**Name of Work:** Design, Engineering, Supply, Procurement, Transport, Storage, Insurance, Erection, Testing, Commissioning, Trial run etc. including all Civil & Structural work ,Electrical work, Mechanical work and C& I work for Santaldih Thermal Power Station Unit no.5(1x250 MW) **Chlorination System package on TURNKEY basis.**

By

**THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED**



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CIN: U40104WB1985SGC039154

BIDYUT UNNAYAN BHABAN

3/C, BLOCK LA,

SALT LAKE CITY,

KOLKATA-700 098.

Sd/-

(P.K.Chatterjee)

GM(M&C),CORPORATE  
WBPDC



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Dated: 25.02.2015.

## **NOTICE INVITING TENDER**

Sealed tenders in prescribed form are invited for the following work at Santaldih Thermal Power Station, P.O: Santaldih, Dist:Purulia, under The West Bengal Power Development Corporation Limited, from interested, resourceful and experienced agencies:

<b>Name of the work</b>	<b>Cost of Tender Paper</b>	<b>Earnest Money Deposit</b>
Design, Engineering, Supply, Procurement, Transport, Storage, Insurance, Erection, Testing, Commissioning, Trial run, PG test etc. including all Civil & Structural work ,Electrical work, Mechanical work and C& I work including mandatory spares for Santaldih Thermal Power Station Unit no.5(1x250 MW) <b>Chlorination System package on TURNKEY</b> basis.	<b>Rs. 5,000/-</b> (Non-refundable) By cash only	<b>Rs. 9,00,000/-</b> (Rupees Nine Lacs Only).

**Step-I:** Deposition of requisite amount of **Earnest Money**.

**Step-II: Qualification bid:** Submission of documents as per following qualification requirements:

(i) Valid IT , Professional Tax and Service Tax Registration Certificate, VAT Registration Certificate, Provident Fund (P.F.) Registration Certificate, Excise Registration., ESI Code/Workman Compensation, Labour License as applicable etc.

(ii) Audited balance sheet for three financial years (2011-12, 2012-13, 2013-14) to satisfy the following criteria.

(a) Average annual turnover in three financial years: Rs. 1.35 Crores.

(b) Average net worth in three financial years should be positive.

(iii) Credential of execution of similar type of work, directly under the Government/ Quasi Govt.

organization / Power Plant **during the period of last seven years** in the following manner :-

- In single order → Executed value of work not less than Rs.3.6 Crores.
- In two orders → Executed value not less than Rs.2.25 Crores..
- In three orders →Executed value not less than Rs.1.80 Crores.
- The completion certificate shall clearly indicate the main work order and the value of work, scheduled and actual time of completion and must mention about the successful completion of the entire work.



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**Step-III: Techno Commercial Terms and condition:** All the pages of the tender document including all the documents (except particularly mentioned document) to be submitted by the bidder shall be duly signed / authenticated and stamped in acceptance.

**Step-IV: Price Bid.**

**Last date of query submission:** 20/03/15.

**Pre-Bid discussion:** Pre-bid discussion in connection with the tender will be held on 26/03/15 at 14:30 hrs.

**Job Description:** Design, Engineering, Supply, Procurement, Transport, Storage, Insurance, Erection, Testing, Commissioning, Trial run etc. including all Civil & Structural work, Electrical work, Mechanical work and C& I work for Santaldih Thermal Power Station Unit no.5(1x250 MW) **Chlorination System package on TURNKEY basis.**

**Completion Period:** One year from the date of issuance of order.

**Cost of Tender Paper: Rs.5, 000.00 (Five Thousand Only)** in cash only (Non refundable).

**Sale of Tender Paper: On and from 26/02/15 to 13/03/15** on all working days from 11.00 hrs to 16.00 hrs (except Saturday / Sunday / Holiday).

**Last date of submission of tender papers: Upto 14-30 hrs. on 07/04/15 and Tender papers will be opened at 15-00 hrs. on the same date** in presence of the participating bidders.

The Step-II bid of the sealed tenders of the parties who have deposited the requisite amount of Earnest Money in Step-I bid, will be opened on the date mentioned above. After finalization of the Step-II bid i.e. fulfillment of the qualification requirement, Step-III i.e. Techno commercial Terms and Condition and Step-IV i.e. Price Bid of the eligible bidders will be opened subsequently on a separate date with intimation to only successful bidders. All tenders including its various steps shall be opened in presence of attending bidders.

**Tender document can be obtained on written request to the GM (M&C), Corporate Office, WBPDC, Kolkata – 700098** on the dates as mentioned above after depositing the cost of tender documents at Corporate cash office or it may be downloaded from our website [www.wbpdcl.co.in](http://www.wbpdcl.co.in) & the cost of tender paper is to be submitted on or before attending pre-bid meeting and those who will not attend in the pre bid meeting, they have to submit the cost of tender paper alongwith the tender documents in form of Bank Draft in favour of “The West Bengal Power Development Corporation Ltd.” for Rs.5000/- drawn on any nationalized bank payable at Kolkata in a separate envelope superscribing cost of tender paper. No tender will be entertained without tender documents cost.

The Corporation reserves the right to accept / cancel any or all the tenders or to split the work with assigning reason whatsoever. The WBPDC does not bind itself to accept the lowest tender and qualification of bidder will be adjudged as per sole discretion of WBPDC authority. The validity of tender will remain effective for 6 (Six) months from the date of opening of Price Bid of tender. All other details will be available in the tender document.



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## **INSTRUCTION TO BIDDER**

The West Bengal Power Development Corporation Limited (WBPDC), a wholly owned company of Government of West Bengal, having Corporate Office at ‘Bidyut Unnayan Bhaban’, 3/C, Block-LA, Sector-III, Salt Lake City, Kolkata- 700098 will receive Bids for Design, Engineering, Supply, Procurement, Transport, Storage, Insurance, Erection, Testing, Commissioning, Trial run etc. including all Civil & Structural work ,Electrical work, Mechanical work and C& I work for Santaldih Thermal Power Station Unit no.5(1x250 MW) **Chlorination System package on TURNKEY basis.**

### **1. Tender Documents Cost:**

Tender documents may be downloaded from our website [www.wbpdcl.co.in](http://www.wbpdcl.co.in) , the cost of tender paper is to be submitted on or before attending pre-bid meeting and those who will not attend in the pre bid meeting, they have to submit the cost of tender paper alongwith the tender documents in form of Bank Draft in favour of “The West Bengal Power Development Corporation Ltd.” for Rs.5000/- drawn on any nationalized bank payable at Kolkata in a separate envelope superscribing cost of tender paper. No tender will be entertained without tender documents cost.

### **2. Earnest Money Deposit (EMD): Step-I:**

The Earnest Money amounting to Rs.9,00,000/- in the form of Demand Draft(DD)/Pay order/Bank Guarantee (BG) in favour of “**The West Bengal Power Development Corporation Ltd.**” drawn on any Nationalized/Scheduled Bank, payable at Kolkata, in a separate sealed envelope mentioning Earnest Money for tender no. & date of opening. is to be deposited along with the offer. The Bank Guarantees (BG), if submitted, should remain valid for six months period after the date of opening of the Tender. The Earnest Money in the form of Demand Draft or BG or documents of exemption for submission of the same granted by Govt. of West Bengal should be submitted in a separate sealed envelope, without which the tender shall be rejected out rightly. No tender will be entertained without Earnest Money.

- I. No interest on the above Earnest Money, as may accumulate during its retention, will be payable by the WBPDC. Earnest Money in respect of unsuccessful bidders shall be refunded to them within sixty (60) days from the date of issue of work order to the successful Bidder. The earnest money of the awardee of the contract will be initially converted into security deposit and this EMD will be adjusted with the total security deposit as mentioned under the clause no. 31.
- II. The WBPDC reserves the right of forfeiture of Earnest Money Deposit in case the bidder after opening of tender, withdraws amends, impairs, derogates or revokes his tender within the validity period or extension thereof.

### **3. Qualifying Requirement: Step-II:** Submission of documents as per following qualification requirements:

- (i) Valid IT, Professional Tax and Service Tax Registration Certificate, VAT Registration Certificate, Provident Fund (P.F.) Registration Certificate, Excise Registration., ESI Code/Workman Compensation, Labour License as applicable etc.
- (ii) Audited balance sheet for three financial years (2011-12, 2012-13, 2013-14) to satisfy the following criteria.
- (c)Average annual turnover in three financial years: Rs. 1.5 Crores.



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(b) Average net worth in three financial years should be positive.

(iii) Credential of execution of similar type of work, directly under the Government/ Quasi Govt. organization / Power Plant **during the period of last seven years** in the following manner :-

- In single order → Executed value of work not less than Rs.3.6 Crores.
- In two orders → Executed value not less than Rs.2.25 Crores..
- In three orders → Executed value not less than Rs.1.80 Crores.
- The completion certificate shall clearly indicate the main work order and the value of work, scheduled and actual time of completion and must mention about the successful completion of the entire work.

**4. Techno Commercial Terms and Condition: Step-III:** All the pages of the tender document including all the documents (except particularly mentioned document) to be submitted by the bidder shall be duly signed / authenticated and stamped in acceptance.

**5. Price Bid: Step-IV:**

Bidders shall have to quote the rate in the 'priced schedule of works' in both figures and words as per enclosed **Annexure-A, B, C, D, E, F, G & H**.

**6. Pre-Bid discussion:** Pre-bid discussion in connection with the tender will be held on 26/03/15 at 14:30 hrs.

**7. Last date of query submission before Pre-Bid discussion:** The party should submit their relevant queries within 20/03/15 to the GM (M&C), Corporate Office, WBPDC.

**8. Mode of submission of tender:**

I. All the pages of the tender document including all the documents (except particularly mentioned pages) to be submitted by the bidder shall be duly signed / authenticated and stamped in acceptance of Techno- Commercial Terms and Condition i.e. Step-III.

II. All separately sealed envelopes / covers in duplicate containing necessary documents shall have to be suitably super scribed as 'EMD- Step-I' / 'Qualifying Requirement: Step -II' / 'Techno Commercial Terms and Condition: Step – III' / 'Price-Bid :Step- IV' , original / duplicate as the case may be and shall bear reference to the name of the work and Notice Inviting Tender( NIT ).

III. All the above four nos. sealed envelope should be kept in a common sealed envelope must be super scribed with reference to the name of the work . Notice Inviting Tender (NIT), Date of opening of the tender and Name of the Tenderer should be dropped in the "TENDER BOX" kept in the Office of the General Manager (M&C) WBPDC, Corporate Office.

IV. The above tender (containing individual envelopes i.e. EMD, Qualifying Requirement, Techno-Commercial offer and Price Bid) shall be submitted to the GM (M&C) at the Corporate Office of the WBPDC on or before the last date & time of submission as stipulated in the NIT.

V. The tender shall be submitted only in person at the Corporate office of WBPDC, Bidyut Unnayan Bhaban, 3/C LA- Block, Bidhannagar, Kolkata-98. Tenders submitted by Post, Courier or



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Telegraphic, Telex tender shall not be entertained. The tender received after the due date and time is liable to be rejected.

VI. a) The bidder is expected to carefully examine the Bid documents and fully satisfy himself as to all the conditions and matters, which may in any way affect the work or the cost thereof. If any Bidder finds discrepancies or omissions in the Bid documents or is in doubt as to the true intent or meaning of any Step thereof, he can submit his query within the date stipulated in the NIT for further clarification. Any query for clarification in the above respect shall be discussed in the pre-bid meeting. After receipt of such interpretation or clarification the Bidder shall submit his Bid but within the time and date as specified in the invitation to Bid. All such interpretation and clarification shall form an integral Step of the tender documents and must accompany the bid.

b) Verbal clarifications and information given by owner or his employees or representatives shall not be in any way binding on the owner.

VII. Tenders which propose any alteration or deviation from terms in the tender document are liable for rejection. Conditional tenders are also liable to be rejected.

VIII. All the expenses, incidental to the submission of the tender, discussion, conferences, if any, shall be borne by the bidder irrespective of whether the tender is accepted or not and the WBPDC shall bear no liability whatsoever on such expenses.

IX. The tender submitted by a bidder shall become the property of The WBPDC and The WBPDC shall have no obligation to return the same to the Bidder for any reason whatsoever.

X. The WBPDC reserves the right to reject any/all bid(s) which is/are not submitted according to the bid instruction.

XI. Any bid received by the WBPDC after the deadline for submission of bids prescribed by the Owner will be rejected. The WBPDC will also not be responsible for late receipt of bids.

XII. Modification /withdrawal of bid are not allowed between the bid submission deadline and the expiration of the bid validity period. In case of modification /withdrawal of bid during the interval may result in forfeiture of the Bidder's bid security money / earnest money.

**XIII. Address for issue of Bid document, communication and submission:**

General Manager (M&C), Corporate,  
The West Bengal Power Development Corporation Limited,  
Bidyut Unnayan Bhaban, (6th Floor).  
3/C, Block-LA, Salt Lake City, Sector-III, Kolkata-700 098.  
Tel: (033) 23393621  
Fax: 033- 23393607

**9. Opening of tender:**

I. The tenders shall be opened in presence of the authorized representative of the bidders at the time and date set for opening of tender, as specified in the NIT or any subsequent extension of due dates is made thereto.

II. After opening the main envelope, the envelope containing EMD (Step-I) shall be opened first. The Qualifying Requirement (Step-II), shall be opened subsequently, if EMD of requisite amount in proper mode have been submitted by the bidder. Techno-commercial terms & condition (Step-III) and



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Price Bid (Step-IV) will be opened on separate day, which will be intimated to the qualified parties latter on.

III. In case the date of Bid opening happens to fall on a holiday due to unavoidable circumstances beyond the control of the WBPDCCL, the next working day will be the date of Bid opening.

#### **10. Evaluation of tender:**

- I. Issue of tender documents to any bidder will not be construed that such bidder is automatically considered qualified for the entire tender process.
- II. The WBPDCCL reserves the right to accept any tender or reject any or all the tenders or cancel/withdraw the invitation for tender without assigning any reason whatsoever. Such decision taken by The WBPDCCL shall not be subject to raising of question by any bidder and The WBPDCCL shall bear no liability consequent upon such decision and the bidder shall have no claim in this regard against The WBPDCCL.
- III. Evaluation by The WBPDCCL shall be based on the information and documentary evidence submitted by the bidder as per the tender clauses. The requirements as stipulated in the tender documents are the minimum ones and The WBPDCCL has the right to ask for any additional information, if necessary, in case the data, documentary evidence etc. submitted by the bidder is found inadequate. The WBPDCCL reserves its right to reject any tender, if the bidder is found not qualified to perform the work satisfactorily.
- IV. The WBPDCCL reserves the right to reject any tender, at any stage, if the bidder is found to have become qualified by giving incorrect and/or false information.
- V. The WBPDCCL does not bind itself to accept the lowest tender and also reserves the right to split the work amongst more than one bidder.
- VI. Notwithstanding anything stated above or elsewhere, The WBPDCCL reserves the right to assess the capability and capacity of the bidder, should the circumstances warrant such assessment in the overall interest of The WBPDCCL.

#### **11. Validity of tender:**

The tender submitted shall be deemed to constitute an agreement between the bidder and The WBPDCCL whereby such tender shall remain open for acceptance by WBPDCCL for a period of 6 (six) months from the date of opening of Price Bid during which period the bidder shall not withdraw his tender or amend, impair or derogate there-from.

The WBPDCCL may solicit the bidders' consent for a further extension of the validity period of his tender as required. The request and response thereto shall be made in writing. If the bidder agrees to such request for extension, the validity of the EMD if deposited in Bank Guarantee shall also be suitably extended by them. A bidder accepting the request will not be permitted to modify the tender or the prices.

If any and/all informations pertaining eligibility criteria found to be false/fabricated and submitted with mala-fide intention and based on such information work order obtained. The said work order shall be withdrawn by WBPDCCL at risk, cast and peril at the concerned agency. Besides above, lawful action as called for under the circumstances shall be initiated by WBPDCCL against such agency.



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## **SPECIFICATION, SCOPE OF WORK & TECHNICAL DATA SHEET**

### **1) SPECIFICATION FOR CHLORINATION PACKAGE FOR STPS (2 X 250MW), WBPDC:**

- 1.00.00 This Specification is intended to cover the design, engineering, manufacture, assembly/re-assembly, testing at manufacturer's works, packing, forwarding, supply and delivery duly packed for, transportation for site including shop painting, final painting, unloading, handling, storage, and in-plant transportation at site, complete services of erection, testing at site, successful commissioning, operation & training of Purchaser's personnel and handing over in a flawless operating condition to Purchaser, the Chlorination system, as defined subsequently, complete with all auxiliaries and accessories, as specified hereinafter and elsewhere of this Specification and as required for safe and trouble free smooth operation.
- 1.01.00 This specification also includes carrying out of performance guarantee tests at site for each and individual unit as well as the plant as a whole after successful commissioning only. All necessary equipment, instruments, services, labour as required for this purpose shall be under the scope of this Specification. All instruments required for performance testing will be arranged by the Bidder.
- 1.02.00 This specification also includes design, detail engineering and supervision of all civil and architectural works.
- 1.03.00 Any additional plant, material, services which are not specifically mentioned here, but are required to make the plants/ systems, complete in every respect in accordance with the technical specification and for safe operation and guaranteed performance, shall be covered under the scope of this specification.
- 1.04.00 Bidders are requested to carefully examine and understand the specifications and seek clarifications if required, to ensure that they have understood the specification. The Bidders' Bids should not carry any sections like clarifications, interpretations and/or assumptions. However, if the bidder feels that, in his opinion, certain features brought out in their Bid are superior to what has been specified, the same may be highlighted separately.
- 1.04.01 Bidders are also requested to visit the site (STPS, 2 x 500 MW) to have the idea of the position of CW Chlorination building, raw water & drinking water chlorination building, CW sump, CW flow, drinking water flow and any other information required before submission of bid.

### **2) SCOPE OF WORK FOR CIRCULATING WATER (CW) CHLORINATION PLANT**

2.00.00 **SCOPE OF WORKS**

2.01.00 **Scope of Supply**

The scope of cooling water treatment plant under this specification has been listed below. Items not specifically mentioned but deemed necessary to make the system completely reliable and efficient shall also be included.





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2.01.01

**Following equipment and accessories are required for the CW Chlorination System:**

- a) Required nos. [considering one(1) month storage] subject to a minimum of forty (40) nos. of completely filled chlorine **ton-containers** provided with isolation valves and safety accessories and supporting roller brackets for each ton container.
- b) Three (3) nos. solutions feed vacuum type **chlorinators** with all accessories.
- c) Three (3) nos. chlorine manifolds with all accessories.
- d) Three (3) nos. electrically heated water bath type **evaporators** with all accessories.
- e) Six (6) nos. strainers in chlorine gas line, ie. Two (2) nos. for each of the three (3) nos. chlorination system.
- f) Pressure regulating and shut – off valves for each of the chlorine gas line from the outlet of each evaporator.
- g) Chlorinated water diffusers and mixing system.
- h) Adequate safety and supervisory instruments complete with gas mask and chlorine leak detector as detailed out in Annexure – I to this section.
- i) One (1) weather cock, for determining wind direction, shall be located at the top of Treatment Plant building.
- j) One (1) no. electrically operated monorail hoist of 3.0. The capacity complete with lifting bar, load indicator and all accessories.
- k) As instrumentation, control and control panels complete with control cables, tubing and all other accessories.
- l) One (1) no. chlorine absorption system complete with one (1) no. absorber, one (1) no. caustic solution preparation – cum – recirculation tank, two (2) nos. caustic solution preparation – cum – recirculation pumps and other necessary accessories as required.
- m) Three (3) nos. of booster pumps.
- n) Adequate number of exhaust fans along with motorized damper and ducting work to evacuate chlorinated air to absorption tower during chlorine – leakage condition. All the electrical wiring and interlock facility shall be done by the Bidder.

**3) SCOPE OF WORK FOR RAW WATER AND DRINKING WATER FOR PLANT & TOWNSHIP**

**3.00.00 SCOPE OF SUPPLY.**

**3.01.00 Raw Water Pre-chlorination System**

The Chlorination Plant shall consist of the following:

- a) Nine (9) nos. completely filled chlorine ton containers provided with isolation valves and safety accessories and supporting brackets.
- b) Two (2) sets of chlorine manifolds consisting of straight lengths of pipe, fittings, isolation valves shut off valves pressure indicator, pressure switch, alarm etc.



- c) Four (4) nos. of strainers in chlorine gas line.
- d) Pressure regulating and shut – off valves in chlorine gas inlet line to each chlorinator.
- e) Two (2) nos. chlorinators with integral pressure reducing valve(s), flow indicator complete with sensing element, vacuum regulating valve, pressure – vacuum relief valve, automatic drain relief valve, ejector, etc. manual feed rate adjuster with a turn down ration of 20:1.
- f) Chlorinated water diffusers and mixing system.
- g) Two (2) nos. of chlorinator water booster pumps with drive motors and all accessories
- h) Instrumentation, control panels, etc.
- i) Safety and supervisory instruments
- j) One (1) no. lifting bar to handle ton containers during handling complete with load indicator.
- k) One (1) no. platform type weighting Machine, 2 tones capacity

### **3.02.00 Plant and Colony Drinking Water Chlorination System**

#### **Each Chlorination Plant shall consist of the following:**

- a) Two (2) Nos. chlorine cylinders each for plant and colony
- b) Two (2) nos. gas filters each for plant and colony
- c) Two (2) nos. chlorinators for plant drinking water and colony drinking water Chlorination
- d) Two (2) nos. booster pumps each for plant and colony.
- e) Required nos. of mixing tees, connecting piping, fittings, valves, instruments etc.

### **4.00.00 SALIENT DESIGN DATA AND PERFORMANCE REQUIREMENTS**

- 4.01.00 All nuts, bolts etc. in submerged and corrosive application shall be of SS – 316.
- 4.02.00 Rubbers used for rubber lining of equipment and piping shall be of natural rubber with Shore hardness  $65 \pm 5^0$  in Scale – A.
- 4.03.00 Chlorine absorption system shall be so designed that in case of chlorine leakage chlorine concentration in air at absorber outlet shall be not more than 0.1 ppm as  $CL_2$
- 4.04.00 Duration of chlorine dosing shall be such that there is no algae growth in cooling tower and CW system. However, at least one hour dosing once in a shift should be considered.
- 4.05.00 Capacity selection of each chlorinator and evaporator shall be based on shock dosing of total CW and ACW flow rate at a normal dosing rate of 2.5 ppm with a maximum dosing rate of 5 ppm.



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**5.00.00 DESIGN AND CONSTRUCTION**

**5.01.00 Chlorinator System**

The Chlorinator system shall provide the following functions for accurate control and safety of operation :

- a) Inlet chlorine pressure reducing valve to reduce the pressure to a constant sub-atmospheric pressure (automatic).
- b) Automatic pressure vacuum relief valve.
- c) Indicating meter (rotameter).
- d) Chlorine feed rate adjuster (manual).
- e) Chlorine metering orifice
- f) Vacuum differential regulating valve (automatic).
- g) Automatic Drain Relief Valve / Spring Loaded Check Valve.
- h) Injector vacuum gauge
- i) Injector power water supply system

**5.02.00 Pipe Manifold and Accessories:**

- 5.02.01 Chlorine shut-off valves shall be electrically/pneumatically operated, arranged to shut-off on operating power /air failure.
- 5.02.02 Expansion chambers shall be provided in all pipelines carrying liquid chlorine which may become stagnant due to closure of isolating valves. The expansion chamber shall be sized for a minimum 20% of the piping volume in which it will be installed. Connection to the chamber shall be through a rupture disc (set at 28 Kg/Sq.cm approx.). Expansion chamber shall be provided at the highest level of the piping. Suitable pressure switch shall be provided to initiate a high pressure alarm.
- 5.02.03 Socket welded joints shall be used in PVC service. Teflon tape/Litharge/Glycerin cement shall be used in all screwed joints.
- 5.02.04 If chlorine line is run in a pipe rack, where it saves space, with other pipelines carrying flammable materials, the chlorine lines should be protected from fire, resulting from leak or break in one of the other lines as given in Chlorine Institute, USA.
- 5.02.05 All piping above the ground shall be suitably protected from the atmospheric corrosion by adequate painting system or adequate insulation system.
- 5.02.06 All buried pipelines shall be coal tar coated and wrapped. Buried pipes shall be cathodically protected.

For PVC line, in case of chlorine solution piping, if any, all joints shall be socket type with solvent welding. For these pipes, laid on the sand level, insulation shall be provided to prevent solar effect and mechanical damages on the pipe.



5.02.07 Pipe lines carrying water, air should be sized on the following velocities if not specified

**Velocity in M/Sec.**

Pipe Size	: Below 50 mm	: 50-150 mm	: 200 mm & above
a) Pump Suction for Water	:	-	: 1.2 - 1.5 : 1.2 - 1.8
b) Pump Discharge for Water	:	1.2 - 1.8	: 1.8 - 2.4 : 2.1 - 2.5
c) Header for Water	:	-	: 1.5 - 2.4 : 2.1 - 2.5
d) Compressed air below 2 Kg/Sq.cm(g)	:	15 – 20	: 20 - 30 : 25 - 35
e) Compressed air 2 Kg./Sq.cm.(g) and above	:	20 – 30	: 25 - 40 : 35 - 45

5.02.08 Data regarding pipe material etc. has been presented in Annexure – I of this section.

**5.03.00 PAINTING**

All mechanical, electrical and structural items included under this section shall be suitably protected with paints and protective coatings, whether specifically mentioned or not.

**6.00.00 INSTALLATION:**

6.01.00 Chlorine pipeline joints shall be flanged or welded. If threaded joints are required, extreme care shall be taken to obtain clean, sharp thread two or three cuts may be necessary to produce the desired perfect thread. Cut pipe shall be reamed after threading and the threads shall be washed with tri-chloro ethylene to remove cutting oils. Linseed oil and white lead paste is recommended as a pipe dope. For permanent joints, freshly prepared litharge and glycerin also can be used.

6.02.00 During erection, cutting oil, grease and other foreign materials inside pipe lengths and fittings shall be removed. New valves or other equipment received in an oily condition shall be dismantled, and cleaned before use.

6.03.00 Chlorine pipeline and valves, after installation shall be hydraulically tested at 40 Kg.Sq.cm(g) for leak tightness.

6.04.00 Drying of pipeline shall be done by passing steam through lines from the high end allowing condensate and foreign matter to drain out. Steaming shall be continued until the pipeline is thoroughly heated and no further debris is blow out. Steam supply shall then be disconnected and the pipeline is dried by passing dry air (dew point – 40<sup>0</sup>C) through the hot pipeline.

6.05.00 After drying, the system shall be filled with dry air at 10 Kg/Sq.cm(g) and tested for leaks by application of soapy water on the outside of joints. Small quantities of chlorine gas shall then be introduced in the pipeline, test pressure built up with air and tested for chlorine leakage.



6.06.00 The complete installation including chlorine ton containers should meet the requirements of Chief Inspector of Explosives, Nagpur, India and any other statutory regulation prevalent in India.

**7.00.00 INSPECTION AND TESTING**

The guaranteed performance figures of the equipment shall be proved by the Contractor during these tests. Should the results of these tests show any deficiency from the guaranteed values, the Contractor shall modify the equipment as required to enable it to meet the guarantees. In such a case, performance and guarantee tests shall be repeated within one month from the date, the equipment is ready for retest and all costs for modifications including labour, materials and the cost of additional testing to prove that the equipment meets the guarantees, shall be borne by the Contractor.

**7.01.00 Performance**

- a) Necessary pumps shall be started and flow shall be established through all the streams. Valves shall be adjusted so as to have equal and rated distribution of flow through all the streams.
- b) Random samples will have to be collected from the down-stream of chlorinator and it has to be observed whether the chlorine content of each sample shall be within  $\pm 25\%$  of the average value of the samples.
- c) Capacity of the chlorinator as indicated by the flow indicator shall be compared with the value determined from the flow rate of chlorinated water. The difference shall not exceed 5%.
- d) Capacity of the chlorinator shall be tested both at the highest and lowest gas disposal rates.

**7.02.00 GUARANTEE**

7.02.01 The entire chlorination system (i.e. dosing and storage) shall be guaranteed for compliance with the regulations of Chlorine Institute.

7.02.02 All pumps shall be guaranteed for capacity, total dynamic head and power consumption.

7.02.03 All fans and blowers shall be guaranteed for head and power consumption.

**7.02.04 Chlorination System**

- a) Each evaporator shall be guaranteed for the rated capacity.
- b) Each chlorinator shall be guaranteed for the rated capacity.

**7.02.05 Chlorination Absorption System**

- a) The outlet air from the absorber must not have free residual chlorine more than 0.1 ppm.
- b) The caustic solution flow rate through the absorber system shall be such that one completely leaked chlorine ton-container content can be absorbed within one hour (maximum) time.
- c) The capacity of exhaust fans shall be sufficient to suit the above requirement.



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**8.00.00 DRAWINGS, DATA, CURVES AND INFORMATION**

**8.01.00** The Bidder's formal proposal must be accompanied by the following but not limited to the drawings / information and documents as required for all the basic components of the Circulating Water Chlorination and Conditioning Plant.

**General**

- a) Design Basis and Capacity Selection Criteria for different equipment.
- b) Schematic flow and instrumentation drawings of the chlorination system indicating scope of supply.
- c) Detail layout drawing of the plant showing equipment, pipe work etc.
- d) Description and illustrative literature/drawings with materials of construction for different equipment for the instruments, chlorinator evaporator, etc.
- e) Characteristic Curves of Centrifugal Pumps and fans from zero to 150% of rated flow (showing head, power consumption, efficiency and N.P.S.H or submergence requirement against capacity, as applicable).
- f) General arrangement drawing of control panel showing layout of instruments, annunciators, switches, push buttons, indicating lamps, etc.
- g) General cross-sectional drawings of all basic components, equipment and machineries.
- h) List of all Guaranteed Data.

**8.02.00** Technical Information, Drawings, Data to be submitted for Approval after Award of Contract.

Owner's requirement of information, drawing and data from the successful Bidder after finalization of contract in respect of equipment covered under the specification are indicated in this section.

The actual schedule of these data/drawings shall be discussed and mutually agreed to, between the owner and the successful Bidder before the issue of notice of Award of Contract.

All technical data/information already furnished as per previous clause shall be confirmed. Revision of data must meet the approval of the Engineer.

**Following Drawings shall be furnished:**

- a) Single line flow and instrumentation and control diagram of Circulating Water Chlorination Plant.
- b) Piping layout with suitable sectional views of plant.
- c) Detailed dimensional drawing of all the equipment of the plant.



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- d) Foundation design data for all equipment of the Circulating Water (CW) Chlorination Plant, civil and Structural Work which has to be undertaken by Contractor. Support loading data at hanger location as applicable shall also be indicated.
  - e) Detailed cross – sectional drawings of all equipment and Bill of Materials.
  - f) Detailed interlocks, logic diagrams (incorporating Boolean Concepts) and schematics for the CW Chlorination Plant.
  - g) Dimensioned drawings of control panels showing arrangement of instruments, switches, push buttons, lamps, etc. along with the schematics and wiring diagram.
  - h) Complete specification of Instruments.
  - i) Design, calculation in respect of process and mechanical design, engineering to the extent found necessary by the purchaser.
  - j) Detailed procedure of testing shall be submitted to the Owner for approval before performance tests.
  - k) Following test certificates / test curves / data shall be furnished. :
    - i) Material test certificates.
    - ii) Performance test results and characteristics curves of pumps, fans and electric drive motors.
    - iii) Hydraulic test results of pressure vessel, non-pressure vessels, pipes, valves, fittings etc.
    - iv) Test results to anti-corrosive coatings.
    - v) Non-destructive test results as applicable.
  - l) Detailed technical particulars of electric drive motors, shall be furnished.
  - m) Detailed technical particulars of valve actuators/control valves.
  - n) Following lists / tables shall be furnished, complete with tag nos. and brief Specification :
    - i) Instrument Bill
    - ii) Valve Bill
    - iii) Pipe Bill

## **9) TECHNICAL DATA SHEET FOR CHLORINATION PLANTS**

### **CHLORINATION SYSTEM**

#### **9.00.00 Chlorine Container**

- Application : Circulating cooling water, Raw water and Drinking Water System.
- a) Type of container : Ton Containers



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- b) Number required : As required considering storage for fifteen (30) days continuous operation
- c) Chlorine Capacity each : Not less than 900 Kg.
- d) Size :  
:i) Overall length : 2200 mm (approx.)  
:ii) Diameter : 780 mm (approx.)
- e) Material of construction : ASTM - A - 285 Gr.'C'
- f) Design Pressure : 19.9 Kg./Cm<sup>2</sup>(g)
- g) Corrosion allowance : 1.5 mm (minimum)
- h) Radiography : 100%
- i) Heat treatment : Fully stress – relieved
- j) Mounting : Each Chlorine container mounted on two (2) nos. metallic brackets , each provided with two (2) roller supports. These brackets will be mounted will be mounted on civil foundation and all necessary anchor bolts, inserts, nuts etc. shall be furnished by the Bidder.
- k) Applicable Code : Design, fabrication and testing to confirm to the regulations of Chief Controller of Explosives, Govt. of India / Chlorine Institute, U.S.A.
- l) (i) Container Valve :One set for each Container.  
(ii) Applicable Code : IS – 3224 & BS – 341 Part – 1 or Approved Equivalent.
- m) (i) Expansion Chamber : One (1) for each stream with all Chamber accessories including Wall /flooring brackets with nuts & bolts, necessary interconnecting pipe, tube unions, isolating valve, etc.  
(ii) Material of construction: Carbon Steel body with 100% radiography .  
(iii) Test Pressure : 40 Kg/cm<sup>2</sup> (g)
- n) Rapture disc. Assembly :  
(i) Number : One for each chlorination stream  
(ii) Material of Construction : Carbon steel body with silver coating, rapture disc inclusive of bellows /diaphragm type with field adjustment set point.
- o) Pressure indicator :  
(i) Location : All the discharge manifold of chlorine ton-containers





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- (ii) Number : One for each manifold
- p) Temperature indicator :
- (i) Location : All the discharge manifold of chlorine ton-containers
- (ii) Number : One for each manifold
- q) Pressure Switch :
- (i) Number& Location : Two (2) nos. at each discharge manifold of chlorine ton-containers
- (ii) Purpose : For alarm at panel for low and high pressure.
- r) Special Features : For each chlorine ton-container, two (2) nos. educator pipes shall be provided (one for chlorine gas withdrawal and the other for liquid chlorine) each terminating into an isolating valve (as per IS – 3224 and BS – 341 Part – I) of 25 mm (nominal size). Each ton-container shall be so placed on roller supports that e isolating valves are in a vertical line. The upper valve will be for gas discharge and the lower for liquid discharge.
- s) Colour : Each container shall be provided with approved colour band for identification of its content.

**10.00.00. Evaporator**

- a) Number Required : One (1) for each chlorinator.
- b) Type : Electrically heated constant temp. water bath type
- c) Function/Operation : Vaporise liquid chlorine to gas for feeding chlorinators
- d) Capacity, each : By the Bidder based on 5 ppm maximum dosing rate for the total circulating water and auxiliary cooling water flow rate for each unit.
- e) Hot Water bath :
- (i) Features : Vented to atmosphere. Provision for incorporating electrical immersion heaters shall be there. Minimum Water level shall be maintained automatically by a solenoid valve.
- (ii) Make up Water : Filtered Water
- (iii) Accessories required : Drain plug for maintenance, Water level indicator.
- (iv) Insulation : Outside of water bath shall be properly insulated.
- f) Constructional Features : Entire chlorine evaporator shall be constructed of materials completely resistant to corrosive attack of liquid chlorine, wet or dry gas and chlorine area atmosphere.



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- (i) Material of Construction :
- Vaporizer body Flanges: Seamless steel tubes as per ASTM A-106 Gr. B
- Flanges : IS : 2002 Gr. B Plates /SA 515 Gr. 70.
- (ii) Corrosion allowance : Minimum 3 mm for tube well.
- (iii) Welding Radiography : 100%
- (iv) Stress Relieved : Yes
- (v) Code of Fabrication : ASME code for Boilers and Pressure Vessels (Section VIII. Div. 1) or IS 2825
- g) Heating element : Immersion type, 3 – phase, 415V – 50 Hz.
- h) Cathodic Protection : Suitable to protect water bath tank and outside of evaporator. A local ammeter shall be mounted on the evaporator as an indication of degree of cathodic protection.
- i) Hydraulic test pressure for Vaporizer : 40 Kg/Cm<sup>2</sup> (g) for leak tightness.
- j) Electrically interlocked motor operated shut – off valve at the gas discharge line from evaporator : Required for interruption of gas flow to chlorinator when temperature of evaporator drops below a preset value.
- k) One (1) no. control cubicle containing necessary contactors, fuses, push buttons, indicating lamps, ammeters and other instruments for each evaporator : Mounted integrally with the evaporator
- l) Pressure Indicator :
- (i) Location : At evaporator inlet (chlorine liquid line)
- (ii) Number : One for each evaporator
- (iii) Sealing : Silver sealing diaphragm
- m) Pressure Switch :
- (i) Location : Expansion Chamber
- (ii) Number : One for each Expansion Chamber
- (iii) Purpose : For alarm on panel for high pressure
- (iv) On – off differential : Adjustable
- (v) Contact rating : 5 amp. at 240 V.A.C.



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- n) Level Indicator :
- (i) Location : Evaporator, for evaporator water level
  - (ii) Number : One for each evaporator
  - (iii) Purpose : Flag glass type
- o) Level Switch
- (i) Location : Evaporator, for evaporator water level
  - (ii) Type : Mechanical float operated, magnetic type
  - (iii) Number : Two (2) for each evaporator
  - (iv) Purpose : One for high level alarm and closing of make-up water valve, the other for low level alarm and opening of make up water valve.
  - (v) Contact rating : 5 amp. at 240 V.A.C.
  - (vi) On – off differential : Adjustable
- p) Temperature Switch
- (i) Number : Two (2) for each evaporator
  - (ii) Purpose : One (1) for high alarm for evaporator water temp. the other for low temp. of Evaporator water Bath and closing of gas outlet valve.
  - (iii) Contact rating : 5 amp. at 240 V.A.C.
  - (iv) On – off differential : Adjustable
- q) Temperature Gauge
- (i) No and Location : Two (2) for evaporator water temperature and two (2) for CL<sub>2</sub> at the evaporator outlet
  - (ii) Type : Mercury in Steel
  - (iii) Purpose : Flag glass type
- r) Pressure relief Valve :
- (i) Number : One (1) for each stream.



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- (ii) Type : The Valve shall be provided with Spring loaded relief valve and also shall be protected from chlorine gas by rubber disc.
- (iii) Material : Carbon Steel body/bonnet construction with PTFE seat and monel trim
- (iv) Test Pressure : 40 Kgf/Cm<sup>2</sup>
- (v) Vent Line : The chlorine gas vented from Relief Valve shall be led to caustic soda soaking pit through PVC pipe.
- s) Other instruments : Dial thermometer, adjustable range control thermostat and relay
- t) Special features : Evaporator shall provide some degree of superheat to prevent some degree of superheat to prevent mist in the downstream side. Each evaporator shall be sized with ample safety factor to allow for partial filling of the chlorine chamber with junk.

**11.00.00 Strainers**

- a) Number required : Two (2) for each chlorinator [one working and one standby]
- b) Capacity : 100%
- c) Purpose : Trap any liquid chlorine “mist” and solid impurities from reaching chlorinator
- d) Material of Construction : carbon steel (Stainless Steel shall not be used).
- e) Pressure Indicator :
- (i) Location : Inlet of each strainer
- (ii) Number : One (1) for each set of strainer
- (iii) Sealing : Silver sealing diaphragm
- f) Differential Pressure Indicator :
- (i) Location : Across the strainer
- (ii) Number : One (1) for each set of strainer
- (iii) Sealing : Silver sealing diaphragm



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- g) Differential Pressure Switch : One (1) for each set of two strainers for high pressure differential alarm.
- h) Other accessories and features: Inertial trap shall be provided to hold any liquid present. Either part shall be of removable element design.

**12.00.00 Pressure Regular Value :**

- a) Number : One for each stream
- b) Type : Spring loaded diaphragm
- c) Location and mounting : Gas line from evaporator to chlorinator to subject chlorinators to less pressure during operation.
- d) Material of Construction :
- (i) Body : Carbon steel
- (ii) Diaphragm : PTFE
- (iii) Trim : Monel
- e) Flange : Ends shall be flanged and flange sealing done by lead gasket
- f) Body Test Pressure : 40 Kg/Cm<sup>2</sup>
- g) Spring range : 0.8 Kg/Cm<sup>2</sup>
- h) Size : Suitable

**13.00.00 Chlorinators for two units.**

- a) Number Required : Three (3) ,one for each unit and one for common Standby for CW System, Two (2) for Raw water, And Two (2) for each of plant and township drinking water system.
- b) Capacity each : By the Bidder based on 5 ppm maximum dosing rate for the existing water flow rate .
- c) Type : Vacuum solution feed type. The chlorinator cabinet shall be of fiber glass, self coloured, resistant to corrosion by chlorine gas and chlorinated water solution.



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- d) Inlet chlorine pressure : Required to reduce the pressure to a constant  
reducing valve (automatic) sub – atmospheric pressure
- e) Chlorine feed rate : Required  
adjuster (manual)
- f) Automatic pressure : Required  
vacuum relief valve
- g) Injector :
- (i) Number : One for each chlorinator
- (ii) Material : Cl (IS-210 grade FG 260) with FRP/RL inside. The  
injector shall include ebonite jet. The throat studs  
shall be of SS 316 and gasket shall be of rubber.
- (iii) Isolation valve : One isolation valve shall be provided at the power  
water inlet line of injector.
- (iv) Water pressure Gauge : Each injector shall be provided with pressure gauge to  
indicate the pressure of power water
- (v) Vacuum Gauge : Required
- h) Flow Indicator :
- (i) Location : Inlet of Chlorinator (Water Line)
- (ii) Number : One for each chlorinator
- (iii) Type : Rotameter (for local)
- i) Flow indicator / chlorine :  
Metering Orifice
- (i) Location : Integral with chlorinator, for indicating of flow of  
Chlorine in Chlorinator
- (ii) Number : One for each chlorinator
- j) Pressure Gauge :
- (i) Location : Integral with chlorinator, for indicating the pressure  
of Chlorine



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- (ii) Number : One (1) for each chlorinator
- (iii) Sealing : Silver sealing diaphragm
- k) Contact type vacuum gauge : Integral with chlorinator for pressure of chlorine at ejector suction.
- (i) Number : One (1) for each chlorinator
- (ii) Sealing : Silver sealing diaphragm
- l) Vacuum Switches : Alarms at high and low vacuum for each chlorinator
- m) Chlorinator injector Water Pressure Switch :
- (i) Number : Two (2)
- (ii) Location : Each Chlorinator Water Supply Header
- (iii) Purpose : One (1) for high pressure alarm and closing of chlorine safety shut – off valve and other for low pressure alarm and closing of chlorine safety shut – off valve.
- n) Vacuum regulator :
- (i) Number : One for each chlorinator
- (ii) Material : ABS (Acrylnitril Butadiene Styrene) Plastic Chamber & Teflon diaphragm with inlet valve having tantalum seal & special alloy spring of tantalum.
- o) Control Panel : Each chlorinator shall have one (1) control panel containing necessary instrumentations for safe and trouble free operation of chlorinator.
- p) Material of construction of major components :
- (i) Pressure /Vacuum regulator
- Body : PVC
  - Diaphragm : Teflon
  - Plug : Silver
- (ii) Feed rate adjuster
- Plug : Silver
  - Seat : Silver



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(iii) Injector

- Body : Rubber lined mild steel
- Nozzle : solid ebonite

(iv) Chlorine gas pressure piping : Schedule 80. Seamless steel

(v) Chlorine gas vacuum piping : PVC

(vi) Cabinet : Fiber glass molded design, steel framed with Chlorinated rubber paints.

The entire chlorinator shall be constructed of material completely resistant to the corrosive attack of wet or dry chlorine gas, chlorine solution, and chlorinator area atmosphere.

(vii) Other accessories : Vacuum differential regulating valve (automatic). Automatic drain relief valve/spring loaded check valve.

(viii) Special features : Good control and metering of gas shall be the essence of the design.

Suitable automatic shut-off arrangement should be

provided to prevent air entry into the chlorine solution line. The chlorine injector shall be suitably designed to prevent “water suck back” into the chlorinator.

**14.00.00 Chlorinated Water Diffuser and Mixing system :**

a) Chlorinated Water dosing point : Circulating Water Pump House forebays through diffuser, Stilling Chamber for Raw water, and at sump for Drinking water.

b) Location of diffusers : Well below min. W.L. so that they are never exposed to atmosphere.

Diffusers shall be located for effective mixing of chlorine for water to be treated.

c) Number of diffusers : As required to meet the requirements of the specification.





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- d) Material of construction : Rubber lined perforated steel tubes/polypropylene diffusers. For MSRL diffusers, the perforations shall be rubber lined to protect the steel at the holes.
- All fittings, brackets, etc. to locate the diffusers shall of MSRL construction.
- e) Flow rate and velocity : 4 to 7 Lpm at a velocity of 3 to 4 m//sec. velocity.  
through each hole
- f) Other accessories : Blow-off vent line at inlet of diffuser to vent air or gas in this line.

#### **15.00.00 Chlorinator Water Booster Pumps :**

- a) Number : one(1) for each chlorinator.
- b). Type : Centrifugal, Horizontal
- c) Capacity : Each pump shall have adequate capacity and head to meet the requirements of one chlorinator.
- d) Duty : Intermittent
- e) TDH : To be decided by the Bidder considering  $C=100$  in H&W equation for calculation of friction drop
- f) Material of Construction : Casing : CL as per IS-210 FG-260  
Shaft : CS to EN8, BS-970  
Impeller : Bronze, IS-318
- g) Casing & Impeller Type : End suction top discharge and closed impeller
- h)Range of Operation : From 30% to 120% of rated capacity
- i) Design standard : IS-1520
- j)Rated Speed : 1500 RPM (Maximum)
- k) Permissible tolerance : As per IS-1520  
In rated head & power
- l) Testing & Inspection :

- Material Test Required: Casing, Impeller, Shaft, Shaft sleeve.



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- Hydrotest pressure duration and procedure : As per IS-1520, IS-5120
- Test to be done for determining : Head capacity curve, BHP capacity curve and Efficiency capacity curve
- Test to be carried out : On prototype model at rated speed
- Testing for satisfactory running or pump at site required : Yes
- Dynamic Balancing Test : Required
- Performance Test : As per Hydraulic Standard

**[None : Diaphragm seal type pressure gauge is required at the discharge of each pump]**

- m) Accessories required : Suction strainers at suction of each pump, common base plate, anchor bolts etc.
- n) Motor selection criteria : While selecting the motor for pump, 15% (minimum) margin over BkW of pump at rated duty point shall be taken and standard motor with next higher KW rating available shall be selected.

**16.00.00 Lifting & Handling Device :**

1. Electrically operated travelling Trolley with Electrically operated Monorail Hoist :

- a) Number required and capacity : One of three (3) tones capacity for each chlorination building.
- b) Purpose : To handle ton-containers
- c) Location : Chlorine ton container storage room
- d) Lifting Bar (to grab : One (1) no. with suspension type load indicator of



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Empty or full ton  
containers during  
handling)

minimum capacity (net) 3000 Kg. scale shall have tare adjustment so that amount of chlorine in ton container can be read directly. Scale shall also have a crane hook with 360 deg. Swivel.

2. Weighing Scales :

a) Number required : One (1), 3000 Kg. capacity at each of two buildings.

b) Type : Platform Dial type.

**17.00.00 Safety & Supervisory Instrument :**

(i) Gas Mask and Oxygen Breathing equipment : Four (4) sets gas masks along Breathing equipment with breathing apparatus with min. 1 hr. capacity tank complete with full mask, full vision face pieces, air flow regulating valves and all accessories. In addition, to above, four (4) nos. connister type breathing apparatus shall be provided in which the moisture content from the wearer exhaled air react with granular chemical in breathing apparatus and liberates oxygen. The released oxygen enters an breathing bag from which he wearer can inhale.

(ii) Orthotolidine impregnated paper type leak detector system : Two (2) sets to be provided in each chlorine storage area

(iii) Ammonia bottles containing commercial grade ammonia solution ( $26^0$  Be) to detect leakage of chlorine : Four (4) numbers

(iv) Moisture absorbing breathing Bottles :

a) Number : One for each chlorine ton-container

b) Purpose : The moisture absorber shall be fitted to the connection pipe to the chlorine container, as soon as the container is detached from the system. The breather shall absorb the moisture and allow dry nitrogen in the system to prevent corrosion of pipes and system.

c) Capacity, each : Two (2) liters silicagel



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- 
- d) Material of construction : Glass body
- (v) Chlorine residual test kit :
- a) Number required : Three (3) Nos.
- b) Type : Colorimetric Test Comparator
- c) Range : One 0 to 0.5 ppm in steps of 0.05 ppm and another 0.5 to 6 ppm in steps of 0.5 ppm
- (vi) Chlorine leak detector complete: With all accessories with local alarm hooter : Four (nos), (two for chlorine Ton Container room and two for Chlorination Room). The chlorine leak detector shall detect the chlorine in the chlorine Ton container room, Chlorinator and evaporator room and shall give alarm for the leakage of chlorine at preset chlorine concentration in air during chlorine leakage.
- (vii) Emergency kit for sealing : Three nos. for attending chlorine off leaking cylinder /leakage Kit shall contain container tools, e.g. gaskets, yokes, hoods, clamps, studs, tie – tools, mild steel channels, spanners, screws to fit chlorine containers. The gaskets shall be designed to control / stop leakages from chlorine containers, valves and chlorine container fusible plugs. The accessories shall conform to the details specified by Alkali Manufacturers' Association / Chlorine Institute, U.S.A.
- (viii) Weather Cock : Two ( No).
- (ix) Location : Top of building
- (x) Purpose : Determining wind direction so that in case of chlorine leakage, the working personnel can move accordingly.

**18.0.00 Chlorine Absorption System :**

- a) Exhaust Fan connected to ducting :
- (i) Number : Suitable (at least one standby shall be there)
- (ii) Capacity : Adequate to meet the requirement of absorbing one completely leaked container within one (1) hour time



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- 
- (iii) Type : Preferably bifurcated type
- (iv) Material of construction : Polypropylene / FRP
- (v) Special Feature : The exhaust fans shall be provided with motorized damper. These fans will be in service during Chlorine leakage. During leakage the atmospheric ventilation fans will stop. These fans for absorption system will start automatically. However, starting of atmospheric ventilation fans and stoppage of Exhaust Fans for absorption system shall be manual.
- The complete electrical wiring and interlock facility as mentioned above shall be done by the bidder for both atmospheric ventilation fans and exhaust fans for venting chlorinated air to absorption tower.
- (vi) Accessories : Ducting for connecting to absorber tower
- (vii) Drive motor data : 415V, 3Ph, 50 Hz. TEFC, IP – 55
- b) Absorber
- (i) Number : One at each chlorine ton storage building.
- (ii) Type : Packed Tower
- (iii) Operation : Sucked air from chlorination/chlorine cylinder storage room shall be introduced from bottom and caustic solution will be sprayed from absorber tower top
- (iv) Capacity : Shall be such that one completely leaked chlorine ton container content can be absorbed within one (1) hour (maximum) time
- (v) Packing material : Polypropylene Rancheing / Pall rings along with baffle plates to keep loss less than 0.1% of circulating liquid flow
- (vi) Material of Construction : FRP
- (vii)  $CL_2$  content in the outlet air : Free residual chlorine shall not be more than 0.1 ppm. (to be guaranteed by the Bidder)
- (viii) Rain protection : Necessary arrangement to prevent rain water entry required



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- 
- (ix) Caustic flow rate : Adequate to absorb one completely leaked chlorine ton container content within one hour time (maximum)
- (x) Maximum Operating temperature : 80<sup>0</sup>C
- (xi) Location : The absorber shall be mounted on the caustic solution preparation –cum-recirculation tank
- (xii) Other features : Provision shall be there to pass the vented air from absorber through the caustic / lime soaking pit.
- c) Caustic Solution Preparation – cum – Recirculation Tank :
- (i) Nos. Required : One (1) at each building.
- (ii) Useful capacity : Adequate to absorb two (2) nos. completely leaked chlorine ton containers +20% margin and in addition a free board of 300 mm.
- (iii) Maximum operating temperature : 80<sup>0</sup>C
- (iv) Tank accessories & integrals : Dissolving basket and motor driven agitator
- (v) Material of construction :
- a) Shell : MS as per IS-2062 with Rubber Lining
- b) Dissolving basket : Stainless steel (SS : 316) conforming to ASTM GR. A-351 CF 8M
- c) Motor driven agitator : SS : 316
- (vi) Protection inside : Rubber lining (8.0 mm. thickness in 6 layers). Lining shall be suitable to withstand temperature upto 80<sup>0</sup>C.
- (vii) Concentration of caustic : 20% w/v(maximum)
- (viii) Vent, overflow drain with double valves and sample connection, water filling connections, etc. : Required
- (ix) Caustic charging platform : Required  
With hand rails and staircase



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- 
- (x) Level gauges : Reflex type gauge glass
- (xi) Level Switches :Magnetic type, for alarm at low level condition and tripping of caustic solution pumps.

d) Caustic solution prepn. Cum recirculation pump.

- (i) Type : 100% capacity horizontal, centrifugal pump.
- (ii) Number : Two (2) nos. (one operating and one standby)
- (iii) Capacity : Suitable for absorption of one completely leaked chlorine ton container within one hr. (maximum) + 20% margin
- (iv) Maximum operating temperature : 80<sup>0</sup>C
- (v) Material of construction : Cast Iron Rubber Lined (CIRL), CI as per IS210, FG260 for the complete wetted parts
- (vi) Head : To be decided by the Bidder considering C=120 in H&W equation for calculation of friction drop
- (vii) Mechanical seal : Required
- (viii) Auto-start facility : To be provided
- (ix) Suction strainer along with flushing connection :Required. Flushing water from service water supply system.
- (x) Drive Motor : 415V, 3 Phi, 50 Hz. TEFC, IP-55
- (xi) Casing & impeller Type :End suction top discharge and closed impeller
- (xii) Range of operation : From 30% to 120% of rated capacity
- (xiii) Design standard : IS 1520
- (xiv) Rated speed : 1500 RPM (Max.)
- (xv) Permissible tolerance : As per IS-1520  
in rated head & power
- (xvi) Noise level for pump : For details refer Vol. – IIA, Section – V  
motor set



(xvii) Testing & Inspection

- Material Test required for :Casing, impeller, shaft & shaft sleeve
- Hydrotest Pressure,  
duration & procedure : As per IS 1520 & IS 5120
- Test to be done for  
determining :Head capacity curve, BHP capacity curve  
and Efficiency Capacity Curve
- Test to be carried out : On prototype at rated speed
- Testing for satisfactory  
running of pump at  
site required : ← Yes →
- Dynamic Balancing Test : ← Required →
- Performance Test : ← As per Hydraulic Standard →

**Note : Diaphragm seal type pressure gauge is required at the discharge of each pump.**

- e) Other Features : Auto – start facility from the signal or annunciation of chlorine leak detector system. In addition local and remote manual start –stop facility shall also be provided. Pump shall trip at low level of caustic solution preparation – cum – recirculation tank.
- f) Complete Piping : MSRL
- g) Valving system :CIRL diaphragm type
- h) Ducting work : FRP ducting work shall be provided by the Bidder

**19.00.00 Pipe Manifold with Accessories :**

**19.00.01** Flexible connector with valved ends :Required for joining chlorine ton-container to the pipe manifold

- (i) Type : Tubing
- (ii) Features and accessories : Tubing shall be provided with suitable expansion





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loop. Nipples shall be provided on each end.

: Yokes and adaptors are recommended for connections to the container valve outlet. If union connections are used, the threads on the connectors must match the valve outlet thread.

(iii)Material of Construction :

a) Tubing :Annealed copper, cadmium plated.

b) Nipples :Silver soldered copper nipples. Alternatively, flexible metal hose, constructed of corrugated metal with monel tire braid and monel nipples.

Suggested copper and copper alloy tubing and fittings for dry chlorine service upto the manifold should be as follows (for nominal sizes  $\frac{1}{4}$ " to  $1\frac{1}{2}$ " ) :

Copper tube : Copper water tube type K, soft as per ASTM – B88. The OD of type K water tube is  $\frac{1}{8}$ " larger than the nominal size

Fittings :Wrought copper solder joint fittings (joints should be made with a brazing alloy containing no tin)

(iv)Hydraulic Testing Pressure for Tubing :40 Kg/Sq.Cm(g)

### 19.00.02 Piping Handling Chlorine

(i) Features : As simple as possible, with minimum number of screwed and flanged joints. Piping shall be well supported and adequately sloped to allow drainage. Low spots shall be avoided. Suitable allowances shall be provided for pipe expansion due to change in temperature.

(ii) Material of Construction :

Dry liquid chlorine: Dry chlorine gas chlorinated water under pressure service

Pipe Carbon Steel to ASTM A 106 MSRL Schedule 80  
Gr. B Seamless



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Fittings	Carbon steel 2000 Rating	ASTM A 105 Gr. 1 MSRL
Flanges	Carbon Steel class 300	ASM A 181 Gr. 1

**Note:**

1. PVC or similar materials shall not be used in liquid chlorine and pressurized chlorine gas lines.
2. PVC can be used in chlorine gas line operating under vacuum
3. Piping and fittings for conveying chlorine gas under vacuum including vent lines and fittings from all points of chlorine gas, vent, leak off and pressure relief to outside discharge which could be exposed to wet chlorine shall be schedule 80 PVC as per IS : 4985.

**19.00.03** Pipes handling clarified water shall be of MS construction (IS : 1239, Part – I, Heavy Duty).

**19.00.04** Pipes handling air shall be Sch. 40 or standard galvanized steel A53 Gr. A screwed or flanged.

**19.00.05** Valves

- i) Valves for liquid and gas service on the chlorine supply side of the installation shall preferably be approved by the Chlorine Institute, U.S.A.

The Specification should be as follows :

Type	:	Ball/Rising Stem globe
Body	:	Steel / Bronze (silver pated)
Seat	:	Monel
Ball	:	Monel
Stem	:	Monel
Disc.	:	Haste – alloy/Monel
Gasket	:	Bonded asbestos fiber
Packing	:	Oil free graphitized asbestos.

Globe valves upto 40 mm NB size shall be 300 ASA (minimum) outside screw & yoke, with forged body and renewable seat. Valves 50 mm and larger shall be cast body.



- ii) Valves handling chlorine under vacuum or chlorinated water shall be made of PVC or PVC lined body. Type may be ball or diaphragm.
- iii) All sampling valves and analyzing instrument isolation valves shall be needle type of stainless steel (AISI – 316) construction. All other instrument isolation valves shall be full bore ball valves of SS – 316 construction as per BS – 5351.

**20.00.00. Complete Instrumentation and Control for the entire System :**

The nature and extent of Instrumentation and Controls should cover the philosophy of chlorination procedure.

**20.00.01.** The operation of the Chlorination plant shall be manual.

All pumps drive motors of all other equipment and accessories, pneumatic / motorized “ON-OFF” valves etc. shall however also be suitable for remote manual operation from a control panel located in the MCC cum control room of CW chlorination building. Thus the system can be monitored from a central control panel.

In addition to remote manual operation, all drive motors shall also be provided with local start / stop / facility.

Alarm annunciation (both audible and visible) facilities for all parameter abnormal conditions and status indication of all drive motors shall be provided at control panel.

Starting of chlorine absorption system in case of chlorine leakage shall however be automatic i.e. with leakage of chlorine (high alarm annunciation) normal ventilation fans will stop and exhaust fans will start drawing air containing leaked chlorine through the absorption tower. Stopping of the system and restoration of normal ventilation shall, however, be manual.

**20.00.02** Following audio – visual annunciation shall also be provided by the Bidder at the Control Panel:

- a) Pressure in respective Chlorine Ton Container Discharge : Low
- b) Pressure in respective Expansion Chamber : High
- c) Respective Evaporator Water Level : High
- d) Respective Evaporator Water Level : Low
- e) Evaporator Water Temperature : High
- f) Evaporator – Water Bath Temperature : Low
- g) Differential Pressure Across respective Gas Filter : High
- h) Pressure in respective Chlorine Gas Inlet to Chlorinator : High
- i) Vacuum in respective Chlorinator : High& Low
- j) Chlorinator Water Supply Booster Pump Discharge pressure : High
- k) Chlorine leakage in Ton Container Room : High
- l) Antiscalant / Corrosion Inhibitor Dosing Pump : Trip



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- 
- |  |   |      |
|--|---|------|
| m) Biocide Dosing Pump   | : | Trip |
| n) Caustic Recirculation Pump  | : | Trip |
| o) Any other annunciation deemed necessary for safe and reliable functioning of the system | : |      |

In addition to above ten (10) spare annunciation windows shall be provided



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## 21. Mandatory Spares & Parts:

Sl. No.	Equipment/Package name	Quantity
1.00	BLOWERS	
1.01	Rotating Assembly	1 set for each type & rating
1.02	Complete set of bearing	1 set for each type & rating
1.03	Motor terminal block	2 No
1.04	Cooling fan	1 No
2.00	LIQUID CHLORINE EVAPORATOR	
2.01	Water level gauge glass	1 No
2.02	Water bath level control switch	1 No
2.03	Thermostatic switch water temperature controller	1 No
2.04	Temperature switch - water temperature high	1 No
2.05	Rota meter complete assembly	1 set
2.06	Diaphragm for valve	2 No's each type & size
3.00	Strainer	1 No for each type
4.00	Centrifugal Pump	
4.01	Impeller complete Assembly	1 set for each type & rating of pump
4.02	Shaft Sleeve	1 set for each type & rating of pump
4.03	Complete set of pump bearing	1 set for each type & rating of pump
4.04	Motor terminal block	1 No
5.00	Flexible connector	2 Nos
5.01	Rupture Disc	2 Nos
5.02	Evaporator Immersion heater	1 No
5.03	Pressure - vacuum relief valve	1 No
5.04	Pressure - vacuum relief valve spring	1 No
5.05	Filter element refill pack	4 Packs
5.06	Pressure regulating valve	1 No
5.07	Vacuum regulating valve	1 No
5.08	SS solenoid valve	1 No
5.09	Coil for solenoid valve	1 set for each type & rating



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**22. Payment Schedule:**

- a) 10% of the contract price will be paid after the Award of contract/Work Order against the submission of equivalent amount of Advanced Bank Guarantee (ABG) which will be released after successful completion of PG test as certified by the controlling officer.
- b) 50% against supply of material (MDCC+MRC).
- c) 2 % against drawing.
- d) 3% against successful completion of PG test as certified by the controlling officer.
- e) 35% against erection & commissioning.
- f) Amount payable by the WBPDCCL to the vendor under the contract to be subject to deduction of taxes as applicable in India.

**23. Contract price:** The quoted price should be fixed and firm and exclusive of all taxes, duties, and other applicable Govt. levies if any. For evaluation of Price Bid the total financial amount given for the lump sum cost exclusive of all Tax and Duties and Levies as may be applicable will be considered and selection will be based on Least-Cost Selection methods. All taxes and duties shall be paid extra as applicable.

**24. Completion Periods:**

The completion period will be one year, may be reduced or increased as per the direction of the management of the WBPDCCL corporate authority, at same rate and terms & conditions.

**25. Controlling Officer:** The General Manager (STPS), P.O: Santaldih Dist:Purulia.

**26. Paying Authority:**

The Dy. General Manager (F&A), Corporate office, WBPDCCL.

**27.** The vendor shall be carried out the job at site after taking prior permission from concerned Controlling officer, WBPDCCL within the normal working hours ( i.e 10am to 5.30pm).

**28.** All services shall be carried out in accordance with the manufacture's standard service recommendation and practice unless otherwise mentioned.

**29. Obligation of the Corporation**

- a) **Payment:** The party shall submit bill in triplicate on lump sum amount duly signed.
- b) **Revision of Rate:** The rate shall remain firm during entire contract period.
- c) **Gate Pass:** Before execution of job the Supervisor/Vendor will have to take gate pass for their deploy of personnel.



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**30. Obligation of the Agency:**

- a) The personnel to be deployed by the agency shall not have any right to claim any employment at any time for any reason whatsoever and shall not have responsibility or liability.
- b) The vendor is required to obtain a labour license for deployment of personnel from the competent authority of the labour Department, Govt. of W.B.
- c) The vendor shall be liable for all payments to their employee for performance of the duty and company, in no events will be liable or responsible for any payment other than the payment stipulated in the contract.
- d) Communication: For communication with the officials mobile phone to be provided to the duty in charge by the vendor at its cost.
- e) The vendor will responsible to undertake adequate insurance cover for their workman, tool & tackles, other accessories and may take third party risk insurance coverage as required, all at their own cost & responsibility.
- f) The vendor will observe and comply, at his own cost, all enactments, rules & regulations, labour and other related rules & provisions, as applicable for WBPDC.
- g) The vendor should possess a valid license issued by competent authority for undertaking of such type of job as well as for deployment of personnel, which may be submitted on demand to WBPDC authority
- h) The proper identify card & identical uniform shall be provided to the deployed personnel on duty by the vendor without any extra cost.
- i) The vendor shall maintain regular attendance register of the deployed personnel.

**31. Security Deposit:**

The successful bidder will have to submit an irrevocable bank guarantee of any nationalized bank covering 10% of total order value within one month from the date of placement of the order. The security deposit (as adjusted with the Earnest Money, submitted at the time of tender) will be released after successful completion of the contract period subject to certification of the controlling officer.

**32. Notification of Allocation:**

The owner will notify the successful Bidders in writing by registered letter or by Fax that his bid has been accepted and will issue the letter of award (LOA). And the successful bidders shall within 7 (seven) days from the date of the LOA give unconditional acceptance of the LOA.

**33. Termination:**

WBPDC authority is reserves the right to terminate the contract under any circumstance at any point of time of contract periods if the performance of the party is not satisfactory.



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**34. Safety:**

The vendor shall take all sorts of safety measure while carrying out the Job. Under any circumstances, WBPDC authority shall not be made responsible for any untoward incident w.r.t. safety precaution at site.

**35. Tools & Tackles:**

All necessary/ essential tools & tackles, handling materials etc. shall be provided by the vendor without any extra cost.

**36. Penalty:**

Penalty may be imposed if the performance of vender is found unsatisfactory under following cases:

- a) In case of losses incurred due to Poor performance /Job responsibility, the contractor will be held responsible for maintaining of quality job and failure of any equipment due to improper erection, installation attract penalty & the contractor will be liable to rectify the same at his own cost.
- b) In case the job is found discontinued/uncompleted within the contractual period, WBPDC shall have right to award part of full job to any outside agency and the expenditure thereof shall be deducted from your bill.

**37. Observance of Statutory Compliances:**

Contractors shall have to ensure all statutory compliances and have to observe, perform and comply with the provisions of (a) The Contract Labour(R&A) Act, 1970 (b) The Payments of Wages Act,1936 (c) The Employees' Provident Fund & Misc. Provision Act'1952 (d) The Payment of Bonus Act,1965 (e) The Minimum Wages Act,1948 (f) The Employees' Compensation Act,1923 and other law of the land as may applicable.

**38.** The successful bidder shall have to enter into an agreement with WBPDC incorporating all Clauses of the work order within 30 days of the issuance of the work order.

**39.** All litigations if any subject to the jurisdictions of Calcutta High Court only.

**40. Equipment and Material:**

Equipment and material shall comply with description, rating, type and size as detailed in this specification. Equipment and materials furnished shall be complete and operative in all respect. All accessories, which are necessary for safe and satisfactory installation and operation of the equipment, shall be furnished. All parts shall be made accurately to standard gauges so as to facilitate replacement and repair. All corresponding parts of similar equipment shall be interchangeable. Vendor shall carefully check the available space and the environmental conditions for installation of all equipments available at site and shall design the system accordingly.

**41. Design and Drawing:**

Party shall obtain approval for all the designs associated with civil, mechanical, C&I and electrical work which includes design of foundation, structure cable sizing, fabrication work, layout design, wiring





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**Registered & Corporate Office: Bidyut Unnayan Bhaban**

Plot No. : 3/C, L.A. Block, Salt Lake City, Sector – III, Kolkata : 700 098.

Phone : 033-2339 3621, Fax : 033 – 2339 3607 (M&C)

Email. [pchatterjee@wbpdcl.co.in](mailto:pchatterjee@wbpdcl.co.in)

diagram etc. prior to the execution of work and for this purpose party shall submit all design and drawing for obtaining approval from WBPDC.

If party have in-house facility for structural design and civil design, the array structure and foundation design should be signed by competent engineers having minimum LBS/ESE/EBA license, otherwise design should be prepared and or vetted by reputed civil engineering design firm having structural engineer with minimum LBS/ESE/EBA License.

#### **42. Statutory Acts:**

The work shall be done in compliance with the IS Specification, I.E. Rules, Indian Electricity Acts and other relevant rules, act & regulations now in force with latest amendments, if any.

#### **43. Codes and Standards:**

All equipment and materials to be furnished under this specification shall be designed, manufactured and tested in accordance with the latest revisions of the relevant Indian Standard (IS) as applicable.

The electrical installation shall meet the requirement of Indian Electricity Act, and Indian Electricity Rules as amended up-to-date and also the applicable section of the latest revision of the relevant IS Code of Practice.

#### **44. Legal case:**

All attempts must be made to settle any dispute through mutual agreement or through arbitration. In case, if such attempts fail, settlement is required to be made within the jurisdiction of Kolkata High Court only.

#### **45. Liquidated Damage:**

Scheduled date of completion shall be treated as essence of the contract. Liquidated damage shall be imposed at the rate of **0.5%** of the unexecuted value per week delay up to a maximum of **5%** at the sole discretion of the Controlling Officer. If there is a valid acceptable reason for delay of execution, the Controlling Officer may at his discretion consider lower down of the penalty rate or even waive the penalty on having written prayer from the contractor along with valid reason.

#### **46. Stoppage of Work:**

WBPDC shall neither be responsible nor be liable to bear any compensation for any interruption of work in the site due to war, strike, earthquake, lightning, flood, cyclone etc. WBPDC shall also not responsible for any compensation due to stoppage of work as a reaction from the local public due to any undue action on the part of the contractor causing annoyance to the local public.

#### **47. Accident Risk:**

WBPDC shall not be responsible in connection with any sort of accident which may occur during transportation of materials/equipment, execution of works. Party shall have to provide safety precautionary arrangement for workmen in order to avoid any such incident / accidents.

#### **48. Water and Electricity:**

Supply of construction power and water, if required, during execution of the work, will be arranged by WBPDC at a single point. Party shall make your own arrangement to take the same from the source.



**The West Bengal Power Development Corporation Limited**

(A Government of West Bengal Enterprise)

CIN No. U40104WB1985SGC039154

**Registered & Corporate Office: Bidyut Unnanyan Bhaban**

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Phone : 033-2339 3621, Fax : 033 – 2339 3607 (M&C)

Email. [pchatterjee@wbpdc.co.in](mailto:pchatterjee@wbpdc.co.in)

#### **49. Materials:**

The supply of materials shall also include transportation, loading and unloading at work site. Vendor will arrange proper storage at own cost and risk at site for your equipment and materials. The complete system shall be under the custody of vendor till successful commissioning and handing over, at vendor own risk and cost. WBPDC in no case shall be held responsible for any loss/damage or theft of materials / equipment so long those shall continue to remain under vendor custody.

#### **50. Force Majeure Clause :**

##### **1. Force Majeure**

1.1 Neither vendor nor WBPDC shall be liable to the other for any delay or non-performance of its obligations under this **Contract** arising from any cause beyond its reasonable control including in relation to either Party any act of God, governmental act, act of any regulatory authority, supervening illegality, war, fire, flood, explosion, power blackout, break-down of machinery, loss of utility, civil commotion, industrial dispute, manpower unrest acts or omissions of telecommunications or data communications operators or carriers , in relation to vendor (to the extent not directly attributable to vendor's negligence), (a "**Force Majeure Event**"). The affected Party shall promptly notify the other Party in writing, of the cause and the Force Majeure Event and its likely duration within no later than two (2) days after the affected Party knew of the occurrence of the Force Majeure Event. Performance by the affected Party of its obligations **under this Contract** shall be suspended for the duration of the Force Majeure Event. If performance is not resumed within 15 (fifteen) days after the Force Majeure Event, either Party may terminate this **Contract** by giving to the other Party seven (7) days' notice in advance.

1.2 On the occurrence of any Force Majeure Event, the affected Party shall use all reasonable efforts (including emergency fixes and workarounds) to perform its obligations **under this Contract** during the period of suspension. Further the affected Party shall perform such part of its obligations pursuant to this Contract as are not affected by the Force Majeure Event.

1.3 The affected Party shall use its reasonable efforts to mitigate the effect of any event of Force Majeure as soon as practicable.

**Note:** WBPDC General Conditions of Contract (GCC) & Supplementary Conditions of Contract (SCC) have to be followed by the all vendors. All the pages of the GCC&SCC document to be submitted by the successful bidder duly signed / authenticated and stamped in acceptance. (Sixty Nine pages document enclosed ENCLOSURE-1).

## ANNEXURE-A

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp. Dated: 25.02.2015.

**PRICE BREAK DOWN SHEET (SUPPLY & ERECTION SERVICES)****PRICE BREAK DOWN SHEET (SUPPLY)**

Since there may be addition or deletion of items on finalization of the contract, the bidder shall quote for breakdown prices of items

Sl. No.	Description	Imported items (Mention the name of currency)			Indigenous items Ex-factory in INR	Inland transportation to site including Insurance charges in INR		Customs Duty on Col. (5) in INR	Sales tax Excise duty Octroi etc. on Col. (6) in INR
		F. O. B Price	Ocean Freight & Marine Insurance	C. I. F Price		Port of entry to site of col. (5)	Ex-factory to site of col. (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. 1.	<b>Plant &amp; Equipment Supply Price</b>  Bidder's proposal price for design & engineering, manufacture, shop testing, delivery F. O. R. works, properly packed for transportation of all Chlorination plant & equipment for the complete scope for Chlorination package as specified in Tender specification with amendments etc.								

Note : 1) For the purpose of conversion of currency, Reserve Bank of India selling exchange rates prevailing on the 10<sup>th</sup> day prior to Bid opening will be considered

2) Item in column 9 and 10 shall not be considered in evaluation but these must be filled in by Bidder for assessment of Owner's liability.

Date : Signature .....

Plate : Name .....

Seal of Company .....

**ANNEXURE-A**

Sl. No.	Description	Imported items (Mention the name of currency)			Indigenous items Ex-factory in INR	Inland transportation to site including Insurance charges in INR		Customs Duty on Col. (5) in INR	Sales tax Excise duty Octroi etc. on Col. (6) in INR
		F. O. B Price	Ocean Freight & Marine Insurance	C. I. F Price		Port of entry to site of col. (5)	Ex-factory to site of col. (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2.	Sum, of prices from item 6. a to 6. L below. (Delivery upto site)								
3.	Bidders proposal price for supply of Mandatory spares properly packed for transportation to site (List and Unit prices indicated in ANNEXURE-C)								
4.	Bidders proposal price for supply of recommended spares properly packed for transportation to site (List and Unit prices indicated in ANNEXURE-D)								
5.	Bidder's proposal price for supply of one set of special tools and tackles properly packed for transportation to site. (List and Unit prices indicated in ANNEXURE-F)								

Note : 1) For the purpose of conversion of currency, Reserve Bank of India selling exchange rates prevailing on the 10<sup>th</sup> day prior to Bid opening will be considered

2) Item in column 9 and 10 shall not be considered in evaluation but these must be filled in by Bidder for assessment of Owner's liability.

Date : \_\_\_\_\_ Signature \_\_\_\_\_

Plate : \_\_\_\_\_ Name \_\_\_\_\_

Seal of Company \_\_\_\_\_

ANNEXURE-A

Sl. No.	Description	Imported items (Mention the name of currency)			Indigenous items Ex-factory in INR	Inland transportation to site including Insurance charges in INR		Customs Duty on Col. (5) in INR	Sales tax Excise duty Octroi etc. on Col. (6) in INR
		F. O. B Price	Ocean Freight & Marine Insurance	C. I. F Price		Port of entry to site of col. (5)	Ex-factory to site of col. (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
6.	Bidder's proposal unit price for supply and delivery at site including packing and forwarding charges with all duties & taxes etc. for each of the following systems.								
a.	Each chlorine ton containers								
b.	Each chlorinators								
c.	Each chlorine manifolds								
d.	Each electrically heated evaporators								
e.	Each strainers								

Note : 1) For the purpose of conversion of currency, Reserve Bank of India selling exchange rates prevailing on the 10<sup>th</sup> day prior to Bid opening will be considered

2) Item in column 9 and 10 shall not be considered in evaluation but these must be filled in by Bidder for assessment of Owner's liability.

Date : \_\_\_\_\_ Signature .....

Plate : \_\_\_\_\_ Name .....

Seal of Company .....

ANNEXURE-A

Sl. No.	Description	Imported items (Mention the name of currency)			Indigenous items Ex-factory in INR	Inland transportation to site including Insurance charges in INR		Customs Duty on Col. (5) in INR	Sales tax Excise duty Octroi etc. on Col. (6) in INR
		F. O. B Price	Ocean Freight & Marine Insurance	C. I. F Price		Port of entry to site of col. (5)	Ex-factory to site of col. (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
f.	Each pressure regulating valve								
g.	Each water diffuser & mixing tank								
h.	Each electrically operated monorail hoist								
i.	Each control panels								
j.	Each control cable								
k.	Each chlorine absorption system								
l.	Each booster Pump with drive								

Date :

Signature .....

Plate :

Name .....

Seal of Company .....

**A. PRICE SCHEDULE FOR ERECTION SERVICES**

Sl. No.	Description	Foreign Currency Component (Mention name of currency)	Local Currency Component in Indian Rs.	Taxes & Duties as applicable on transaction between the Owner and the Contractor in Indian Rs.
(1)	(2)	(3)	(4)	(5)
B.	<b>PRICES FOR SITE STORAGE, ERECTION, TESTING &amp; COMMISSIONING BIDDER'S PROPOSAL PRICE FOR FOOLOWING:</b>			
1.	Bidder's proposal price for erection, testing and commissioning of all plant and equipment supplied under 1. above, performance testing and reliability run including civil and structural works alongwith supply of steel, cement and other building materials etc. required for completion of chlorination package as specified in tender specification.			
2.	Bidder's proposal price for storage of equipment and accessories at site, transportation and handling at site including construction of stores, offices etc. as required.			

Project :

Date :

Plate :

Signature .....

Name .....

Seal of Company .....

**ANNEXURE-B**

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp. Dated: 25.02.2015.

Sl. No.	Description	Foreign Currency Component (Mention name of currency)	Local Currency Component in Indian Rs.	Taxes & Duties as applicable on transaction between the Owner and the Contractor in Indian Rs.
(1)	(2)	(3)	(4)	(5)
3.	Bidder's proposal price for storage insurance and erection insurance upto commissioning and handling over.			
4.	Any other service not covered above (give details)			
5.	Bidder's total erection proposal price for site storage, erection, testing, commissioning, performance testing and reliability run etc.( B1 through B4)			

Project :

Date :

Plate :

Signature .....

Name .....

Seal of Company .....



## ANNEXURE-C

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp. Dated: 25.02.2015.

**SPARE PARTS PRICE SHEET  
(MANDATORY)**

The Bidder shall tabulate below the item wise list of mandatory spares furnished by him for the operation and maintenance of the equipment supplied under the specification. Additional sheets may be used if required.

Sl. No.	Description	Quantity	Unit Price			Total Price			Delivery Period		Remarks
			FOB (*)	Ex-works (**)	CIF (*)	FOB (*)	Ex-Works (**)	CIF (*)	Indian Port	Ex-Works (**)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1.	(a)										
	(b)										
	(c)										
2.	Total of all Mandatory Spares (in house) $\Sigma$ (a) + (b) + .....										

- Note :**
1. The unit rate and price quoted shall be in line with the conditions of contract.
  2. Specify currency in each case.
  3. (\*\*) Applicable for spares of Indian Origin.
  4. (\*) Applicable for spares of Foreign Origin

Date : Signature .....

Plate : Name .....

Seal of Company .....

ANNEXURE-D

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp. Dated: 25.02.2015.

**SPARE PARTS PRICE SHEET  
(RECOMMENDED)**

The Bidder shall tabulate below the item wise list of recommended spares furnished by him for the operation and maintenance of the equipment supplied under the specification. Additional sheets may be used if required.

Sl. No.	Description	Quantity	Unit Price			Total Price			Delivery Period		Remarks
			FOB (*)	Ex-works (**)	CIF (*)	FOB (*)	Ex-Works (**)	CIF (*)	Indian Port	Ex-Works (**)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

- Note :**
1. The unit rate and price quoted shall be in line with the conditions of contract.
  2. Specify currency in each case.
  3. (\*\*) Applicable for spares of Indian Origin.
  4. (\*) Applicable for spares of Foreign Origin.

Date :

Signature .....

Plate :

Name .....

Seal of Company .....

ANNEXURE-E

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp. Dated: 25.02.2015.

**PRICE SHEET FOR SPECIAL TOOLS AND TACKLES**

Bidder shall tabulate all tools & tackle for operation, maintenance and replacement of equipment and components supplied under the specifications in following proforma with item-wise price . Additional sheets may be used if required.

Sl. No.	Description	Quantity Offered	Unit Price			Total Price		
			FOB (*)	Ex-works (**)	CIF (*)	FOB (*)	Ex-Works (**)	CIF (*)

- Note :**
1. The unit rate and price quoted shall be in line with the conditions of contract.
  2. Specify currency in each case.
  3. (\*\*) Applicable for spares of Indian Origin.
  4. (\*) Applicable for spares of Foreign Origin.

Date :

Signature .....

Plate :

Name .....

Seal of Company .....

ANNEXURE-F

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp. Dated: 25.02.2015.

**Price Evaluation Sheet (Bid Sheet)**

Sl. No.	Item description	Total Price
1.	<b>A: PRICE BREAK DOWN SHEET (SUPPLY)</b> (As per Annexure-A)	
2.	<b>B: PRICE SCHEDULE FOR ERECTION SERVICES</b> (As per Annexure –A)	
<b>Total Amount: (In Words)</b>		

\*Price should be quoted in both figure and words

\*The above price shall be exclusive of any taxes and duties, which will be paid extra as applicable.

Date :

Signature .....

Plate :

Name .....

Seal of Company .....

ANNEXURE-G

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp. Dated: 25.02.2015.

**DEVIATION SHEET  
(COMMERCIAL & TECHNICAL)**

If the proposal has got any deviation from the NIT specification, Condition of Contract, the Bidder shall tabulate these deviations clause by clause in this Schedule. Against each and every technical deviation from the NIT Specification, Condition of Contract, the amount by which the Bid Price will thereby be increased or decreased in case of withdrawal of deviation shall be intimated clause by clause in his schedule. In case the amount is not mentioned in the Schedule against any of this deviation mentioned in deviation sheet, it will be taken for granted that the same does not involve any change in the Bid Price.

Section/ Part / Chapter	Clause No.	Page No.	Statement of Deviations / Variations	Upward (+) or downward (-) price Implication
A	<b>COMMERCIAL</b>			
B.	<b>TECHNICAL</b>			

Note: 1. Indicate upward (+) or downward (-) price implication in case of withdrawal of deviation.

Date :

Signature .....

Plate :

Name .....

Seal of Company .....

ANNEXURE-H

NIT No.: WBPDC/ Tend-Adv/CC/14-15/215/Corp. Dated: 25.02.2015.

**DECLARATION SHEET**

I,

\_\_\_\_\_

certify that all the above typed-in data and information pertaining to this specification are correct and are true representation of the Tender covered by our formal proposal number

\_\_\_\_\_ Dated

\_\_\_\_\_.

I hereby certify that I am duly authorized representative of the Tenderer whose name appears above my signature.

Tenderer's Name :

Authorized Representative's Signature :

Authorized Representative's Name (Typed) :

Tenderer's Intent : The Tenderer hereby agrees fully to comply with the requirements and intent of this specification for the price indicated.

Authorized Representative's Signature :

Seal of Company:

THE WEST BENGAL POWER DEVELOPMENT  
CORPORATION LIMITED

VOLUME - 1

CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS

**General conditions of contract**

&

*Supplementary Conditions of Contract*



**WBPDC**

**THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED**  
(A Govt. of West Bengal Enterprise)  
Bidyut Unnayan Bhaban,  
3/C LA Block, Bidhannagar, Sector –III  
Kolkata – 700 098

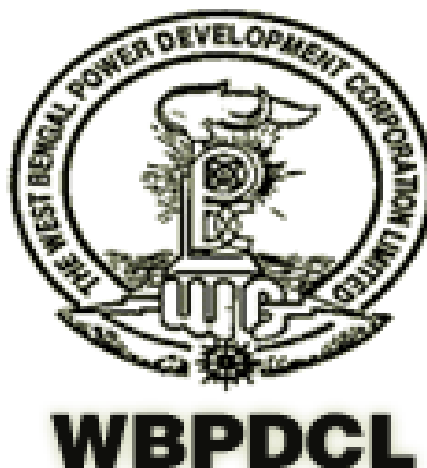


SECTION – 1

The West Bengal Power Development Corporation Limited

Civil, Structural and Architectural Works

**Conditions of Tendering**







**THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED**

**CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS**

**CONDITIONS OF TENDERING**

1. Tender Documents consisting of the following shall be submitted duly signed by the Tender without which the Tender is liable to rejection:
  - i) Notice Inviting Tenders
  - ii) Conditions of Tendering
  - iii) Forms & Appendices
  - iv) General Conditions of Contract and addendum to the General Conditions of contract, if any
  - v) Supplementary Conditions of Contract
  - vi) Bank Guarantee Form
  - vii) Contract Agreement Form
  - viii) Technical Specifications
  - ix) Schedule of Items
  - x) Drawings
  - xi) Full statement regarding the status and past experience of the Bidder
  - xii) List of construction equipments available for this Contractor along with their present condition and locations
  - xiii) Document showing Earnest Money deposit.
  - xiv) Other Documents as may be required to be submitted along with the Tender in accordance with the Technical Specifications.
2. When the work is awarded and the letter of Intent issued, these Documents shall become an integral part of the Contract Agreement.

3. Earnest money as per clause of Notice Inviting Tender vide Tender Notice No.WBPDC/..... Dated: .....to be deposited in properly executed Bank Draft / BG, payable to the West Bengal Power Development Corporation Limited at Kolkata, accompany the Tender, without which the Tender will not be considered valid. No cash or cheque in any form will be accepted as Earnest Money. No interest will be payable by the WBPDC on the above Earnest Money. Earnest Money of unsuccessful bidders shall be refunded to them within sixty days from the date of issue of work order to the successful Bidder.

The WBPDC reserves the right of forfeiture of Earnest Money deposit in case the bidder after opening of tender withdraws, amends, impairs, derogates or revokes his tender within the validity period or extension thereof.

4. Attested copies of up-to-date Income Tax and Sales Tax Clearance Certificates will also have to be submitted along with the Tender, without which the Tender will be considered as incomplete and liable to rejection.
5. The Tender shall remain valid for Six (6) months from the date of opening of the Tenders.
6. The Bidder will have **to quote his rates both in figures and in words against each item of work or** as detailed in the enclosed Schedule of Items. The amount against each item and the grand total should also be worked out in both figures and in words.
7. All corrections in the tender should be initialed by the bidder before submission of the Tender. Each page of the Tender Documents must be signed by the Bidder. All rates and prices quoted shall be in ink only.
8. When a Bidder signs a Tender in any language other than English, he should quote rates of each item of work as detailed in the enclosed Schedule of Items in the same language and in English. The total amount tendered for, should also be written in the same language and in English.
9. Canvassing in any form is strictly prohibited and any Bidder found to have resorted to canvassing shall be liable to have his Tender rejected summarily.
10. In the event of the Tender being submitted by a Firm, it must be signed by each partner thereof or in the event of absence of any partner it must be signed by a person holding a

power of attorney authorizing him to do so; such power of attorney should be produced along with the Tender.

12. Intending bidder should note that he will have to work simultaneously with other contractors already entrusted with other work or with contractors to be entrusted with other work in future on the same site. The contractor will have to work in close cooperation with all contractors engaged in the Project / Power Station.
13. Tenders which do not fulfill any of the above conditions or are otherwise incomplete are liable to rejection.
14. Acceptance of the Tender will rest with The West Bengal Power Development Corporation Limited who do not bind themselves to accept the lowest Tender and reserve to themselves the authority to reject any or all the Tenders received or to divided the work to more than one Bidders, without assigning any reason whatsoever.
15. The Earnest Money of the successful bidder will be converted to Initial Security money as per Clause No.13.02 of 'General Conditions of Contract'.

All transactions under this clause will be calculated in the multiple of hundred. All security money is refundable in accordance with the relevant clause of the 'General Conditions of Contract'.

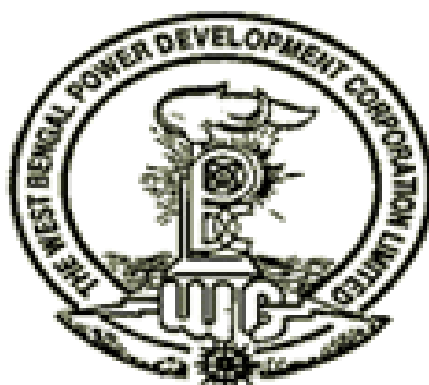
16. The tender submitted by a bidder shall become the property of WBPDCL and the WBPDCL shall have no obligation to return the same to the bidder.
17. This is a fixed rate contract. Rates quoted by the Bidder shall remain firm during the entire period of execution of the work and subsequent finalization of the contract. No escalation of rates, whatsoever, will be permitted due to increase of cost of materials, fuel, rise in labour wages etc. or due to any reason whatsoever.

## SECTION - 2

THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED

Civil, Structural and Architectural Works

FORMS



**WBPDC**



THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED  
CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS

**FORMS**

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➤ BANK GUARANTEE FOR ADVANCE PAYMENT	13 to 14
➤ CONTRACT AGREEMENT FORM	15 to 16
➤ APPENDIX	



## TENDER FORM

To

Date .....

.....

.....

.....

Tender Notice No. ....

Name of Work .....

Sir,

I / We the undersigned having examined the Tender Documents and the site of work as above hereby submit this Tender amounting to the sum of Rs..... (Rupees ..... only.) and should the same be accepted, hereby undertake to execute, complete and maintain all the work as set forth in the Schedule of Items, Technical Specifications and Drawings in accordance with the Conditions of Tendering, General Conditions of Contract, Supplementary Conditions of Contract and at the rates quoted by us in the aforesaid Schedule of Items all hereto annexed or in default thereof to forfeit and pay to The West Bengal Power Development Corporation Limited the sum of money mentioned in the aforesaid Documents.

I / We agree to abide by this Tender for the period of Six (6) months from the date fixed for opening of the same and in default thereof agree that the amount of Earnest Money deposited along with this Tender may be forfeited.

I / We undertake to complete and deliver the whole of the works covered under this Tender within a period of .....

The Earnest Money as required in clause of Notice Inviting Tender in the form of ..... is being enclosed duly endorsed in favour of The West Bengal Power Development Corporation Limited, Calcutta the full value of Which may be retained by The West Bengal Power Development Corporation Limited as part payment of the initial Security Deposit as called for and in case, this Tender is accepted. If this Tender is accepted, we also undertake,



when required, to deposit the additional sum to constitute the initial Security Deposit required by the terms of the Contract.

We also undertake if and when required to enter into a Contract with The West Bengal Power Development Corporation Limited by executing an Agreement in the prescribed Contract Agreement Form enclosed along with these Tender Documents and till such time the agreement be not executed, we shall be bound by the terms and conditions of the Tender Documents and out accepted Tender.

Dated ..... day of .....2014

.....

Signature of the Bidder

Witness .....

1) Name .....

2) Name .....

Address .....

Address .....



## BANK GUARANTEE FORM

Articles of Agreement made this ..... day of .....Two Thousand Thirteen.

### BETWEEN

Hereinafter called the “Bank” (which expression shall unless excluded by or repugnant to the context be deemed to include its successors and assigns) of the ONE PART and The West Bengal Power Development Corporation Limited (A Government of West Bengal Undertaking) incorporated under the Companies Act, 1956 having its Registered Office at Bidyut Unnayan Bhaban,3/C, LA Block, Bidhannagar, Sector –III, Kolkata – 700 098, hereinafter referred to as “WBPDC” (which expression shall unless excluded by or repugnant to the context be deemed to include its successors and assigns) of the other part.

WHEREAS the WBPDC had invited Tenders for .....

### AND WHEREAS

(Hereinafter referred to as the “Bidder / s”) has / have submitted a Tender to the said WBPDC for the said work of ..... AND

WHEREAS one of the terms and conditions on which such Tender was accepted was that the Bidder / s shall in lieu of furnishing Earnest / Security Money for the due fulfillment and observance of the terms and conditions of the Tender / Contract in the manner prescribed in the Tender shall furnish a Bank Guarantee for the sum of Rs.....(Rupees .....only) as security for the due fulfillment, performance and observance by the Bidder / s of the terms and conditions and covenants of the contract to be entered into by the Bidder / s with WBPDC.

AND WHEREAS by the said ..... has/have requested WBPDC to accept the Guarantee by the said Bank of the sum of Rs..... (Rupees .....only) as security for the due observance, fulfillment and performance by the Bidder/s of the terms and conditions of the covenants on the part of Bidder/s contained in the Agreement to be entered into by the Bidder/s with WBPDC and WBPDC has agreed to the said proposal upon the Bank





agreeing to observe, fulfill and perform the terms and conditions hereinafter contained and binding itself for the same.

WITNESSETH AND IT IS HEREBY AGREED AS FOLLOWS:

1. That should the said Bidder/s .....  
..... fail/s and neglect/s to deposit with WBPDC the said sum  
of Rs..... (Rupees ..... only) in  
cash with terms of the Tender submitted by the said.....  
..... for the due observance, performance and fulfillment by the said  
..... of the terms and conditions and  
covenants on the part of the said .....  
Contained in the Agreement to be entered into by the said .....  
.....with the WBPDC.
2. That the said sum of Rs..... (Rupees ..... only) in  
cash so to be deposited by the Bank to WBPDC as provided in Clause I hereof shall be  
liable to be forfeited and appropriated to its own use by the WBPDC in the case of any  
breach or non-fulfillment or non-observance by the said.....  
..... of any of the terms and conditions of the said Tender or of  
the Agreement to be entered into by the said.....  
..... with the provisions therefore regarding  
the forfeiture of the said sum of Rs..... (Rupees  
..... only) so deposited as aforesaid.
3. That the Bank shall otherwise keep WBPDC saved harmless and indemnified in respect  
of any breach of the terms, conditions and covenants of the said Tender by the same  
..... or of  
the Agreement to be entered into by the said.....  
.....with WBPDC as aforesaid limited to the extent of  
the said sum of Rs..... (Rupees.....  
..... only) unless and until the said sum is so  
deposited with WBPDC.
4. That upon depositing of the said sum of Rs..... (Rupees  
.....) only by the Bank to the WBPDC in  
accordance with the provisions of Clause I hereof the Bank shall have no rights



whatsoever in the said amount nor shall the Bank be entitled to required the WBPDC to account for the same or question of validity of the forfeiture of the said sum or to make any claim whatsoever in respect of the said sum of Rs .....(Rupees ..... only).

5. IN WITNESS WHEREOF the said .....  
 ..... has hereunto set and subscribed its hand and seal the day and month and year first above written. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on or before .....

The common Seal of the .....  
 has been hereto affixed by and its Directors who have also affixed their signature here to as such in the presence of

Or

SINGED SEALED AND DELIVERED BY the said  
 ..... through  
 its Constituted Attorney in the presence of :  
 .....



## BANK GUARANTEE FOR ADVANCE PAYMENT

This deed of guarantee made this .....day .....two thousand thirteen between the .....of .....(hereinafter called the 'Bank' which expression shall, unless excluded by or repugnant to the context be deemed to include its successors and assigns ) of the One Part and The west Bengal Power Development corporation limited (A Government of West Bengal enterprise ) incorporated under the Companies' act, 1956, having its Registered Office at Bidyut Unnayan Bhaban,3/C, LA Block, Bidhannagar, Sector -III. Kolkata – 700 098 hereinafter referred to as “ WBPDCCL” (which expression shall unless excluded by or repugnant to the context be deemed to include its successors and assigns ) of the other part.

Whereas under the WBPDCCL's work order No..... Dated..... for supply/execution of .....for the .....Thermal Power Project/ Station .....( hereinafter called the “Contractor”) has agreed to supply and execute the work and transfer the same to WBPDCCL as detailed in the Contract on the terms and conditions provided in the said contract.

AND WHEREAS in accordance with 'Payment ' clause appearing in page ..... of the Contractor agreed to make to the contractor an advance payment of Rs ..... ( Rupees.....) as per the aforesaid contract upon the Contractor furnishing a Bank Guarantee in respect of such payment. And whereas before the advance payment as aforesaid is made the Bank has at the request of the Contractor agreed to give its guarantee as hereinafter contained.

Now this deed witnesses as follows:

1. The consideration of the WBPDCCL agreeing to make to the contractor an advance payment of Rs.....( Rupees.....) as per the aforesaid contract , the Bank Guarantees that the contractor shall duly supply and execute the work the.....mentioned in accordance with the provisions of the said contract failing which the Bank to pay to the WBPDCCL such



amount or amounts as the Bank may be called upon to payment in the aggregate Rs..... (Rupees .....only).

2. The Bank shall pay to the WBPDC on demand the sum under clause -I above without demur and without requiring the WBPDC to invoke any legal remedy that may be available to it to compel the Bank to pay the same or to compel such performance by the Contractor, provided that where Bank considers the demand of the WBPDC unjustified, it shall nevertheless pay the amount though under protest the WBPDC and shall not withhold payment on that account.

3. This guarantee shall come into force upon payment by the WBPDC of the said sum of Rs..... (Rupees .....only..) and shall remain in force till the supply of the said is made in accordance with the said contract or till ..... whichever is earlier.

4. The guarantee herein contained shall not be affected by any change, in the constitution of the Bank or the contractor.

5. The neglect or forbearance of the WBPDC in enforcing the payment of any money, the payment whereof is intended to be hereby secured or the giving of time by the WBPDC for the payment thereof or in enforcing performance by the Contractor of the terms and conditions of the said contract shall in no way relieve the Bank of its liability under this deed.

6. Notwithstanding anything stated above, the Bank's liability under this guarantee is restricted to Rs..... (Rupees ..... only.) and shall remain binding upto and including ..... Unless a suit or an action is filed against the Bank within Six month from the said date all rights of the WBPDC under this agreement shall be forfeited and the Bank shall be released and discharged from all its liabilities hereunder.

IN WITNESS WHEREOF the Bank has executed these presents the day, month and year first above written.



## CONTRACT AGREEMENT FORM

ARTICLES OF AGREEMENT made this ..... day of..... Two Thousand Thirteen between THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED (A Government of West Bengal Enterprise) incorporated under the Companies Act, 1956 having its Registered office at Bidyut Unnayan Bhaban,3/C, LA Block, Bidhannagar, Sector –III, Kolkata – 700 098 hereinafter referred to as “WBPDC” (which expression shall unless excluded by or repugnant to the context be deemed to include its successors and assigns) of the One Part; and hereinafter referred to as the “Contractor” (which expression shall unless excluded by or repugnant to the context be deemed to include his hers, executors, administrators, representatives and assigns) of the Other Part.

WHEREAS WBPDC invited Tenders to be submitted for ..... mentioned in the Tender Documents submitted by the Contractor as laid down in Annexure ‘A’ attached.

AND WHEREAS in pursuance of such invitation for tenders the Contractor submitted a tender as a Annexure ‘A’.

AND WHEREAS one of the conditions embodied in the Tender submitted by the Contractor and accepted by WBPDC was that Contractor upon acceptance of his Tender shall enter into an Agreement with WBPDC and shall deposit the sum of Rs..... (Rupees .....only) in a manner mentioned in the said Tender as in Annexure ‘A’ duly endorsed in favour of WBPDC for the due observance, fulfillment and performance by the Contractor of the terms, conditions and covenants on the part of the Contractor mentioned in the said Tender so accepted by WBPDC as in Annexure ‘A’.

And Whereas WBPDC has called upon the Contractor to execute the presents.

WITNESSETH AND IT IS HEREBY AGREED AS FOLLOWS:

1. That the contractor shall duly and faithfully fulfill, observe and perform the terms, conditions and covenants embodied in the said Tender submitted by the contractor and duly accepted by WBPDC as laid down in Annexure ‘A’ attached.
2. The upon the Contractor duly and faithfully fulfilling, observing and performing all the terms, conditions and covenants on the part of the Contractor contained in the said tender submitted by the contractor and accepted by WBPDC and WBPDC shall pay to the



Contractor the costs and charges payable to the Contractor under the terms and conditions of the said Tender.

IN WITNESS WHEREOF the parties to these presents have hereunto set and subscribed their respective hands and seals the day month and year first above written.

SIGNED AND DELIVERED for and on behalf of  
The West Bengal Power Development  
Corporation Limited.

In the presence of

SIGNED AND DELIVERED by the Contractor

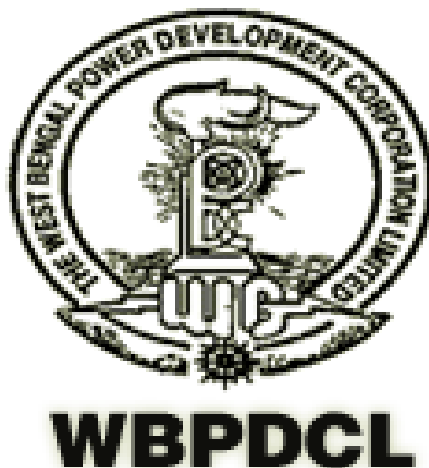
In the presence of

SECTION - 3

THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED

Civil, Structural and Architectural Works

**General Conditions of Contract**





The West Bengal Power Development Corporation Limited

## Civil, Structural and Architectural Works

### **GENERAL CONDITION OF CONTRACTS**

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## THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED

# Civil, Structural and Architectural Works

### GENERAL CONDITION OF CONTRACT

#### **1.00 APPLICATION**

Unless otherwise provided for in the Contract Documents, these General Conditions shall apply to the work of all sections of the Specifications attached herewith.

#### **2.00 DEFINITIONS AND INTERPRETATIONS:**

##### **a) Owner / WBPDC:**

The Owner is The West Bengal Power Development Corporation Limited (A Government of West Bengal Enterprise) incorporated under the Companies Act, 1956, having its Registered Office at Bidyut Unnayan Bhaban, 3/C LA Block, Bidhannagar, Sector –III, Kolkata – 700 098, hereinafter referred to as “WBPDC” (which expression shall unless excluded by or repugnant to the context be deemed to include its successors and assigns) and referred to throughout in the Contract Documents by ‘Owner’ or WBPDC. The word ‘Owner’ or WBPDC when used in conjunction with the words ‘As directed’, ‘where directed’, ‘when directed’, ‘approved’, ‘subject to approval’, ‘satisfactory’, ‘accepted’, ‘equal to’, ‘proper’, ‘determined by’ shall mean the Chairman & Managing Director of the WBPDC or his authorised representatives.

##### **b) Engineer:**

The ‘Engineer’ means to Owner’s authorised Engineer in-charge for Civil, Structural and architectural design, planning, construction and supervision work to perform the duties set forth in this General conditions of Contract and other Contract Documents annexed hereto whose authority shall be noticed in writing to the contractor and to the Consultant by the Owner.

##### **c) Engineer’s Representative:**

The ‘Engineer’s Representative’ shall be the person nominated by the Engineer in writing to act on his behalf.

##### **d) Consulting Engineer:**

As may be determined by WBPDC time to time.

##### **e) Contractor:**

The Contractor is the successful Bidder who is awarded the Contract by the Owner to perform the works covered by the Contract and shall be deemed to include the Contractor’s successors, heirs, executors, administrators,

representatives or assigns approved by the Owner and will be referred to as if of masculine gender and singular number throughout in these Documents.

**f) Sub-Contractor:**

The term 'Sub-Contractor' used herein refers to a party or parties having a direct contract with the contractor to whom any part of the Contract has been sublet by the Contractor with the consent in writing of the Owner.

**g) Contract :**

'Contract' means the Notice Inviting Tenders, Conditions of Tendering, Tender Forms, General Conditions of Contract, Supplementary Conditions of Contract, Technical Specifications, Schedule of items, Letter of Acceptance, Contract Agreement and Drawings and any other document which may be included at the time of signing of the Contract Agreement.

**h) Drawings:**

'Drawings' means the Drawings referred to in the Contract and any modifications of such drawings approved in writing by the Engineer and such other Drawings as may from time to time be furnish or approved in writing by the Engineer.

**i) Work:**

'Work' means the work to be executed by the Contractor in accordance with Contract which has also been referred to as 'Contract Work'.

**j) Temporary Work :**

'Temporary Work' means all Temporary Work of every kind required in or about the execution, completion and maintenance of the works by the Contractor at their own cost and risk.

**k) Contract Price:**

'Contract Price' means the sum mentioned in the Tender subject to such additions thereto or deductions therefrom as may be under the provision hereinafter contained.

**l) Constructional Plant:**

'Constructional Plant' means all applications or things of whatsoever nature required in or about the execution, completion and maintenance of the Worker or Temporary Work by the Contractor at his own cost and risk (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.

**m) Month:**

'Month' shall mean the English Calendar Month.

**n) Terms of Approval, Judgment or Direction:**

When the 'Approved', 'subject to approval', 'satisfactory', 'equal to', 'as directed', 'where directed', 'when directed', 'determined by', 'accepted', 'permitted', etc. are used the approval, Judgment, direction etc implied is understood to be a function of the Engineer and / or the Owner and shall have the same effects as if performed by the Owner.

**o) Site:**

'Site' means the lands and other places on, under, in or through which, the works are to be executed or carried out and any other lands or places provided by the Owner for the purpose of the Contract.

**p) Specification:**

The 'Specification' shall mean the specification annexed to the General Conditions & Schedules attached thereto (if any) and modification thereof or addition thereto as may for time to time be furnished or approved in writing by the Engineer.

**q) Tests on completion:**

'Tests on Completion' shall mean suggested Tests, as are prescribed by the specification to be made by the Contractor before the building or works are taken over by the WBPDCCL.

**r) Writing:**

'Writing' shall include any manuscript, type-writing or printed statement, under or over signature or seal as the case may be.

**s) Work:**

'Work' shall mean the work to be executed in accordance with the contract.

**t) Department:**

'Department' or the Owner or WBPDCCL shall mean The West Bengal Power Development Corporation Limited.

**u) Singular and Plural:**

Words importing the singular only include the plural and vice versa where the context requires.

Terms & Expression not herein defined shall have the same meaning as are assigned to them in the Indian Sales of Goods act (No. 111 of 1950), failing that in the Indian Contract Act IX of 1872 and failing that in the General Clause Act, 1897.

### **3.00 EXTENT OF CONTRACT**

The Work to be performed under this Contract consists in providing by the Contractor within his quoted rates, all labour, materials, supervision, testing of materials & Work, Constructional Plant, equipments, supplies, transportation, to or from the site, fuel, electricity, compressed air, water and all Incidental items and "Temporary Work" not shown or specified but reasonably Implied or necessary for the proper completion, maintenance and handing over of the Work, except items specified to be furnished by the Owner or others, all in accordance with the stipulations laid down in the Contract Document and additional Drawings as may be provided by Engineer during the course of Work.

### **4.00 CONTRACT DOCUMENTS**

#### **4.01 Ambiguity in Documents:**

The several Documents forming the Contract are to be taken as mutually explanatory of one another and in case of ambiguities or discrepancies; the same shall be explained and adjusted by the Engineer who shall thereupon issue to the Contractor instructions directing in what manner the Work is to be carried out. Provided always that if in the opinion of the Engineer, compliance with any such instructions shall involve the Contractor in any expense which by reason of any such ambiguity or discrepancy the Contractor did not and had reason not to anticipate, the Engineer shall certify, and the Owner shall pay such additional sum as may be reasonable to cover such expense.

#### **4.02 Supply & Custody of Drawings & Specifications:**

The Drawings and specifications shall remain in the sole custody of the Engineer but two copies thereof shall be furnished to the Contractor free of cost. The Contractor shall provide and make at his own expense any further copies required by him.

#### **4.03 Requisitions for Drawings and / or Specifications:**

The Contractor shall give adequate notice in writing to the Engineer for any further Drawings or Specifications that may be required for the execution of the Work or otherwise under the Contract.

#### **4.04 Drawings to be made available at site:**

One copy of the Drawings furnished to the Contractor as aforesaid shall be kept by the Contractor at the Site and the same shall at all reasonable times be available for inspection and used by the Engineer and the Engineer's Representative and by any other person authorised by the Engineer in writing.



**4.05 Additional Drawings:**

The Engineer shall have full Power and authority to supply to the Contractor from time to time during the progress of the Work such further Drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the work the Contractor shall carry out and be bound by the same.

**5.00 GENERAL REQUIRMENTS**

**5.01 Contractor to execute Agreement:**

The Contractor shall when called upon so to do enter into and execute a Contract Agreement in the Form annexed to Section-3 with such modifications as may be agreed upon.

**5.02 Contractor to visit Site before submission of Tender:**

The Contractor must satisfy himself and shall be deemed to have satisfied himself by local inspection and inspection of records and other materials as to the natural features of the ground, the quantities and nature of Work and materials necessary for the entire completion of the contract and the means of access to the Work or other accommodation he may require or all other information as they may consider to be necessary.

If any information not given on the drawing indicating the condition of the ground or the material composing it, the depth of water to be met with, the means of access or any other such matter shall not relieve the Contractor from any risk or from the fulfillments of his contract in every particular, including such details and incidental works not particularly mentioned in the specification but which whether in the temporary or in the permanent Work, must evidently be required by the Work included in the contract.

**5.03 Correctness and sufficiency of rates quoted in the Tender:**

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his Tender for the Work and of the rates and prices stated in the Schedule of items which rates and prices shall (except in so far as it is hereinafter otherwise provided) cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the Work.

**5.04 Contractor shall execute, complete and maintain the Work as per directions of the Engineer:**

Save in so far as it is legally or physically impossible the Contractor shall execute, complete and maintain the Work in strict accordance with the Contract to the satisfaction of the Engineer and shall comply with and adhere strictly to the Engineer's instructions

and the directions on any matters whether mentioned in the Contract or not. The Contractor shall take instructions and directions only from the Engineer or from the Engineer's Representative unless otherwise provided for in the Contract.

**5.05 Contract to submit Programme:**

After the acceptance of his Tender the Contractor shall submit within 15 days to the Engineer for his approval a programme showing the order of procedure and method in which he proposes to carry out the Work and shall whenever required by the Engineer furnish for his information particulars in writing of the Contractor's arrangements for the carrying out of the work and of the Constructional Plant and Temporary works which the Contractor intends to supply, use or construct as the case may be. The submission to and approval by the Engineer of such programme or the furnishing of such particulars shall not relieve the Contractor of any of his duties or responsibilities under the Contract.

**5.05 Contractor's Site Staff:**

The Contractor shall give or provide all necessary superintendence during the execution of the works and as long thereafter as the Engineer may consider necessary. The Contractor or a competent and authorised agent or representative approved of in writing by the Engineer (which approval may at any time be withdrawn) is to be constantly on the works and shall give his whole time to the superintendence of the same. Such authorised agent or representative shall receive on behalf of the Contractor directions and instructions from the Engineer or the Engineer's Representative.

**5.07 Removal of persons employed on site:**

The Contractor shall employ in and about the execution of the works only such persons as are careful, skilled and experienced in their several trades and callings and the Engineer shall be at liberty to object to and require the Contractor to remove from the site any person employed by the Contractor in or about the execution of the works who in the opinion of the Engineer misconducts himself or is incompetent or negligent in the proper performance of his duties and such persons shall not be again employed upon the works without the permission of the Engineer.

**5.08 Setting out:**

The Contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the positions, levels, dimensions and alignments of all parts of the works and for the provision of all necessary survey grid-pillars and bench-marks, instruments, appliance and labour in connection therewith. If at any time during the progress of the works any error shall appear or arise in the positions, levels, dimensions or alignments of any part of the Work the contractor on being required so to do by the Engineer shall at his own expense rectify such errors to the satisfaction of the Engineer

unless such errors are based on incorrect data supplied in writing by the Engineer or the Engineers Representative in which case the expense of rectifying the same shall be borne by the Owner. The checking of any setting out or of any line or level by the Engineer or the Engineer's Representative shall not in any way relieve the Contractor of his responsibility for the corrections thereof and the Contractor shall carefully protect and preserve all survey grid-pillars, bench-marks, site-rails, pegs and other things used in setting out the Works.

**5.09 Exploratory bore holes and excavations:**

If at any time during the execution of the works the Engineer shall require the Contractor to make bore holes or to carry out exploratory excavations such requirement shall be ordered in writing and shall be deemed to be an addition ordered under the provisions of the contract.

**5.10 Protection of Works:**

The Contractor shall in connection with the Work provide and maintain at his own cost all lights, guards, fencing and watching when and where necessary or required by the Engineer or by any competent statutory or other authority for the protection of the Work or for the safety and convenience of the public or others.

**5.11 Care or Works:**

From the commencement to the completion of the work, the Contractor shall take full responsibility for the care thereof and of all Temporary works and in case any damage, loss or injury shall happen to the Work or to any part thereof or to any Temporary Work from any cause whatsoever (save and except the "excepted risks" as defined hereinafter) shall at his own cost repair and make good the same so that on Completion the Work shall be in good order and condition and in conformity in every respect with requirements of the Contract and the Engineer's instructions. In the event of any such damage, loss or injury happening from any of the "excepted risks" the Contractor shall if and to the extent required by the Engineer and subject always to the provisions made hereof repair and make good the same as aforesaid at the cost of Owner but at the Schedule rates of the Contract for the similar items of work. If similar items are not available from the schedule of Items of the Contract then the rates may be analysed as per current State PWD Schedule of Rates, applicable to the area at the time of tendering to the works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations as provided for in the Contract.

**5.12 Excepted Risk :**

The "Excepted Risks" are riot (in so far as it is uninsurable) war (whether war be declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion, revolution,

insurrection or military or usurped power or any operation of forces of nature as an experienced contractor could not foresee or reasonably make provision for or insure, against all of which are herein collectively referred to as "The Excepted Risk".

**5.13 Insurance for Works, materials and Plant:**

Without limiting his obligations and responsibilities provided herein, the Contractor shall insure in the joint names of the Owner and the Contractor against all loss or damage from whatever cause arising (other than the "excepted risks") for which he is responsible under the terms of the Contract and in such manner that the Owner and the Contractor are covered during the period of construction of the Works and are also covered during the period of Maintenance for loss or damage arising from a cause, occurring prior to the commencement of the Period of Maintenance and for any loss or damage occasioned by the Contractor in the course of any operation carried out by him for the purpose of complying with his obligation.

- a) The Works and the Temporary Works to the full value of such Works executed from time to time.
- b) The materials, Constructional Plant and other things brought or, on the site by the Contractor to the full value of such materials, Constructional Plant and other things.

Such insurance shall be effected with an insurer and in terms approved by the Owner (which approval shall not be unreasonably withheld) and the Contractor shall whenever required produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

**5.14 Limitation of liability for damage and injury :**

The Contractor shall take every practicable precaution not to damage or injure any adjoining or other properties or any persons. He shall (except if and so far as the Contract provides otherwise) indemnify and keep indemnified the Owner against all claims for injuries or damage to any person or any such property whatsoever (including surface or other damage to land being or crops being on the Site suffered by tenants or occupiers) which may arise out of or in consequence of the construction and maintenance of the works and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto. Provided always that nothing herein contained shall be deemed to render the Contractor liable for or in respect of or to indemnify the Owner against any Compensation or damages for or with respect to:

- a) the permanent use or occupation of land by the Works or any part thereof (save in respect of damage to crops as aforesaid).

- b) the right of the Owner is to construct the Works or any part thereof on, over, under, in or through any land.
- c) interference whether temporary or permanent with any right of light, air, way or water or other easement or quasi-easement which is the unavoidable result of the construction of the Works In accordance with the Contract.
- d) injuries or damages to persons or property resulting from any act or neglect of the Owner, his agents, servants or other contractors (not being employed by the Contractor) or for or in respect of any claims, demands, proceedings, damages costs, charges and expenses in respect thereof or in relation thereto.

The Owner will save harmless and indemnify the Contractor from and against all claims, demands, proceedings, damages, costs, charges and expenses in respect of the matter referred to in the provision aforesaid in this Sub-Clause.

**5.15 Insurance for Public Liability and Property Damage:**

Upon the execution of the Contract the Contractor (but without limiting his obligations and responsibilities stated hereof) shall insure in the joint names of the Contractor and Owner against any damage, loss or injury which may occur at any adjoining or other property or to any person by or arising out of the execution of the Works or Temporary Works or in the carrying out of the Contract otherwise than due to the matters referred to in the provision of Sub-Clause 5.14 hereof.

Such insurance shall be effected with an insurer and in terms approved by the Owner (which approval shall not be unreasonably withheld) and for at least the amount sufficient to cover any claim that may arise and the Contractor shall whenever required produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

The Owner shall have the right at any time to increase the limits / liability of Public Liability insurance and Property Damage / insurance than those specified by the Contractor, in which event the extra premium money to be paid shall be reimbursed by the Owner.

**5.16 Contractor shall indemnify Owner against Workmen's Compensation:**

The Owner shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any person or material or physical damage to any property whatsoever save and except an accident or injury, resulting from any act or default of the Owner, his agents or servants and the Contractor shall indemnify and keep indemnified the Owner against all such damages and compensation (save and except as aforesaid) and against all claims, demands,

proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

**5.17 Insurance for Workmen's compensation:**

The contractor shall insure such liability with an insurer approved by the Owner (which approval shall not be unreasonably withheld) and shall continue such insurance during the whole of the time that any persons are employed by him on the Works and shall when required, produce to the Engineer, such policy or policies of insurance and the receipt for payment of the current premium. Provided always that in respect of any persons employed by any Sub-Contractor, the Contractor's obligation to insure as aforesaid under the Sub-Clause shall be satisfied if the Sub-Contractor shall have insured against the liability in respect of such persons in such manner that the Owner is indemnified under the policy but the Contractor shall require such Sub-Contractor to produce to the Engineer when required such policy or policies of insurance and the receipt for payment of the current premium.

**5.18 Failure to keep in force the Insurance:**

If the Contractor shall fail to effect and keep in force the insurance referred to above or any other insurance which he may be required to effect under the terms of the Contract, then and in any such case the Owner may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the Owner as aforesaid from any money due or which may become due to the contractor or recover the same as a debt due from the Contractor.

**5.19 Notice and payment of fees:**

The Contractor shall give all notices and pay all fees required to be given or paid by any Act of Parliament or any reputation or bye-law of any local or other statutory authority in relation to the execution of the Works or of any Temporary Works and by the rules and regulations of all public bodies and companies whose property or rights are or may be affected in any way by the Works or any Temporary Works. The Contractor shall conform in all respect with the provisions of any general or local Act of Parliament and the regulations or bye-law of any local or other statutory authority which may be applicable to the Works or to any Temporary Works and with such rules and regulations of public bodies and companies as aforesaid and shall keep the owner indemnified against all penalties and liabilities of every kind for breach of any such Act, regulation or bye-law.

**5.20 Ownership articles of value discovered it Site:**

All fossils, coins, articles of value of antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site shall as between the

Owner and the Contractor be deemed to be the absolute property of the Owner and the Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and, before removal, acquaint the Engineer of such discovery and carry out, at the expense of the Owner, the Engineer's orders as to the disposal of the same.

**5.21 Patent rights, Royalties:**

The Contractor shall save harmless and indemnify the Owner from and against all claims and proceedings for or on account of infringement of any patent rights, design, trade mark or name or other protected rights in respect of any Constructional Plant, equipment, Work or material used for or in connection with the Works or Temporary Work or any of them and from and against all claims, demand, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. Except where otherwise specified, the contractor shall pay all tonnage and other royalties, rent and other payments or compensation (if any) for getting stone, sand, gravel, day or other materials required for the Work or Temporary Work of any of them.

**5.22 Convenience of public:**

All operations necessary for the execution of the Work and for the Construction of any Temporary Work shall, so far as compliance with the requirements of the Contract permits, be carried on so as not to interfere unnecessarily or improperly with the public convenience of the access to use and occupation of public or private roads & footpaths or to or of properties whether in the possession of the Owner or of any other person & the Contractor shall save harmless and indemnify the Owner in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matter.

**5.23 Prevention of extraordinary traffic and protection of highway:**

The Contractor shall use every reasonable means to prevent any of the highway or bridges communicating with or on the site from being subject to extraordinary traffic by any traffic of the Contractor or any of his Sub-Contractors and, in particular, shall select routes choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of plant and material from and to the site shall be limited as far as reasonably possible, and so that no unnecessary damage or injury may be occasioned to such highways and bridges. Should it be found necessary for the Contractor to move on or more loads of Constructional Plant, machinery or pre-constructed units or parts of units of work over part of a highway or bridge and that the moving of such load must in all probability damage, the highway or bridge unless means of protection or strengthening are carried out, then the Contractor

shall before moving the load on to such highway or bridge give notice to the Engineer of the Weight and other particulars of the load to be moved and his proposals for protecting or strengthening the said highway or bridge.

**5.24 Facilities for other contractors:**

The Contractor shall, in accordance with the requirements of the Engineer afford all reasonable facilities for any other contractors employed by the Owner and their workmen and for the workmen of the Owner and of any other properly authorised authorities or statutory bodies who may be employed in the execution on or near the Site of any Work not included in the contract or of any contract which the Owner may enter into in connection with or ancillary to the Works.

**5.25 Clearing Site on completion:**

On completion of the Works the Contractor shall clear away and remove from the Site all Constructional Plant, surplus materials, rubbish and Temporary Works of every kind and leave the whole of the Site and the Works clean and in a workmanlike condition to the satisfaction of the Engineer.

**5.26 Taxes and Duties:**

All taxes including works contract tax shall be included in the rates quoted by the bidder.

**6.00 LABOUR**

**6.01 Wages and Conditions of labour:**

The Contractor shall pay rates of Wages and observe hours and conditions labour (local unskilled works not less favourable than those established for the trade or industries in the district where the work is carried out by machinery of negotiation or arbitration to which the parties are organizations of employers and trade unions representatives respectively of substantial proportions of the employers and workers engaged in the trade or industry in the district. In the absence of any rates of Wages, hours or conditions of labour so established, the Contractor shall pay rates of wages and observe hours and conditions of labour which are not less favourable than the general level of Wages hours and conditions observed by other Contractors whose general circumstances in the trade or Industry in which the Contractor is engaged, are similar.

**6.02 Labour License:**

The Contractor will have to obtain Labour License from the appropriate authority as per prevalent labour laws / regulations and to identify the owner (WBPDCL) as Principal Employer against any financial or other obligations arising out of labourers / workers, employed by the Contractor. On obtaining such Certificate at the appropriate time, the contractor will have to submit an attested Xerox copy of the same to the Engineer-in-Charge of the Work.



**6.03 Contractor to certify the compliance with Wages and Conditions of labour:**

The Contractor shall in respect of all persons employed by him (whether in the execution of the Contract or otherwise) in every factory/ workshop or place used by him for the execution of the Contract comply with the provisions of Sub-Clause 6.01 aforesaid and if required by the Owner shall, before entering into the Contract, certify, that to the best of his knowledge and belief he has complied with the provisions of Sub-clause 6.01 aforesaid for the three months immediately preceding the date of submission of the Contractor's Tender.

**6.04 Contractor to furnish return of labour employed:**

The Contractor shall, if required by the Engineer, deliver to the Engineer or to his office a return in such form and at such Intervals as the Engineer may prescribe showing in detail the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such Information in respect of Constructional Plant as the Engineer may require.

**6.05 Other obligations of the contractor towards labour:**

- a) The Contractor shall make his own arrangements for the engagement of all labour, local or otherwise, and save in so far as the Contract otherwise provides, for the transport, housing, feeding and payment thereof.
- b) The Contractor shall, so far as is reasonably practicable, having regard to local conditions, provide on the site, to the satisfaction of the Engineer's Representative, adequate supply of drinking and other water for the use of the Contractor's staff and work people.
- c) The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulations or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor, or drugs, or permit or suffer any, such importation sale, gift, barter or disposal by his sub-contractors, agents or employees.
- d) The Contractor shall not give, barter or otherwise dispose of to any person or persons, any arms or ammunition of any kind or permit or suffer the same as aforesaid.
- e) The Contractor shall in all dealings with labour in his employment have a due regard to all recognized festivals, days or rest and religious or other customs.
- f) In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations orders and requirements as may be made by the Government, or the local medical or sanitary authorities for the purpose of dealing with and overcoming the same.

- g) The Contractor shall at all times take all reasonable precautions to prevent any unlawful riotous or disorderly conduct by or amongst his employees and for the preservation of peace and protection of persons and property in the neighbourhood of the Works against the same.
- h) The Contractor shall be responsible for observance by his sub-contractors of the foregoing provision.

**7.00 WORK MATERIALS AND PLANT:**

**7.01 Materials, Workmanship & Trades:**

All materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the Engineers instruction and shall be subjected from time to time to such tests as stipulated in the technical specification and as the Engineer may direct at the place of manufacture or fabrication or on the Site or at all or any of such places. The Contractor shall provide 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 and shall supply samples of materials before incorporation in the Works for testing as may be selected and required by the Engineer. The Contractor shall establish at site testing facilities adequate for the above purpose.

**7.02 Contractor to supply samples:**

The Contractor shall carry out tests of materials of finished work as stipulated in the technical specification and as the Engineer in writing may require and shall supply free of cost, samples necessary for this purpose. Unless an item-rate is provided in the Schedule of items for such tests, the cost incurred in this respect shall be borne by the Contractor.

**7.03 Owner's access to the Work:**

The Owner, the Engineer and any person authorised by them shall at all times have access to the Work and to the Site and to all Workshops and places where Work is being prepared or whence materials, manufactured articles and machinery are being obtained for the Work and the Contractor shall afford every facility for and every assistance in or in obtaining the right to such access.

**7.04 Examination of the Works:**

No Work shall be covered up or put out of view without the approval of the Engineer and the Contractor shall afford full opportunity for the Engineer or his authorised representatives to examine and measure any Work which is about to be covered up or put out of view & to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer whenever any such work or foundations is or are ready or about to be ready for and the Engineer shall, without unreasonable delay, unless he

considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work or of examining such foundations. The contractor shall uncover any part or parts of the works or make openings in or through the same as the Engineer may from time to time direct and shall reinstate and make good such part or parts to the satisfaction of the Engineer. If any such part or parts have been covered up or put out of view after compliance with the requirements of this Sub-Clause and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating and making good the same shall be borne by the Owner but in any other case all the such expenses shall be borne by the Contractor and shall be recoverable from him by the Owner or may be deducted by the Owner from any money due or which may become due to the Contractor.

**7.05 Removal of improper work and material:**

The Engineer shall during the progress of the Works have power to order in writing from time to time.

- a) the removal from the Site within such time or times as may be specified in the Contract, of any, materials which in the opinion of the Engineer are not in accordance with the Contract.
- b) the substitution of proper and suitable materials and
- c) the removal and proper re-execution (notwithstanding any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not, in the opinion of the Engineer, in accordance with the Contract. In case of default on the Part of the Contractor in carrying out such order, the Owner shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Owner or may be deducted by the Owner from any money due or which may become due to the Contractor.

**7.06 Suspension of Work :**

The Contractor shall, on the Written Order of the Engineer suspend the Progress of the Works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the Works so far as is notice in writing to the Engineer. The Owner will, from time to time as the Work proceed, give to the Contractor possession of such further portion necessary in the opinion of the Engineer. The extra cost (if any) incurred by the Contractor in giving effect to the Engineer's instruction under this sub-Clause shall be borne and paid by the Owner, provided it is justified and accepted by the Owner unless suspension is –

- a) otherwise provided for in the Contract.
- b) necessary for the proper execution of the Works by reasons of weather conditions or by some default on the part of the Contractor.
- c) necessary for the safety of the works or any part thereof. Provided that the Contractor shall not be entitled to recover any such extra cost unless he gives notice in writing of his intention to claim to the Engineer within one month of the Engineer's order. The Engineer shall settle and determine the extra payment to be made to the Contractor in respect of such claim, as the Engineer shall consider fair and reasonable.

## **8.00 COMMENCEMENT TIME AND DELAYS :**

### **8.01 Commencement of work :**

The Contractor shall commence the works on site after receipt by him of a written order to this effect from the Engineer and shall proceed with the same with due expedition and without delay, except as may be expressly sanctioned or ordered by the Engineer. The Contractor shall not be given possession of any site for commencement of execution of the works unless initial security money, as per provision under CL 13.02 has been deposited by the Contractor.

### **8.02 Possession of Site:**

Save in so far as the Contract may prescribe the extent of portions of the Site of which the Contractor is to be given possession from time to time and the order in which such portions shall be made available to him and subject to any requirement in the contract as to the order in which the works shall be executed. The Owner will, with the Engineer's written order to commence the Works, give to the Contractor possession of so much of the Site as may be required to enable the Contractor to commence and proceed with the construction of the Works in accordance with the programme referred under Cl.No.5.05 & otherwise in accordance with such reasonable proposals of the Contractor as he shall make by notice in writing to the Engineer. The Owner will, from time to time as the Work proceed, give to the Contractor possession of such further portion of the Site as may be required to enable the contractor to proceed with the construction of the Works with due despatch in accordance with the said programme or proposals, as the case may be. If the Contractor suffers delay from failure on the part of the Owner to give possession in accordance with the terms of this clause, the Engineer shall grant a reasonable extension of time for the completion of the Work.

### **8.03 Temporary Way-leaves :**

The Contractor shall bear all expenses and charges for special or temporary way-leaves required by him in connection with access to the Site. A general network of road broadly

covering the entire site shall be provided by Owner. Additional access roads, if required, shall be provided by the Contractor. The Contractor shall also provide at his own cost any additional accommodation outside the site required by him for the purposes of the Works.

#### **8.04 Completion time :**

Subject to any requirement under the Contract as to completion of any portion of the Works before completion of the whole of the Works, the whole of the Works shall be completed within the time stated in the Tender calculated from the date of the Engineer's written order to commence the Works or such extended time as may be allowed under the Contract.

All works under the Contract must be completed by the time stated in the Tender with portions of Work as per programme settled in consultation with the Engineer shall be completed by the date stipulated in the said programme. It is to be noted that time is the essence of the Contract and in the Case of any default on the part of the Contractor to complete the work within the stipulated date / dates aforesaid or within the time as may be extended in writing by the Engineer, subject to payment of liquidated damages, WBPDC shall have the right, without prejudice to any other clauses, to terminate the contract forthwith and to take possession of the balance work / materials and have the same allotted to any other agency and the contractor shall be liable to compensate the loss that may be occasioned to WBPDC on that account.. Any letter in writing by the Engineer shall be treated as conclusive.

#### **8:05 Extension of Time :**

The Engineer may consider for granting extension of time if the be delayed by any of the following reasons :

- a) Excepted Risks as elaborated in Cl.No.5.12 of GCC.
- b) Extra or additional work of any kind.
- c) Delay on the part of other contractors or tradesmen engaged by WBPDC in executing work not forming part of the Contract.
- d) Any other valid & justifiable reason.

The Engineer shall determine the amount of such extension, provided that the Engineer is not bound to take into account any extra additional work or other special circumstances unless the Contractor has within one month after such work has been commenced or such circumstances have arisen or as soon thereafter as is practicable, delivered to the Engineer full and detailed particulars of any claim to extension of time to which he may consider himself in order that such claim may be investigated in time.

**8.06 Night any Holiday work:**

Subject to any provision to the contrary contained in the Contract, none of the permanent work shall, save as hereinafter provided, be carried on during the night or on Sundays or other holidays without the permission in writing of the Engineer save & except when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the Work, in which case the Contractor, shall immediately advise the Engineer or Engineer's Representative, provided always that the provisions of this sub-Clause shall not be applicable in the case of any work which it is customary to carry out by rotation of double shifts. The whole of the materials, plant and labour to be provided by the contractor in night and holiday work under the Sub-Clause and the mode, manner and speed of execution and maintenance of the Works are to be of a kind and conducted in manner approved of by the Engineer. Should the rate of progress of the works or any part thereof be at any time, In the opinion of the Engineer, is too slow to ensure the completion of the Work by the prescribed time or extended time for completion, the Engineer shall so notify the Contractor in writing and the Contractor shall thereupon take such steps as the Contractor may think necessary and the Engineer approve to expedite progress so as to complete the Work by the prescribed time or extended time for completion. If the Work is not being carried on by day and by night and the Contractor shall request permission to work by night as well as by day on Sundays and other holidays then, if the Engineer shall grant such permission the Contractor shall not be entitled to any additional payment for so doing but if such permission shall be refused and there shall be no equivalent practicable method of expediting the progress of the work the time for completion of the Works shall be extended by the Engineer by such period as is solely attributable to such refusal. All work at night shall be carried out without unreasonable noise and disturbance. The Contractor shall indemnify the Owner from and against any liability for damages on account of noise or other disturbance created while carrying out the work and from the against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in regard or in relation to such liability.

**8.07 Liquidated Damages:**

If the Contractor shall fail to complete the works within the time prescribed herein or extended time for completion, then the Contractor shall pay to the Owner a Sum amounting to half percent ( $\frac{1}{2}\%$ ) of the value of the Works as liquidated damages for such default and not as a penalty, for every week or part of a week which shall elapse between the time prescribed or extended time as the case may be and the date of completion of the Works subject to a maximum of ten percent (10%) of the total Contract Price. The Owner may, without prejudice to any other method of recovery, deduct the amount of

such damages from any money in his hands, due or which may become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works, or from any other of his obligations and liabilities under the Contract. If, before the completion of the whole of the Works, any part of the Works has been certified by the Engineer as completed, pursuant to here-mentioned Sub-Clause 8.08 and occupied or used by the Owner, the liquidated damages shall, for any period of delay after such certification, be reduced in the proportion which the value of the part so certified bears to the of the whole of the Works.

**8.08 Completion Certificate :**

As soon as in the opinion of the Engineer, the Work shall have been substantially completed and shall have satisfactorily passed any final test that may be prescribed by the Contract, the Engineer, shall on receiving a written undertaking by the Contractor to finish any outstanding work during the Period of Maintenance, issue a certificate of completion in respect of the Work and the period of maintenance of the Works shall commence from the date of such certificate. Provided that the Engineer may give such Certificate with respect to any part of the Works before the completion of the whole of the Works and shall give such certificate with respect to any substantial part of the Works which has been both completed to the satisfaction of the Engineer and occupied or used by the Owner and when any such Certificate is given in respect of a part of the Works, such part shall be considered as completed and the period of Maintenance of such part shall commence from the date of such Certificate.

**9.00 MAINTENANCE AND DEFECTS**

**9.01 Period of Maintenance:**

In these Conditions the expression "Period of Maintenance" shall mean the Period of Maintenance mentioned in the Contract calculated from the date of completion of the Works certified by the Engineer in accordance with the here-mentioned Sub-Clause 8.08 or in the event of more than one Certificate having been issued by the Engineer under the said sub-clause, from the respective dates so certified and in relation to the Period of Maintenance the expression "The Works" shall be construed accordingly.

**9.02 Maintenance and repair:**

To the intent that the Works shall at or as soon as practicable, after expiration of the Period of Maintenance be delivered to the Owner in as good and perfect a condition (fair wear and tear expected) to the satisfaction of the Engineer as that in which they were at the commencement of the Period of Maintenance, the Contractor shall execute all such

work of repair, amendment, reconstruction, rectification and making good of defects, imperfections, shrinkages or other faults as may be required of the Contractor as indicated in writing by the Engineer during the Period of Maintenance, or within fourteen days after its expiration, as a result of an inspection made by or on behalf of the Engineer prior to its expiration. All such work shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer be due to the use of materials or workmanship not in accordance with the Contract, or to neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor's part under the Contract. If, in the opinion of the Engineer, such necessity shall be due to any other cause, the value of such Work shall be ascertained and paid for as if it were additional work.

If the Contractor shall fail to do any such work as aforesaid required by the Engineer, the Owner shall be entitled to carry out such work by his own workmen or by other Contractors and if such work is executed which the Contractor should have carried out at the Contractor's own cost, the Owner shall be entitled to recover from the Contractor the cost thereof or may deduct the same from any money due or which may become due to the Contractor.

## **10.00 ALTERATIONS ADDITIONS AND OMISSIONS**

### **10.01 Power to order Variation:**

The Engineer shall make any variation of the form, quality or quantity of the Work or any part thereof that may in his opinion, be necessary and for that purpose or if for any other reason it shall in his opinion be desirable, he shall have the power to order the Contractor to do and the Contractor shall do any of the following :

- a) Increase or decrease the quantity of any work included in the Contract.
- b) Omit any such work.
- c) Change the character or quality or kind of any such work.
- d) Change the levels, lines, position and dimensions of any part of the Works and
- c) Execute additional work of any kind necessary for the completion of the Works.

and no such variation shall in any way vitiate or invalidate the Contract, but the value if any of all such variations shall be taken into account ascertaining the amount of the Contract Price and time of completion.

### **10.02 Variation to be carried out on written order:**

No such variation shall be made by the Contractor without an order in writing of the Engineer. Provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an order



given under this Clause, but is the result of the quantities exceeding or being less than those stated in the Schedule of items. Provided also that if for any reason the Engineer shall consider it desirable to give any such order verbally, the Contractor shall comply with such order and any confirmation in writing of such verbal order given by the Engineer, whether before or after the carrying out of the order, shall be deemed to be an order in writing within the meaning of this Clause. Provided further that if the Contractor shall within 15 days confirm in writing to the Engineer any verbal order of the Engineer and such confirmation shall not be contradicted in writing by the Engineer within 14 days of receipt thereof, it shall be deemed to be an order in writing by the Engineer.

**10.03 Adjustment to Contract Price:**

The Engineer shall determine the amount (if any) to be added to or deducted from the Contract Price in respect of any extra or additional work done or work omitted by his order. All such work shall be valued at the rates set out in the Contract if in the opinion of the Engineer, the same shall be applicable. If the Contract shall not contain any rates applicable to the extra or additional work, the rate may then be analysed as per State PWD Schedule of Rates applicable to the area at the time of tendering. When PWD rate is not available then the extra rate shall be arrived at by actual cost of labour, machineries and material involvement.

**10.04 Day work Schedule:**

The Engineer may, if, in his opinion it is necessary or desirable, order in writing that any additional or substituted work shall be executed on a day work basis, the Contractor shall then be paid for such work under the conditions set out in the Day-Work Schedule included in the Schedule of items and at the rates and prices affixed thereto by him in his Tender and failing the provision of a Day-Work Schedule, he shall be paid at the rates and prices under the conditions contained in a schedule of Day-Work considered reasonable by the Engineer.

**10.05 Contractor to furnish receipts & vouchers:**

The Contractor shall furnish to the Engineer such receipts or other Vouchers as may be necessary to prove the amounts paid and before ordering materials shall submit to the Engineer quotations for file same for his approval.

**10.06 Contractor to maintain & furnish list of all workmen employed on day-work basis and materials consumed:**

In respect of all work executed on a day-work basis, the Contractor shall during the continuance of such work, deliver each day to the Engineer, an exact list in duplicate of the names, occupations and time of all workmen employed on such work and a statement also in duplicate showing the description and quantity of all materials and plant used

thereon or therefor. One day of each list and statement will, if correct or when agreed, be signed by the Engineer and returned to the Contractor. At the end of each month, the Contractor shall deliver to the Engineer periodical statement of the labour, material and plant (except as aforesaid) used and the Contractor shall not be entitled to any payment unless such lists and statements have been fully and punctually rendered. Provided always that if, the Engineer shall consider that for any reason, the sending of such list or statement by the Contractor in accordance with the foregoing provision was impracticable he shall nevertheless be entitled to authorize payment for such work whether as day-work (on being satisfied as to the time employed and plant and materials used on such work) or at such value therefor as he shall consider fair and reasonable.

**10.07 Contractor to furnish monthly account of extra work:**

The contractor shall send to the Engineer, once in every month, an account giving full and detailed particulars of all claims for any additional expenses to which the Contractor may consider himself entitled to arise from all extra or additional work ordered by the Engineer, which he has executed during the preceding month and no claim for payment of any such work will be considered which has not been included in such particulars. Provided always the Engineer shall be entitled to authorize payment to be made for any such work, notwithstanding the Contractor's failure to comply with this conditions, if the Contractor has at the earliest practicable opportunity notified the Engineer in writing that he intends to make a claim for such work.

**11.00 PROPERTY IN MATERIALS AND PLANT**

**11.01 Owner's property:**

All Constructional Plant, Temporary Works and materials provided by the Contractor shall, when brought on to the Site, immediately be deemed to be exclusively intended for the execution of Works and the Contractor shall not remove the same or any part thereof, without the consent, in writing, of the Engineer, which shall not be unreasonably withheld. But the Owner will permit the Contractor to use all such Constructional Plant, Temporary Works and materials in and for the completion of the Works until the happening of any event which gives rights to the Owner to exclude the Contractor from the site and proceed with the completion of the Works.

**11.02 Removal of Plant, Temporary works and materials:**

Upon the removal of any such Constructional Plant, Temporary Works or materials, with consent as aforesaid, the same shall be deemed to revert in and become the property of the Contractor and upon completion of the Works the remainder of the said Constructional Plant and Temporary Works and any used material provided by the Contractor shall be deemed to revert in and become the property of the Contractor who

shall remove the same. If the Contractor fails to remove any of the said Constructional Plant, Temporary Works or unused materials within such reasonable times after the completion of the Works as may be allowed 'by the Engineer, then the Owner may sell the same and shall, after deduction from the proceeds, the costs, charges and expenses of and in connection with such sale, pay the balance (if any) to the Contractor.

**11.03 Owner not liable to loss or damage:**

The Owner shall not at any time be liable for the loss or damage to any of the said Constructional Plant, Temporary Works or materials save as mentioned above.

**11.04 Engineer's right to reject materials etc. :**

The operation of the last preceding Sub-Clause of the Clause shall not be deemed to imply any approval by the Engineer of the materials or other matters referred to therein nor shall it prevent the rejection of any such materials at any time by the Engineer.

**12.00 MEASUREMENT**

**12.01 Quantities are estimated only:**

The quantities set out in the schedule of items are the estimated quantities of the Work, but they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor in fulfillment of his obligations under the Contract.

**12.02 Contractor to assist in measurement:**

The Engineer shall, except as otherwise stated, ascertain and determine by measurement the value of work done in accordance with the Contract. He shall, when he requires any part or parts of the Work to be measured, give notice to the Contractor, who shall forthwith attend or send a qualified agent to assist the Engineer or the Engineer's Representative in making such measurement, and shall furnish all particulars required by either of them. Should the Contractor not attend, or neglect or omit to send such agent, then the measurement made by the Engineer or approved by him shall be taken to be the correct measurement of the Works.

Except, where any general or detailed description of work in the Schedule of items expressly shows to the contrary, all measurements shall be made according to the procedure set forth by the Engineer.

**13.00 CERTIFICATE AND PAYMENT**

**13.01 Submission of Bills:**

The Contractor shall submit to the Engineer, after the end of each month, a statement showing the estimated value of the permanent work executed upto the end of the month (if such value shall justify the issue of an interim certificate) based on the priced schedule of items, and the Contractor will be paid monthly or achievement of sufficient progress of work, on the certificate of the Engineer, the amount due to him on account of the

permanent work executed up to the end of the previous month, subject to a retention of the percentage mentioned in the Contract, until the amount shall reach the limit of “Total security Money” .

**13.02 Initial security money, Total security money and refund of Total security money:**

Contractor has to deposit an Initial Security Money by Demand Draft or BG which will constitute a part of Total Security Money. The Earnest money already deposited by the successful bidder by Demand Draft or BG will constitute a part of Initial Security Money. The Total Security Money is to be calculated subject to the maximum limit specified. The Balance security Money (Total minus Initial) is to be deducted from contractor's running account bills. Total Security Money will be refunded in stages after getting completion certificate from the Engineer.

**13.03 Refund of Total Security Money :**

As in tender document

**13.04 Payment of bills :**

Running Account bill shall be paid against sufficient progress of work certified by the Engineer concerned of The WBPDC.

**13.05 Engineer may withhold Certificate of Payment:**

The Engineer may, by any certificate, make any correction or modification in any previous certificate which shall have been issued by him and shall have power to withhold any certificate, if the Works of any part thereof are not being carried out to his satisfaction.

**13.06 Certificates of Payment shall not constitute Approval of Work:**

No certificate other than the Maintenance Certificate as referred to here shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the Contract or any part thereof or of the accuracy of any claim or demand made by the Contractor or of additional or varied work having been ordered by the Engineer nor shall any other certificate conclude or prejudice any of the power of the Engineer.

**13.07 Issue of Maintenance Certificate:**

The contract shall not be considered as completed until a Maintenance Certificate shall have been signed by Engineer and delivered to the Owner stating that the Works have been completed and maintained to his satisfaction. The Maintenance Certificate shall be given by the Engineer upon the expiration of the Period of Maintenance, or as soon thereafter as any works ordered during such period, shall have been completed to the satisfaction of the Engineer and full effect shall be given to this Sub-Clause, notwithstanding any previous entry on the Works or the taking possession, working or using thereof or any part thereof by the Owner. Provided always that the issue of the

Maintenance Certificate shall not be a condition precedent to payment to the contractor of the second half of the Security Money in accordance with the Sub-clause 13.02 stated hereof.

#### **14.00 REMEDIES AND POWERS**

##### **14.01 Owner's Power to take Possession :**

If the Contractor shall become bankrupt, or have a receiving order made against him or shall present his position in bankruptcy, or shall make an arrangement with or assignment in favour of his creditors, or shall agree to carry out the Contract under a committee of inspection of his creditors or, (being a corporation shall go into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or if the Contractor shall assign the Contract, without the consent in writing of the Owner first obtained, or shall have an execution levied on his goods or if the Engineer shall certify in writing to the Owner that in his opinion the Contractor :

- a) Has abandoned the Contract, or
- b) Without reasonable excuse has failed to commence the Works or has suspended the progress of the Works for 14 days after receiving from the Engineer written notice to proceed, or
- c) Has failed to proceed with the Works with due diligence, or
- d) Has failed to remove materials from the Site or to pull down and replace work for 14 days after receiving from the Engineer written notice that the said materials or work have been condemned and rejected by the Engineer under these conditions, or
- e) Is not executing the Works in accordance with the Contract or is persistently or flagrantly neglecting to carry out his obligations under the Contract, or
- f) Has, to the detriment of good workmanship, or in defiance of the Engineer's instruction, to the contrary sublet any part of the Contract

then the Owner may, after giving 7 day's notice in writing to the Contractor, enter upon the Site and the Works and expel the Contractor there from without thereby voiding the Contract or releasing the Contractor from any of his obligations or liabilities under the Contract, or affecting the rights and powers conferred on the Owner or the Engineer by the Contract, and may himself complete the Works or may employ any other contractor to complete the Works and the Owner or such other Contractor may use for such completion so much of the Constructional Plant, Temporary Works and materials of the Site as, he or they may think proper and the Owner may at any time sell any of the said Constructional Plant, Temporary Works and unused materials and apply the proceeds of

sale in or towards the satisfaction of any sum due or which may become due to him from the Contractor under the Contract.

**14.02 Engineer to assess value of work done at the time of taking possession:**

The Engineer shall, as soon as may be practicable after any such entry and expulsion by the Owner, fix and determine exparte or by or after reference to the parties, or after such investigation or enquiries as he may think fit to make or institute, and shall certify what amount, if any, had at the time of such entry and expulsion been reasonably entered by or would reasonably accrue to the Contractor in respect of work then actually done by him under the Contract and what was the value of any unused or partially used materials, any constitutional Plant and any Temporary Works upon the Site.

**14.03 Owner not liable to pay until expiration of the Period of Maintenance:**

If, the Owner shall enter and expel the Contractor under this Clause, he shall not be liable to pay to the Contractor any money on account of the contract, until the expiration of the period of Maintenance and thereafter until the costs of completion and maintenance, damages for delay in completion, (if any) and all other expenses incurred by the Owner have been ascertained and the amount thereof certified by the Engineer. The Contractor shall then be entitled to receive only such sum or sums (if any) as the Engineer may certify would have been due to him upon due completion by him after deducting the said amount. If such amount shall exceed the sum which would have been payable to the contractor on due completion by him, then the contractor shall, upon demand, pay to the Owner the amount of such excess and it shall be deemed a debt due by the Contractor to the Owner and shall be recoverable accordingly.

**14.04 Urgent repair work:**

If, by reason of any accident, or failure or other event occurring to or in connection with the Works, or any part thereof, either during the execution of Works, or during the Period of Maintenance, any remedial or other work or repair shall, in the opinion of the Engineer, be urgently necessary for security and the Contractor is unable or unwilling at once to do such work or repair, the Owner may by his own or other workmen do such work or repair as the Engineer may consider necessary. If the work or repair so done by the Owner is work which, in the opinion of the Engineer, the Contractor was liable to do at his own expense under the Contract, all costs and charges properly incurred by the Owner in so doing shall, on demand, be paid by the Contractor to the Owner or may be deducted by the Owner from any money due or which may become due to the Contractor, provided always that the Engineer shall, as soon after the occurrence of any such emergency as way, be reasonably practicable, notify the Contractor thereof in Writing.

**14.05 Foreclosure of Contract:**

**Foreclosure of contract in full or in part due to Abandonment or Reduction in Scope of work.**

**14.05.01** If, at any time after acceptance of the tender, the WBPDCL shall decide to abandon or reduce the scope of the Works for any reason whatsoever and hence not require the whole or any part of the Works to be carried out, [lie Engineer shall give notice in writing to that effect to the Contractor and the Contractor shall have no claim to any payment of compensation or otherwise, whatsoever, on account of any profit or advantage which he might have derived from the execution of the Works in full but which he did not derive in consequence of the foreclosure of the whole or part of the Works.

**14.05.02** The Contractor shall be said at Contract rates, full amount for works executed at Site and in addition, a reasonable amount as certified by the Engineer for the items hereinunder mentioned which could not be utilized on the work to the full extent because of the foreclosure:

- a) Proportionate value of the expenditure incurred on preliminary site work, e g. temporary access roads, temporary labour huts, staff quarters and site offices, storage accommodation and water storage tanks.
- b) (i) The WBPDCL shall have the option to take over Contractor's materials or any part thereof either brought to Site or of which the Contractor is legally bound to accept delivery from suppliers (for incorporation in or incidental to the work), provided, however, the WBPDCL shall be bound to take over the materials or such portions thereof as the Contractor does not desire to retain.

For materials taken over or to be taken over by the WBPDCL, cost of such materials shall, however, take into account purchase prices, cost of transportation and deterioration or damage which may have been caused to materials whilst in the custody of the Contractor.

- (ii) For Contractor's materials not retained by the WBPDCL, reasonable cost of transporting such materials from Site to Contractor's permanent stores or to his other Work, whichever is less shall be payable. If materials are not transported to either of the said places, no cost of transportation shall be payable.

c) If, any material supplied by the WBPDC are rendered surplus, the same except normal wastage shall be returned by the Contractor to the WBPDC at rates not exceeding those at which these were originally issued less allowance for any deterioration or damage which may have been caused whilst the materials were in the custody of the Contractor. In addition, cost of transporting such materials from Site to the WBPDC stores, if so required by the Corporation, may be included.

d) Reasonable compensation for transfer of Tools & Plants from Site to Contractor's permanent stores or to his other Works : whichever is less.

If Tools & Plants are not transported to either of the said places, no cost of transportation shall be payable.

e) A sum to be certified. by the Engineer, being the amount of any expenditure reasonably incurred by the Contractor in the expectation of completing the whole of the works in so far as such expenditure shall not have been covered by the payments in this sub clause before mentioned.

Provided always, that against any payments due from the Owner under this sub-clause, the Owner shall be entitled to be credited with any outstanding balances due from the Contractor, for advances in respect of Constructional plant and materials and any other sums which at the date of termination were recoverable by the Owner from the contractor under the terms of the contract.

The Contractor shall, if required by the Engineer, furnish to him books of account, wage books, time sheets and other relevant documents as may be necessary to enable him to certify the reasonable amount payable under this condition.

## **15.00 MISCELLANEOUS**

### **15.01 Endorsement of Terms:**

The failure of either party to endorse, at any time, any of provisions of Contract or any rights In respect thereto or to exercise an opinion herein provided shall in no way be constructed to be a water of such provisions, rights or option or in any way to affect the



validity of the Contract. The exercise by either party of any of its rights herein shall not preclude or prejudice either party from exercising the same or any other right it may have.

#### **15.02 Correspondence:**

After the Tender has been accepted by the Owner, the orders or instructions to the Contractor shall, except as herein otherwise provided, be given by the Engineer in writing on behalf of the Owner. Procedure of correspondence on various matters between the Owner and the Contractor and with the Consulting Engineer will be communicated to the Contractor after acceptance of the Tender.

#### **15.03 Language:**

Language to be used for the purpose of the Contract in correspondence, writing on Drawings, technical data and other relevant Document shall be in English.

#### **16.00 WORK ORDER BOOK:**

- a) The Contractor shall, within seven days of the receipt of the order to take up work, supply at his own cost, Work Order Book which shall be kept at site of work under the custody of the Engineer or his authorised representative. The Work Order Book shall have machine numbered pages in duplicate. Directions or instructions from WBPDC Officers to be issued to the Contractor will be entered (in duplicate) in the Work Order book (except when such directions or instructions are given by separate letter). The Contractor or his authorised representative shall regularly note the entries in the Work Order book and also record thereon the action taken or being taken by him in complying with the said directions or instruction or any relevant point relating to the work. The Contractor or his authorised representative may take away the duplicate pages of the Work Order Book for his own record.
- b) Cases of supplementary items or of claims shall not be entertained unless supported by entries in the Work Order book or any written Order.
- c) The first page of work order books shall contain the particulars :
  - i) Name of the work
  - ii) Reference to Contract no
  - iii) Dale of opening the work order book

- iv) Name and address of the Contractor
- v) Signature of the Contractor
- vi) Name and address of the authorised representative (if any) of the Contractor and authorised by him and approved by the owner vide clause 2.00(e) above.
- vii) Signature of the authorised representative duly attested by the contractor.
- viii) Signature of the Engineer-in-Charge concerned.
- ix) Date of recording final measurements.
- x) Date of actual completion of work.

Entries vide (ix) and (x) above shall be filled in, on completion of the work and before the Work Order Book is recorded in the office of the Engineer concerned.

#### **17.00 ARBITRATION:**

Except where otherwise provided for in the Contract all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other questions, Claim, right matter or thing whatsoever in any way arising of or relating to the Contract, designs, drawings, specifications, estimates quantities, instructions, orders or these conditions or otherwise concerning the works, or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration of a person appointed by the Chairman and Managing Director, West Bengal Power Development Corporation Limited willing to act as such an arbitrator. There will be no objection if the arbitrator so appointed, is an employee of The West Bengal Power Development Corporation Limited and that he had to deal the matters to which the contract relates and that in the course of as such he had expressed views on all or any of the matters in dispute or difference. The arbitrator to whom the matter is originally referred being transferred or vacating his office or being unable to act for any reason as aforesaid at the time of such transfer, vacation of office or inability to act, Managing Director, The West Bengal Power Development Corporation Limited shall appoint another person to act as an arbitrator in accordance with the terms of the Contract. It is also a terms of this contract that no person other than a person appointed by C.M.D., WBPDC,

as aforesaid should act as arbitrator. This arbitration clause will be applicable only to the Contracts of value of more than fifty lakh rupees, in which case, the arbitrator will have to give a reason for speaking award i.e. showing the reasons of giving the award specifically against disputes and claims raised by the working agency. Subject as aforesaid, the provision of the Arbitration Act 1940, or any nature modification or reenactment thereof and the rules made hereunder and for the time being in force shall apply to the arbitration proceeding and this clause.

It is a term of the contract, that the Party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

The arbitrator may from time to time, with consent of the parties, enlarge the time, for making and publishing the award.

The work under the Contract shall, it reasonably possible the arbitration proceedings and no payment due or the contractor shall be withheld on account of such proceedings.

The Arbitrator shall be deemed to have entered on the referrer date as to be fixed by the Arbitrator. The Arbitrator shall give award in respect of each dispute or difference referred to him.

The venue of arbitration shall be such a place as may be Arbitrator in his sole discretion.

The award of the arbitrator shall be final, conclusive and binding on all parties to this contract.

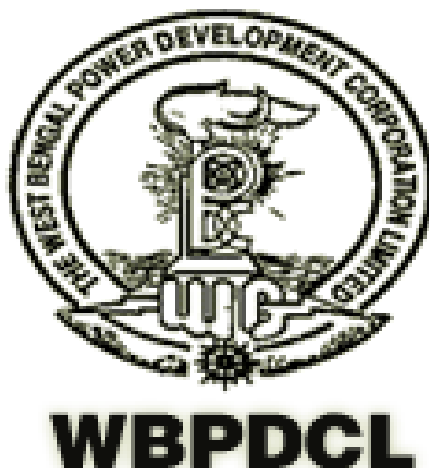
In the event of dispute or differences arising between one public sector enterprise and a Govt. Department or between two public sector enterprises, the above stipulations shall not apply and in all such cases the provisions of B.P.E. office memorandum No. BPE/GL-001/76MAN2 [110-75-BPE (GMI-1)] dated 1st January 1976 or its amendments for arbitration shall be applicable.

SECTION - 4

THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED

Civil, Structural and Architectural Works

**Supplementary Conditions of Contract**





THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED

Civil, Structural and Architectural Work

**SUPPLEMENTARY CONDITIONS OR CONTRACT**

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## **SUPPLEMENTARY CONDITIONS OF CONTRACT**

### **1.00 Progress Reports and Schedules:**

- i) The Contractor shall submit to the Engineer by the seventh of every month six (6) copies of a report in an approved proforma, showing the progress made in construction of the work during the previous month along with necessary photographs.
- ii) The Contractor shall also submit by the end of every month his anticipated progress schedule for all items of work for the following month in six (6) copies in an approved proforma to the Engineer.

### **2.00 Right to Waive and / or Relax Specification Clauses:**

The Engineer / Owner at his discretion waive and/or relax any of the Clauses of the Technical Specifications and/or other Contract Document. The unit rates or percentage rate Tendered shall be suitably reduced by the Engineer based on the actual financial implications due to such waivers and/or relaxations.

### **3.00 Contractor to follow Security Rules enforced by the Owner:**

The Contractor shall strictly abide by the security rules and regulations enforced by the Owner from time to time. The Contractor shall provide proper identity cards, badges etc. to his employees whenever directed by the Engineer.

### **4.00 ~~Price Variation~~: Not Applicable / Deleted**

The unit rates or percentage rate quoted in the schedule of items of work shall be based on taxes, duties, levies, railway freights and cost of materials, labour, P.O.L. (Diesel, Petrol and Lubricants) and all other ancillary costs prevailing on the date of opening of tender. These unit rates shall remain firm during the continuance of the contract, except as may be varied in the following cases.

Any statutory revision in the rates of taxes (for work, contract Sales Tax on its applicable amount) duties & levies made by the Competent Authorities after the last date of submission of tender, shall be suitably adjusted, either shall be paid or recovered, at actual, on production documentary evidence.

**4.01** The quoted rates of the bidder will be subjected to Price Variation according to be conditions and formula specified in this clause and sub-clause hereinunder.

**4.02** Fixed component of the base price shall be 15% (fifteen percent) which will not be subjected to price variation.

**4.03** There shall be no price variation for materials and labour component for the scheduled executed work for initial 12 (twelve) months. However, the price variation due for fuel component shall be permitted even for this period.

**4.04 ~~Price Variation Formula~~ : Not Applicable / Deleted**

The price variation formula is given below with ceiling limits as specified in sub-clause no. 4.05.

$$E = [PI \frac{(II - II_0)}{II_0} + Pm \frac{(Im - Im_0)}{Im_0} + Pf. \frac{(If - If_0)}{If_0}] \times 0.85V$$

Where,

V = Value of the executed work for the period under consideration, derived from quoted rates subjected to Price variation, referred under subsequent clauses 4.06 & 4.07.

E = Variation of Price of the executed work under Consideration.

PI. }  
Pm. } =Percentage components of executed work : (For Job under Tender No.:. ) attributable to  
Pf. } labour, material & diesel respectively; PI + Pm + Pf = 1.

For calculation of the price variation the following values of percentage components are to be adopted.

PI. } 0.55  
Pm. } =0.35  
Pf. } 0.10

II. }  
Im } = The cost indices for labour (II), material (Im) and diesel (If) to be chosen for the  
If. } period in question.

AND

LI<sub>0</sub> }  
Im<sub>0</sub> }  
If<sub>0</sub> }



=The corresponding base indices one month before the date of submission of tender.

Labour Index, which shall be the "Index Number" of "Consumer Price Index for Industrial Workers : (All-India) (General)" as published by Labour Bureau, Simla, in their monthly bulletin entitled "Indian Labour journal.

Material Index which shall be the index Number" of "Index Numbers of Wholesale Prices" under Group "All Commodities" as published by Ministry of Industry in their monthly bulletin "Index Number of Wholesale Prices".

Fuel Index which shall be the "High Speed Diesel Price per litre". This will be the price of High Speed Diesel Oil at the Indian Oil Corporation retail outlet nearest to the project (selling price including taxes and duties, if any, per litre of high speed diesel oil).

#### **4.05 ~~Ceiling Limits for Price Variation:~~ Not Applicable / Deleted**

The Ceiling limits for price variation with respect to the value of the executed work under consideration and stipulated time shall be as follows:-

- i) 2.5% (two point five percent) of the value of the work executed during the first twelve (12) months of the execution period, subjected to the provisions laid down under sub clause no. 4.03.
- ii) 7.5% (seven point five percent) of the value of the work executed during the execution period above twelve (12) months and upto twenty four (24) months.
- iii) 10% (ten percent) of the value of the work executed during execution period above twenty four (24) months and upto thirty six (36) months.
- iv) 12.5% (twelve point five percent) of the value of the work executed during the execution period above thirty, six (36) months and upto forty eight (48) months.

**4.06** The Price Variation will be effected for the scheduled quantum of work within the contract value as well as for the schedule + 25% variation of scheduled quantum of work beyond the total contract value, executed within the scheduled completion time or within the extended time of Completion subject to the provision laid down under clause 8.05 of G.C.C. The quoted rates of the bidder, in both the cases, will be subjected to such price variation according to the formula already enumerated in this clause.

- 4.07** Additional, altered or substituted items of work will also attract price variation as per this clause. No Price Variation shall be affected for the rate/amount of the additional, altered or substituted items of work, when derived from or based on Market Rates as per C1. 10.03 of GCC.
- 4.08** After the award of Contract, the Contractor shall submit to the Engineer, a written notice of the changes, if any, that would have occurred in the specified indices of Materials, and Labour or that of Diesel Price, during the previous reporting period containing the effective date of such change, the amount of change for the claim of the amount of price variation with authenticated documentary evidence of the relevant published indices / diesel price to substantiate the price variation.
- 4.09** The value of the contract varies within  $\pm 25\%$ . If the work is required to be continued beyond this variation (limit of  $\pm 25\%$ ) in contract price, the rates for such extra work will be finalized after negotiations between the Contractor and Owner.

**5.00 Initial Security Money, Total Security, Money and refund of Total Security Money:**

**5.00(a) Initial Security Money**

The Contractor has to deposit by cash or Demand Draft an Initial Security Money referred to clause no. 13.02 of G.C.C. The earnest money deposited by the successful bidder by Demand Draft will constitute part of Initial Security Money.

**5.00 (b) Total Security Money: NA**

The Total Security Money referred to clause no 13.02 of G.C.C. is to be calculated at the rate as specified in table below.

The Balance Security Money (Total minus Initial) is to be deducted at the rate as Specified in table below from Contractor's running account bill, till full amount of Total Security Money is built up.

The Contractor may have the option to furnish Bank Guarantee of any Nationalized bank for the part of the Balance Security Money as specified it, the table below and in such cases, the remaining part of the Balance Security Money shall be deducted from Contractor's running account bill at the rate as specified in table below till full amount of Total Money is built up.

**5.00 (C) Refund of Total Security Money :**

- I. For contract value more than 50 lakhs

25% (twenty five percent) of the Total Security Money will be refunded to the Contractor on getting completion certificate from the Engineer. 25% (twenty five percent) of the Total Security Money will be refunded to the Contractor on the expiry of maintenance period. The Balance amount of Total Security Money held in cash will be refunded to the contractor on production of Bank Guarantee on a Nationalized Bank for an equal amount, if the contractor so desires. The Bank Guarantee or cash so held up against 50% of Total Security Money will be released on settlement of final bill of the contractor.

- II. For contract value less than 50 lakhs, cent-percent of the Total Security Money will be refunded after expiry of six months from the date of issuance of completion certificate from the Engineer.

**6.00 Payment Period:**

Payment upon each of the Engineer's certificate against running account Bill shall be made by the owner within 45 (forty five) days .

**7.00 Terms of Payment:**

On A/c payment will be made against monthly bills raised by the contractor, subject to the condition that enough work has been done to justify such payment.

**8.00 ~~Water and Electricity:~~ Not Applicable / Deleted**

Water and Electricity shall be provided separately at a single point at the project site.

I) **Water**

- a) For construction purpose only
- b) For other purposes

II) **Electricity**

- a) Par construction purpose only

} To be supplied at the prevailing electricity tariff during the period of consumption.

b) For other purpose

**9.00 ~~Materials to be supplied by the Owner:~~ Not Applicable / Deleted**

The following materials will be supplied by the Owner to the Contractor for execution of the works only, if stipulated in the NIT. The prices of the supply will be as given below :

		Issue Rate (Rs.)
<b>9.01</b>	<b>Cement</b> : Cement in non-returnable bags  (for one M/T = 20 bags)	per M.T
<b>9.02</b>	<b>Steel</b> : a) MS rounds ( 6 mm to 63 mm)	per M.T
	b) High yield strength deformed bars  ( 8 mm to 40 mm)	per M.T
	c) Structural steel including M.S Angles,  Tees, joists & MS plates	per M.T

**9.03 ~~Conditions of supply:~~ Not Applicable / Deleted**

Cement & steel will be supplied at Owner's Stores, normally situated within the Project Site, but such Stores may also be situated in any other place from the Project Site upto and including the nearest railhead to the Project Site. The Contractor shall take delivery of the materials at any of the Stores as may be directed and shall transport them to the work sites at his own cost and without any charge to the Owner. All materials, issued to the Contractor, shall be for the specific use on die Work, or Temporary Work and not foe the use in the construction of Contractor's offices, Stores, Workshops or any other structures & buildings at site or for construction of Contractor's labour hutments.

The Contractor shall submit to die Engineer a statement indicating estimated quantities of cement & steel required during a quarter, at least one month in advance of the quarter. In addition, The Contractor shall also furnish the estimated requirements of cement & steel during a month by the third week of the previous month, indicating his weekly requirements.

Steel materials will be supplied to the Contractor in standard available lengths as received from suppliers and may not be in lengths and sizes as indented by the Contractor and no extra claim, whatsoever, by the Contractor, on this account will be entertained.

For suitably utilizing unusable cut pieces and available lengths, the Contractor shall have to do full strength but welded Splices as directed by the Engineer. The design & location of such splices shall require prior approval of the Engineer. No extra cost of such splicing shall be paid to the Contractor.

In case, M.S. flats required in fabrication of structures be not available in requisite widths, the Contractor shall cut such width out of the available plates to make flats at no extra cost to the Owner. The Contractor shall have to provide suitable store building, store yard at site for proper storage of cement and steel issue to him, from time to time.

All necessary arrangements to prevent damages due to rain, wind & that etc. of the stored materials, should be made.

**9.04 ~~Allowable Wastages for Reinforcing Steel, Cement & Structural Steel: Not Applicable / Deleted~~**

**a) Reinforcement Steel :**

For reinforcement steel, 7% (seven percent) wastage will be allowed, the cost of which will be recovered from contractor's each R.A. Bill at the issued price of reinforcing steel. This 7% wastage includes allowable wastage due to cut pieces, scrap, gas cutting and straightening of edged, rolling tolerances and invisible wastage of all kinds.

**b) Cement :**

Wastage will be allowed @ 5% (five percent) the cost of which will be recovered from the Contractor's each R.A. Bill at the issue price of cement.

**c) Structural Steel**

For every 100 MT of finished fabricated steel based on approved Material List, 108 MT of M.S. structural is to be supplied by the Owner to the Contractor which includes allowable wastage due to cut pieces, scrap, gas cutting and straightening of edges, rolling tolerances and invisible wastage of all kinds.

The cost of 8 MT per 100 MT of steel, based on approved Material List, considered as wastages will be recovered from Contractor's each R.A. Bill at the issue price of structural steel.

- d) In case, wastage of reinforcing steel, cement or structural steel is more than that as stipulated under (a), (b) & (c) above, the cost of such excess material wastage will be recovered from the Contractor's bill at double the issue price of the corresponding material.
- e) The issue price for cement and steel will be notified to the Bidders.
- f) Issue of materials to the Contractor will depend on the availability of the same at Owner's site stores and no claim, whatsoever of the Contractor will be entertained by the Owner in case the materials could not be issued in accordance with the Contractor's requirement. However, the Engineer may grant reasonable extension of time to the Contractor, if he is satisfied that the progress of the Works is genuinely hampered due to non-supply of these materials to the Contractor, in proper time and sequence by the Owner.
- g) The Contractor shall satisfy himself of the quality and quantity of materials received at the time of taking delivery from Owner's stores. No claim whatsoever will be entertained by the Owner once the materials are issued to the Contractor in respect of any deficiency either in quality or in quantity.
- h) The Contractor, if so required by the Owner, shall procure all necessary steel, cement and other materials, which were to be issued to him by the Owner under this Clause, after obtaining written instruction from the Engineer. In such a case, Owner shall provide all required assistance to the Contractor in procuring these materials and necessary upward and downward adjustment to the contract Price shall be made by the Engineer, depending on the difference between the actual procurement prices and the issue rates herein mentioned. Test certificates in accordance with the specifications are to be furnished by the Contractor to the Engineer, when required, for materials procured by him.
- i) Materials other than steel & cement may also be supplied to the Contractor by the, Owner for use in the Contractor work, if available with the Owner, at prices to be fixed by the Owner at the time of delivery of such materials.
- j) The Contractor shall submit reconciliation statement of steel / cement, drawn by him from the owner's Stores once in every three (3) months (quarter). Failing compliance to this requirement, further issue of steel & cement to the Contractor by the Owner may be suspended and no compensation for delay in the execution

of the Works of suspension of the Works caused on account of non-supply of these materials by the Owner shall be entertained.

**10.00 Hire of Plant-Equipment:**

At the sole discretion of the Owner and on recommendation of the Engineer, the Contractor may hire Owner's Construction Plant and Equipment available at Site. The rentals for different plant and equipment shall be as determined by the Owner.

**11.00 Period of Maintenance:**

For the purpose of Clause 9.00 of the General Conditions of Contract, the Period of Maintenance for the Contract Work shall be six (6) months from the date of issue of completion certificate by the Engineer in accordance with sub-clause 8.08 of the General Conditions of Contract.

**12.00 Weather Conditions:**

The Engineer may order the Contractor to suspend any work, which in the opinion of the Engineer, may be subjected to damage by then prevailing weather conditions.

**13.00 Clearing Site during construction:**

The Contractor and each Sub-Contractor shall, from time to time, clear and remove all rubbish and obstructions etc. resulting in the execution of the works. All streets and driveways in the work area shall be kept clear and unobstructed at all times.

**14.00 Employees' Identification:**

The Contractor shall present his employees identifications to the Engineer; Suitable method of identification shall be developed by the Engineer and the Contractor shall fully comply with the same.

**15.00 Medical Care:**

The Contractor shall be fully responsible for any first aid and emergency medical treatment to his employees. Necessary arrangement for this purpose shall be made by the Contractor at site, at his own Costs.

**16.00 Medical Supervision:**

The medical supervision of the Contractor over his employees shall include antimalarial measures, vaccination against small pox, and inoculations against cholera, typhoid fever and other infectious diseases at his own costs. Employees, suffering from infectious diseases shall be removed from the Site as soon as detected. If any case of infectious disease be discovered amongst employees, it must at once be reported to the Engineer. The Contractor shall abide by the provisions of the Employees State Insurance Scheme where applicable.

**17.00 Contractor's Site Establishment:**

**17.01 Site Office and Stores :**

The Contractor shall build at his own cost a suitable site office and necessary stores on the portion of the land allotted to him in an approved manner. The Contractor shall maintain and keep his office and stores in good state of repairs throughout the execution of the Works.

**17.02 Camp :**

The Owner has limited space available at Site and the Owner may or may not allow the Contractor to use a portion of the available land at Site to build temporary camps for housing of the Contractor's site staff and construction labour in case, private land outside the Site is used by the Contractor for building, camps, housing facilities and for other construction purposes, the Contractor shall make all necessary payments in respect of rentals and / or other associated costs. In either case, the construction of temporary camps and facilities for housing of all Contractors's men shall only be allowed, if proper sanitation facilities as required by Public Health regulations are provided and as approved by the Engineer. The cost of all camps, building and other associated facilities shall be to Contractors account.

**17.03 Removal :**

Soon after completion of the works and when instructed by the Engineer, the Contractor shall remove offices, stores, all buildings and camps constructed on the allotted portions of the land within the Site. The removal shall be completed before the final payment is made to the Contractor under the Contract. Removal shall also mean clearing mean clearing of all rubbish, debris, leveling and filling, if any, so as to leave the Site in clean and tidy condition.



#### **17.04 Sanitary Convenience**

Necessary sanitary convenience in the office, stores and for the use of workmen at Site, properly isolated and excluded from public observation, shall be constructed and properly maintained throughout the execution of the Works by the Contractor at his own cost in such a manner and at such locations as shall be approved by the Engineer. The use by the workers, of the sanitary conveniences thus provided, shall be strictly and effectively enforced so as to prevent the workers from committing nuisance all around the site.

#### **18.00 Drawings :**

Before any portion of the Works is taken in hand, the Contractor must prepare at his own cost and submit free of cost, for the approval of the Consulting Engineer, copies in duplicate, of any Fabrication drawings, detail reinforcement drawings and bar bending schedules for the Works and Temporary Works which may be required to be done under the provisions of the Contract and at the same time call the attention of the Consulting Engineer to any modifications of the Contract Drawings, which the Contractor may desire to make.

On receipt of the said fabrication drawings, detail reinforcement drawings and bar bending schedules, the Consulting Engineer shall check and verify the details and return one copy of the said fabrication drawings, detail reinforcement drawings and bar bending schedules to the Contractor indicating thereon the corrections, modifications, and additions required to execute the works in accordance with the Contract. The Consulting Engineer shall also indicate by marking on the Drawings the approval status such as 'Approved', 'Approved except as noted, forward final drawings', 'Approved except as noted; Resubmission required' or 'Disapproved, see accompanying letter' After necessary corrections, modifications and additions, if any, the Contractor shall submit free of cost six (6) copies and one (1) transparency of each of the said fabrication drawings, detail reinforcement drawings and bar bending schedules to the Consulting Engineer for necessary distribution and record.

All fabrication drawings, detail reinforcement drawings and bar bending schedules are to be prepared in Metric Units and while preparing the fabrication drawings, detail reinforcement drawings and bar bending schedules, only figured dimensions of the Contract Drawings are to be followed in preference to scaling. The titles of the fabrication drawings, detail reinforcement drawings and bar bending schedules shall be as directed by the Consulting Engineer.

No revision, affecting the design shall be made without prior approval of the Consulting Engineer, after fabrication drawings, detail reinforcement drawings and bar bending schedules have been approved. If any revision is made, the Consulting Engineer shall be immediately informed about it and six (6) copies of the revised fabrication drawings, detail reinforcement drawings and bar bending schedules with one (1) transparency of each shall be submitted to the Consulting Engineer, free of cost.

The Contractor shall physically verify all dimensions in the field before any portion of the works in executed or taken in hand. The approval of the Consulting Engineer of any or all fabrication drawings, detail reinforcement drawings and bar bending schedules, prepared and submitted by the Contractor shall not relieve him of any of his responsibilities and obligations under the Contract. The Contractor shall, at all times be responsible and shall pay for all costs involved in any alteration, modification and addition to the Works due to any discrepancies, errors and omissions on the fabrication drawings, detail reinforcement drawings and bar bending schedules and in other documents supplied by him whether such fabrication drawings, detail reinforcement drawings, and bar bending schedules and other documents have been approved by the Consulting Engineer or not, provided that such discrepancies, errors & omission are not due to inaccurate and Incomplete information furnished on the Contract Drawings in which cases the Owner Shall pay for all costs involved in alteration, modification and addition necessary to execute the works according to the contract.

**19 .00 Mobilization Advance / Advance-Not Applicable / Deleted**

- i) No mobilization advance is possible for contract value below 1 core.
- ii) Mobilization advance may be given at the rate of 5% of the contract value, free of interest, if the Contract price is over Rs.1 crore and for this mobilization advance, the contractor will have to submit a Bank Guarantee on any Nationalized Bank for an equal amount prior to payment of such mobilization advance.
- iii) If the Contract value is more than Rs.5 corers, an interest bearing advance of 5% of the Contract value in addition to the above interest free mobilization advance may be considered in which case the Contractor has to furnish a Bank Guarantee on any Nationalized Bank for a similar amount. The interest in such cases shall be charged at the current Bank rate.

- iv) The mobilization advance/advance would be released in installments linked with agreed time schedule of mobilization and its actual implementation.
- v) (a) This interest-free mobilization advance/advances and interest-bearing advance shall be recovered progressively from running account bills on pro-rata basis, after 10% of the value of the work is executed and fully, by the time 80% of the work is completed.
- v) (b) The interest accrued on the interest bearing advance will be deducted regularly from the progressive running account bills right from the beginning.
- vi) Contractor shall be allowed to submit a number of B.G.s as mutually agreed upon. As and where recovery equivalent to or more than the amount of one B.G is made, the relevant B.G. shall be returned.