BUIDCo
Building Better Tomorrow

Bihar Urban Infrastructure Development Corporation Ltd.
(A Govt. Of Bihar Undertaking)

Bid Document
For

Design and Construction of drinking water supply scheme, of Jamalpur Nagar Parishad under AMRUT and state plan Scheme (Phase II) with six months of Trial run and thereafter operation and maintenance of system for next five years.

(A) Construction of DC/CI Distribution Network (Zone-1 and Zone-4) -73.2006 Km, providing house service connection-6605, SCADA system -2 Nos.- 3046.961 Lakh under Amrut Scheme

(B) Construction of Distribution Network (Zone-2 and Zone-3) -51.6007 Km, providing house service connection-8000, SCADA-2 Nos.-- 2488.35 Lakh

Estimated Cost- Rs. 5415.311 Lakh

August, 2019

Bihar Urban Infrastructure Development Corporation Ltd.

A Government of Bihar Undertaking

NOTICE INVITING RE-TENDER

for

DRINKING WATER SUPPLY SCHEME OF JAMALPUR NAGAR PARISHAD UNDER AMRUT AND STATE PLAN SCHEME (PHASE II)

NIT. No- BUIDCo/Yo-1240/19-60 | ***Date: 22.08.2019***

(Through e-procurement mode only – www.eproc.bihar.gov.in)

1. Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) invites bids from eligible experienced Firms/Contractors/Agencies/Bidders registered in appropriate category in any government organisation/PSUs for execution of works as given below :-

Sl. No	Name of work	Estimated Cost	Bid Processing fees (Beltron)	Bid Document Cost	Bid Security (EMD)	Contract Duration
1.	Design and Construction of Drinking Water Supply Scheme of Jamalpur Nagar Parishad under AMRUT and State Plan Scheme (Phase II) with six months of Trial run and thereafter operation and maintenance of system for next five years. (A) Construction of DC/CI Distribution Network (Zone-1 and Zone-4) -73.2006 Km, providing house service connection-6605, SCADA system -2 Nos.- 3046.961 Lakh under Amrut Scheme. (B) Construction of Distribution Network (Zone-2 and Zone-3) -51.6007 Km, providing house service connection-8000, SCADA-2 Nos.-- 2488.35 Lakh"	Rs. 5415.311 Lakh	Rs. 17,700.00	Rs. 50,000.00	Rs. 64.153 Lakh	18 Months

2.	Date of downloading of bid document	:	From **30.08.2019** to **16.09.2019** up to **05:00** PM Through website www.eproc.bihar.gov.in
3.	Place & Date of Pre-bid meeting	:	Date **03.09.2019** Time **03:00** PM. Near Rajapur Pul, West Boring Canal Road, Patna-800001
4.	Last date and time for receipt (upload) of bids	:	Date **17.09.2019.** up to **05:00** PM Through website www.eproc.bihar.gov.in
5.	Last Date and time for Submission of hard copy of bid	:	Date **18.09.2019** up to**03:00** PM
6.	Time and date of opening technical bids	:	Date **18.09.2019** Time **03:30** PM
7.	Time and date of opening of financial bids	:	To be communicated later on
8.	Place of opening of bid	:	Through website www.eproc.bihar.gov.in
9.	Period of bids validity	:	120 days
10.	Officer inviting bids	:	Chief Engineer, Design. Planning & Monitoring, BUIDCO

11. For participating in E – tendering process, the contractor shall have to get themselves registered to get user ID, Password and Digital signature. This will enable them to access the website www.eproc.bihar.gov.in and download/participate in E – tender. All tender queries related to this tender shall be communicated at cgmbuidco@gmail.com
12. (i) Bid processing fees to be paid through online mode i.e. Internet payment getaway (Credit/Debit Card), Net Banking, NEFT/RTGS.
(ii) Bids along with necessary online payments must be submitted through e-procurement portal www.eproc.bihar.gov.in before the date & time specified in the NIT. The department does not take any responsibility for the delay/Non availability of internet connection, Network Traffic/Holidays or any other reasons".
13. The tender documents can be obtained through website www.eproc.bihar.gov.in and www.buidco.in
14. Bid document cost should be paid by draft of any scheduled banks payable in favour of Managing Director, Bihar Urban Infrastructure Development Corporation Ltd, Original Bank Draft will have to be submitted in the office of Managing Director, Bihar Urban Infrastructure Development Corporation Ltd, Near Rajapur Pul, West Boring Canal Road, Patna-800001 on or before **03:00 PM on 18.09.2019** failing which the tender will be rejected.
15. Earnest Money should be in the form of Bank Guarantee of any scheduled banks payable in favour of Managing Director, Bihar Urban Infrastructure Development Corporation Ltd, on or before **03:00 PM on 18.09.2019** failing which the tender will be rejected. The Estimated Cost may increase or decrease.
16. All the information/corrigendum/addendum related to the project shall be published on the website www.eproc.bihar.gov.in and www.buidco.in . The authority shall have the right to reject the bid partially or fully without assigning any reason what so ever.
17. For any information department help line No. 18003456109 may be used
18. Estimate amount may vary. So EMD will be deposited as per Technical Sheet uploaded on the website www.eproc.bihar.gov.in
19. Further details of works can be obtained from the office of Chief Engineer, Design. Planning & Monitoring For clarification, regarding the E –tendering process, please contact e-procurement, Helpdesk, first Floor, M/22, Bank of India Building, Road No-25, Sri Krishna Nagar, Patna – 800 001, Telephone no. 0612-2523006, Mobile No –07542028164.

Sd/-
Chief Engineer,
Design, Planning & Monitoring,
BUIDCo, Patna

Bihar Urban Infrastructure Development Corporation, Near Rajapur Pul, West Boring Canal Road, Patna-800001
(Tel: 0612-2506213/2506109,Email: mdbuidco@gmail.com)

SECTION 1

INSTRUCTION TO BIDDERS

(ITB)

Section 1: Instructions to Bidders

Table of Clauses

A. GENERAL

1. Scope of Bid

1.1 The Employer (named in Appendix to ITB) invites bids for the construction of works (as defined in these documents and referred to as "the works") detailed in the table given in NIT. The bidders may submit bids for any one group or all groups of the works detailed in the table given in NIT.

1.2 The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.

1.3 Throughout these bidding documents, the terms 'bid' and 'tender' and their derivatives (bidder / tenderer, bid/tender, bidding/tendering, etc.) are synonymous.

1.4 Regarding PERCENTAGE RATE OR ITEM RATE, tender shall be as per Appendix to ITB and accordingly the non-relevant sections of this document must be crossed.

2. Sources of Funds

2.1 The expenditure on this project will be met as decided by the Competent Authority.

3 Eligible Bidders

3.1 This *Invitation for Bids* is open to all bidders.

3.2 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a statement that the Bidder is neither associated, nor has been associated, directly or indirectly, with the Consultant; Engineer-in-Charge or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Director for the Contract or involved in supervision of the contract. A firm that has been engaged by BUIDCo to provide consulting services for the preparation or supervision of the works, and any of its affiliates shall not be eligible to bid.

3.3 Bidders shall not be under a declaration of ineligibility for delay, failure or corrupt and fraudulent practices by any of the State Govt. or Central Govt. or Public Undertaking or any Autonomous Body.

4. Qualification of the Bidder

4.1 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts indicating mile stones to complete the project on time.

4.2 All bidders shall also furnish the following information in Section 2.

(i) Evidence of access to or availability of credit facilities (minimum 10% of estimated cost) certified by the bankers.

(ii) Undertaking that bidder would be able to invest a minimum of cost up to 25% of the contract value of work, during implementation of contract.

(iii) Proposals, if any, for sub-contracting of elements of work, costing more than 10% of the bid amount.

(iv) Power of attorney, if any.

4.3 If the Employer has not undertaken prequalification of potential bidders, all bidders shall include the following information and documents with their bids in Section 2:

(a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder;

(b) total monetary value of construction work performed for each of the last five years;

(c) experience in works of a similar nature and size for each of the last five years, and details of works underway or contractually committed; and clients who may be contacted for further information on those contracts;

(d) major items of construction equipment proposed to carry out the Contract or evidence of arrangement; of possessing them on hire/ lease/ buying as defined therein;

(e) qualifications and experience of key site management and technical personnel proposed for contract;

(f) reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past five years;

(g) evidence of access to line(s) of credit and availability of other financial resources facilities (10% of contract value), certified by the Bankers (Not more than 3 months old)

(h) Undertaking that the bidder will be able to invest minimum cash up to 25% of contract value of work, during implementation of work.

(i) authority to seek references from the Bidder's bankers;

(j) information regarding any litigation, current or during the last five years, in which the Bidder is involved, the parties concerned and dispute amount;

(k) proposals for subcontracting components of the Works amounting to more than 10% of the Bid Price (for each, the qualifications and experience of the identified sub-contractor in the relevant field should be annexed);

(l) the proposed methodology and programme of construction, backed with equipment planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones.

4.4 **Bids from Joint ventures are acceptable**.

4.4.1 Bids from joint venture are allowed for the works having estimated cost more than 10 crores. Bids submitted by a joint venture (JV) of not more than a total of three firms as partners shall comply with the following requirements:-

(i) There shall be a JV agreement (refer Annexure I) specific for the contract package between the constituent firms indicating clearly, amongst other things, the proposed distribution of responsibilities both financial as well as technical for the execution of work amongst them. For the purpose of this clause, the most experience lead partner will be the one defined. A copy of JV agreement in accordance with requirements mentioned in Annexure-I shall necessarily be submitted with the bid.

(a) Alternatively, a letter of intent to execute a JV in the event of successful bid shall be signed by all partners of JV and submitted with the bid together with a copy of the proposed agreement. Pursuant to the foregoing, the JV shall include among other things, the joint venture's objectives, the proposed management structure, the contribution of each partner to joint venture operation, the commitment of the partners to joint and several liability for due performance, recourse/sanctions within the joint venture in the event of default of withdrawal of any partner and arrangements for providing the required indemnities.

(b) The JV so formed shall also have to be registered with the concerned department after issue of LOA but before the agreement.

(ii) The bid, and in the case of the successful bidders, the form of agreement, etc, shall be signed and/or executed in such a manner as may be required for making it legally binding on all partners (including operative parts of the ensuing contract in respect of Agreement of Arbitration, etc). On award of work, the Form of Agreement and Contract

Documents shall be signed by all partners of the Joint Venture to conclude Contract Agreement.

(iii) Lead partner shall be nominated as being partner-in-charge; and this authorization shall be evidenced by submitting a power of attorney signed by the legally authorized signatories of all the partners.

(iv) The partner-in-charge shall be authorized to incur liabilities and to receive instruction for and on behalf of the partners of the Joint Venture, whether jointly of severally and entire execution of the Contract (including payment) shall be carried out exclusively through the partner-in-charge. A copy of the said authorization shall be furnished with the bid.

(v) All partners of the Joint Venture shall be liable jointly and severally for the execution of the contract in accordance with contract terms, and a relevant statement to this effect shall be included in the authorization mentioned under sub clause (iii) above as well as in the Form of tender and the Form of Agreement (in case of a successful bidder).

(vi) In the event of default, all the partners of the Joint venture will retain the full and undivided responsibility for the performance of their obligations under the contract and/or for satisfactory completion of the works.

(vii) The bid submitted shall include all the relevant information as required under the provisions of sub-clause 4.5 of ITB and furnished separately for each partner. The requirement of key plants & equipments construction equipments as per Annexure I of SBD testing equipment for establishing field laboratory key personnel to be employed on contract work as per Annexure II of SBD shall be counted altogether for the partners it shall be less than the requirement.

(viii) The bank guarantee/other suitable instrument in shape of bid security shall be issued in the name of JV and pledged in favour of employer.

4.4.2 Each partner of the JV must produce:

(i) The Permanent account number (PAN) of Income Tax

(ii) An affidavit though 1st class Executive Magistrate that the information furnished with the bid documents is correct in all respect; and

(iii) Such other certificates as defined in the Appendix to ITB. Failure to produce the certificates shall make the bid non-responsive.

4.4.3 Each bidder must demonstrate:-

(i) Availability for construction work, either owned, or on lease or on hire, of the key equipment stated in the Appendix to ITB including equipments required for establishing field laboratory to perform mandatory test, and those stated in the Appendix to ITB. The requirement of key plants & equipments construction equipments as per Annexure I of SBD testing equipment for establishing field laboratory key personnel to be employed on contract work as per Annexure II of SBD shall be counted altogether for the partners it shall be less than the requirement.

(ii) Availability for construction work of technical personnel as stated in the Appendix to ITB. The requirement of key plants & equipments construction equipments as per Annexure I of SBD testing equipment for establishing field laboratory key personnel to be employed on contract work as per Annexure II of SBD shall be counted altogether for the partners it shall be less than the requirement.

(iii) The joint venture must satisfy collectively the criteria laid down in Para 3.1 & 3.2 above.

(iv) Liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of not less than the amount specified in the Appendix to ITB.

(v) The bidder must not have in his employment.

(a) The near relations (defined as first blood relations, and their spouses, of the bidder or the bidder's spouse) of persons. The bidder must produce an affidavit stating that the near relations of the following departmental officers are not in his employment:

JE/AE/EE/SE/CE/E-in-C & Divisional Accountant of any works department of Bihar State.

(b) Without Government permission, any person who retired as gazette officer within the last two years of the rank and from the departments. The bidder must produce an affidavit stating the names of retired gazetted officer (if any) in his employment who retired within the last two years with the following ranks from the departments listed below:

JE/AE/EE/SE/CE/E-in-C & Divisional Accountant of any works department of Bihar State.

In case there is no such person in his employment, his affidavit should clearly state this fact.

4.4.4 To qualify for a package of contracts made up of this and other contracts for which bids are invited in the Notice Inviting Tender, the bidder must demonstrate having experience and resources sufficient to meet the aggregate of the qualifying criteria for the individual contract.

4.4.5 If bidder is Joint venture, the partners would be limited to three (including lead partner). Joint venture firm shall jointly and severally responsible for completion of the project. Joint venture must fulfill the following minimum qualification requirement.

(i) The lead partner shall meet not less than 50% (fifty percent) of qualification criteria given in sub-clause 4.2, 4.5 A, 4.5 B, 4.7 & 4.8 of ITB.

(ii) Each of the remaining partners shall meet not less than 25% (Twenty five percent) of all the qualifying criteria given in sub-clause 4.2, 4.5 A, 4.5 B, 4.7 & 4.8 of ITB.

(iii) However in case one of the joint ventures partner is proposed to be included primarily to provide financial strength to the joint venture, such joint venture partner shall have to commit to provide liquidity support to the project to the extent of 10% of the value of contract.

(iv) The joint venture must also collectively satisfy the subject of the criteria of clause 4.2, 4.5 A, 4.5 B, 4.7 and 4.8 of ITB for this purpose the relevant figures for each of the partners shall be 100% or more.

(v) In the event that the Employer has caused to disqualify under clause 4.8 of ITB and the constitutions stated below all of the Joint Venture partners will be disqualified.

(vi) Joint venture applicants shall provide a certified copy of the Joint Venture Agreement in demonstration of the partners undertaking joint and several liabilities for the performance of any contract entered into with the bid.

(vii) The available bid capacity of the JV as required under clause 4.7 of ITB below will be applied for each partner to the extent of his proposed participation in the execution of the work. The total bid capacity available shall be more than estimated contract value.

The available bid capacity will be calculated as under

Assessed Available Bid capacity = (A x N x M - B)

Where

A = Maximum value of civil engineering works executed in any one year during the last five years (updated to the price level of the last year at the rate of 8 percent a year) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which bids are invited.

M = 3

B = Value, at the current price level, of existing commitments and on-going works to be completed during the period of completion of the works for which bids are invited.

Note: The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer in charge, not below the rank of an Executive Engineer or equivalent.

4.4.6 Sub-Contractor's (duly authorized) experience and resources shall be taken into account in determining the bidder's compliance with the qualifying criteria. The sub contractor's role may be verified by the employer.

4.4.7 Qualification of a joint venture does not necessarily qualify any of its partners individually or as a partner to any other joint venture. In case of dissolution of a joint venture, each one of the constituent firms may qualify if they meet all the qualification requirements subject to the written approval of the Employer.

4.4.8The rescinding of contract of a joint venture on account of reasons other than non-performance, such as most experienced partner of joint venture pulling out, court direction leading to breaking up of a joint venture before the start of work, which are not attributable to the poor performance of the contractor will, however, not affect the qualification of the individual partners.

4.5 **A. To qualify for award of the contract, each bidder in its name should have in the last five years as referred to in Appendix :–**

(a) Achieved in any one year a minimum annual financial turnover (in all classes of civil engineering construction works only) volume of construction work of at least the amount equal to the 50% (fifty percent) estimated cost of works for which bid has been invited. The turnover will be indexed at the rate of 8% for a year**.**

(b) Satisfactorily completed as a prime contractor (or as a nominated subcontractor, where the subcontract involved execution of all main items of work described in the bid document, provided further that all other qualification criteria are satisfied) at least one similar work of value not less than amount indicated in Appendix (not less than **1**0% (Ten percent) of estimated value of contract),

(c) Executed in a year during the last 5 years the minimum quantities of the following items of work as indicated in Appendix.

– Rising Main & Distribution Network - 63000 Meters .

– House Service Connection- 7303 nos.

(d) Deleted

(e) The contractor or his identified sub-contractor should possess required valid license for executing the water supply / sanitary engineering works and should have executed similar water supply / sanitary engineering works for a minimum amount as indicated in Appendix in any one year.

B. Each bidder should further demonstrate:

(a) Availability (either owned or leased or by procurement against mobilization advances) of the following key and critical equipment for this work:

Based on the studies, carried out by the Engineer the minimum suggested major equipment to attain the completion of works in accordance with the prescribed construction schedule are shown in the Annexure-I.

Availability of the testing equipment required for establishing field laboratory to perform mandatory tests e.g. those stated in Appendix to ITB.

The bidders should, however, undertake their own studies and furnish with their bid, a detailed construction planning and methodology supported with layout and necessary drawings and calculations (detailed) as stated in clause 4.3(i) above to allow BUIDCo to review their proposals. The numbers, types and capacities of each plant/equipment shall be shown in the proposals along with the cycle time for each operation for the given production capacity to match the requirements.

(b) Availability for this work of personnel with adequate experience as required; as per Annexure-II.

(c) Liquid assets and/or availability of credit facilities of no less than amount indicated in Appendix to ITB

(Credit lines/letter of credit/certificates from Banks for meeting the funds requirement etc.- usually the equivalent of the estimated cash flow for 3 months in peak construction period.)

C. To qualify for a group of contracts made up of this and other contracts for which bids are invited in the IFB, the bidder must demonstrate having experience and resources sufficient to meet the aggregate of the qualifying criteria for the individual groups.

4.6 Sub-contractors' experience and resources shall not be taken into account in determining the bidder's compliance with the qualifying criteria.

4.7 Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity is more than the total bid value. The available bid capacity will be calculated as under :

Assessed Available Bid capacity = (A*N*3 – B)

Where

A = Maximum value of civil engineering works executed in any one year during the last five years (updated to the price level of the year indicated in Appendix) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which bids are invited.

B = Value (updated to the price level of the year indicated in Appendix) of existing commitments and on-going works to be completed during the next 2.5Years(period of completion of the works for which bids are invited)

Note : *The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer in charge, not below the rank of an Executive Engineer or equivalent.*

4.8 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- have record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc; and/or
- participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.

5.One Bid per Bidder

5.1 Each bidder shall submit only one bid for any work or one package or group. A bidder who submits or participates in more than one Bid (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Bidder's participation to be disqualified.

6.Cost of Bidding

6.1 The bidder shall bear all costs associated with the preparation and submission of his Bid and BUIDCo will in no case be responsible and liable for those costs.

In case of cancellation of tender, cost of bidding document will be charged each time.

7. Site Visit

7.1 The Bidder, at the Bidder's own responsibility and risk must visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

7.2. Tender documents are not transferable.

B.BIDDING DOCUMENTS

8. Content of Bidding Documents

8.1 The set of bidding documents comprises the documents listed below and addendum issued in accordance with Clause 10;

Section	Particulars	Volume No.
	Notice Inviting Tender	**I**
	Corrigendum – 1	
1	**Instructions to Bidders**	
2	**Qualifications of Bidders**	
3	**Conditions of Contracts**	
4	**Contract Data**	
5	**Special condition of Contract**	**II**
6	**Technical Specifications**	**III**
7	**Bill of Quantities**	
8	**Securities and other forms**	
9	**Drawings**	**IV**
10	**Documents to be furnished by bidder**	**V**

8.2 Bidders will have to down load each of the volumes I, II, III and IV in compliance to section 2 and completed documents will be uploaded by him as Volume- V in two parts (refer clause 12).

8.3 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, technical specifications, bill of quantities, forms, Annexes and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 25 hereof, bids which are not substantially responsive to the requirements of the Bid Documents shall be rejected.

9. **Clarification of Bid documents**

9.1 Pre-bid meeting

9.1.1 The bidder or his official representative is invited to attend a pre-bid meeting which will take place at the address, venue, time and date as indicated in appendix.

9.1.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

9.1.3 The bidder is requested to submit any questions in writing or by fax or through E-Mail to reach BUIDCo not later than one week before the pre-bid meeting.

9.1.4 Minutes of the meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given will be transmitted without delay to all through eproc website. Any modification of the bidding documents listed in Sub-Clause 8.1 which may become necessary as a result of the pre-bid meeting shall be made by BUIDCo exclusively through the issue of an Addendum pursuant to Clause 10 and not through the minutes of the pre-bid meeting. All bidders have to download any addendum from the website. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

10. Amendment of Bidding Documents

10.1 Before the deadline for submission of bids, BUIDCo may modify the bidding documents by issuing addendum.

10.2 Any addendum thus issued shall be part of the bidding documents and shall be downloaded by all the bidders.

10.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, BUIDCo may, at its discretion, extend as necessary the deadline for submission of bids, in accordance with Sub-Clause 20.2.

C. PREPARATION OF BIDS

11. Language of the Bid

11.1 All documents relating to the bid shall be in English.

12. Documents Comprising the Bid

12.1 The bid to be uploaded by the bidder as Volume V of the bid document (refer Clause 8.1) shall be in two separate parts;

Part I shall be named "Technical Bid" and shall comprise

(i) Earnest money in the form specified in Section 8

(ii) Qualification Information and supporting documents as specified in Section- 2

(iii) Certificates, undertakings, affidavits as specified in Section 2

(iv) Any other information pursuant to Clause 4.2 of these instructions

(v) Undertaking that the bid shall remain valid for the period specified in Clause 15.1

(vi) An affidavit affirming the information be has furnished in the bidding document is correct to the best of his knowledge and belief.

Part II shall be named "Financial Bid" and shall comprise

(i) Form of Bid as specified in Section 6

(ii) Priced Bill of Quantities for items specified in Section 7

12.2 Each part will be separately prepared and uploaded on website www.eproc.bihar.gov.in in case of e-bidding.

12.3 Following documents, which are not submitted with the bid, will be deemed to be part of the bid**.**

Section	Particulars	Volume No.
1	**Invitation for Bids (IFB)**	
2	**Instructions to Bidders**	**Volume I**
3	**Conditions of Contract**	
4	**Contract Data**	
5	**Specifications**	**Volume II**
8	**Drawings**	**Volume IV**

13.Bid Prices

13.1 The contractor shall bid for the whole work as described in Sub-Clause 1.1 based on the priced Bill of Quantities submitted by the Bidder.

13.1.1 The bidder shall adopt the percentage rate method or item rate method as specified in the appendix to ITB; only the same option is allowed to all the bidders. Percentage rate method requires the bidder to quote a percentage above/below/ at par of the schedule of rates specified in the appendix to ITB. Item

rate method requires to quote rates and prices and line item total (both in figures and words) for all items of the Works described in the Bill of Quantities along with total bid price both in figure and words. Items for which no rate or price is entered by the bidder will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. Corrections, if any, shall be made by crossing out, initialing, dating and rewriting.

13.1.2 All duties, taxes, and other levies payable by the contractor under the contract or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder.

13.2 The rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions clause 10CA & 10CC clause Conditions of Contract.

13.3 The rate should include the cost of all seen and unseen expenditure. No claim, whatsoever, will be entertained due to non-inclusion of any such event necessary for the completion of the item of work.

14. Currencies of Bid and Payment

14.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees. All payments shall be made in Indian Rupees.

15. Bid Validity

15.1 Bids shall remain valid for a period not less than 120 days after the deadline date for bid submission specified in Clause 20.A bid valid for a shorter period shall be rejected by the Employer as non-responsive. In case of discrepancy in bid validity period between that given in the undertaking pursuant to Clause 12.1 (v) and the Form of Bid submitted by the bidder, the latter shall be deemed to stand corrected in accordance with the former and the bidder has to provide for any additional security that is required.

15.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid.

16. Earnest Money

16.1 The Bidder shall furnish, as part of his Bid, a Bid security in the amount as per NIT for this particular work. This bid security shall be in favor of **MD BUIDCo**.

a. Demand Draft of any scheduled Indian Bank.

b. Unconditional bank guarantee from any scheduled Indian bank issued within the state in the format given in Vol. III (If issued from any bank outside state will be converted to any bank within the state before executing the agreement).

16.2 Unconditional bank guarantees (and other instruments having fixed validity) issued as surety for the bid shall be valid for 45 days beyond the validity of the bid.

16.3 Any bid not accompanied by an acceptable Bid Security and not secured as indicated in Sub-Clauses 16.1 and 16.2 above shall be rejected by the Employer as non-responsive.

16.4 The Earnest money of unsuccessful bidders will be returned within 28 days of the end of the bid validity period specified in Sub-Clause 15.1.

16.5 The Earnest money of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.

16.6 The Earnest money may be forfeited

(a) if the Bidder withdraws the Bid after Bid opening during the period of Bid validity;

(b) if the Bidder does not accept the correction of the Bid Price, pursuant to Clause 26; or

(c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to

(i) sign the Agreement; or

(ii) Furnish the required Performance Security.

17. Alternative Proposals by Bidder

17.1 Bidders shall submit offers that fully comply with the requirements of the bidding documents, including the conditions of contract (including mobilization advance or time for completion), basic technical design as indicated in the drawing and specifications. Conditional offer or alternative offers will not be considered further in the process of tender evaluation.

17.2 Conditional tender will be rejected forthwith.

18. Format and Signing of Bid

18.1 The Bidder shall upload Technical bid and financial bid comprising of the documents as described in clause 12 of ITB at the eproc site(www.eproc.bihar.gov.in)

18.2 The Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder, pursuant to Sub-Clause 4.3. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid and a certificate of corrections must be given by BUIDCo.

18.3 The Bid shall contain no alterations or additions, except those to comply with instructions issued by BUIDCo, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

D.SUBMISSION OF BIDS

(only on website: www.eproc.bihar.gov.in)

(Sl.No. 19 To 21.1, shall be done through e-tendering Process)

19. Sealing and Marking of Bids

19.1 The bidder shall download the bid document from the site website: www.eproc.bihar.gov.in and upload the scanned copy of required documents together with filled up documents on the website.: www.eproc.bihar.gov.in

The contents of Technical and Financial Bids will be as specified in clause 12.1

19.2 The employer or service provider is not responsible for any failure such as a bad internet connection or power failure outside of their control. The bidder is responsible to ensure they have sufficient time to submit an electronic bid prior to closing including the payment and receipt of any fees including EMD.

19.3 The bidder have to submit original instruments of EMD and cost of BOQ in a envelope clearly marked the name of bidder, purpose and shall be addressed to the employer.

19.4 Deleted.

20. Deadline for Submission of the Bids

20.1 Complete Bids (including Technical and Financial) must be uploaded at www.eproc.bihar.gov.in not later than the date indicated in appendix.

20.2 The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

21. Late Bids

21.1 Deleted.

E. BID OPENING AND EVALUATION

(Only on website: www.eproc.bihar.gov.in)

(Sl.No. 22 To 27.5, All Process shall be done through e-tendering Process)

22. Bid Opening

22.1 BUIDCo or their authorized representative will open all the Bids submitted on**www.eproc.bihar.gov.in** at the time and date specified in Appendix in the manner specified in Clause 20 and 22.3.

22.2 Deleted.

22.3 The "Technical Bid" shall be opened on the website **www.eproc.bihar.gov.in**. The amount, form and validity of the Earnest money furnished with each bid will be verified. If the bid security furnished does not conform to the amount and validity period as specified in the Invitation for Bid (ref. Column 6), and has not been furnished in the form specified in Clause 16, the technical bid will not be opened.

22.4 (i) Subject to confirmation of the bid security by the issuing Bank, the bids accompanied with valid security will be taken up for evaluation with respect to the Qualification Information and other information furnished in Part I of the bid pursuant to Clause 12.1.

(ii) After receipt of confirmation of the bid security, the bidder will be asked in writing (usually within 10 days of opening of the Technical Bid) to clarify or modify his technical bid, if necessary, with respect to any rectifiable defects.

(iii) The bidders will respond in not more than 7 days of issue of the clarification letter.

(iv) Immediately (usually within 3 to 4 days), on receipt of these clarifications the Evaluation Committee will finalize the list of responsive bidders whose financial bids are eligible for consideration.

22.5 The Financial bids of only those bidders will be opened on the website **www.eproc.bihar.gov.in**, who qualifies in the technical evaluation. The remaining bids will not be opened. The responsive Bidders' names, the Bid prices, the total amount of each bid, any discounts, Bid Modifications and withdrawals, and such other details as BUIDCo may consider appropriate, will be announced by BUIDCo at the opening. Any Bid price or discount, which is not read out and recorded will not be taken into account in Bid Evaluation.

22.6 In case bids are invited in more than one package, the order for opening of the "Financial Bid" shall be that in which they appear in the "Invitation For Bid".

22.7 BUIDCo shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Sub-Clause 22.5

23. Process to be Confidential

23.1 Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by a Bidder to influence BUIDCo's processing of Bids or award decisions may result in the rejection of his Bid.

24. Clarification of Financial Bids

24.1 To assist in the examination, evaluation and comparison of Bids, BUIDCo may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of unit rates. The request for clarification and the response shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by BUIDCo in the evaluation of the Bids in accordance with Clause 26.

24.2 Subject to sub-clause 24.1, no Bidder shall contact BUIDCo on any matter relating to his bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of BUIDCo, it should do so in writing.

24.3 Any effort by the Bidder to influence BUIDCo in BUIDCo's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders' bid.

25. Examination of Bids and Determination of Responsiveness

25.1 During detailed evaluation of "Technical Bids", BUIDCo will determine whether each Bid (a) meets the eligibility criteria defined in Clause 3 and 4; (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding documents. During the detailed evaluation of the "Financial Bid", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications, and drawings.

25.2 A substantially responsive "Financial Bid" is one which conforms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality or performance of the Works; (b) which limits in any substantial way, inconsistent with the Bidding documents, BUIDCo's rights

or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

25.3 If a "Financial Bid" is not substantially responsive, it will be rejected by BUIDCo, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

26. Correction of Errors

26.1 "Financial Bids" determined to be substantially responsive will be checked by BUIDCo for any arithmetic errors. Errors will be corrected by BUIDCo as follows:

(a) Where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and

(b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quality, the unit rate as quoted will govern.

26.2 The amount stated in the "Financial Bid" will be corrected by BUIDCo in accordance with the above procedure and the bid amount adjusted with the concurrence of the Bidder in the following manner:

(a) If the Bid price increases as a result of these corrections, the amount as stated in the bid will be the 'bid price' and the increase will be treated as rebate;

(b) If the bid price decreases as a result of the corrections, the decreased amount will be treated as the 'bid price'

Such adjusted bid price shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected, and the Earnest money may be forfeited in accordance with Sub-Clause 16.6(b).

27. Evaluation and Comparison of Financial Bids

27.1 BUIDCo will evaluate and compare only the Bids determined to be substantially responsive in accordance with Sub-Clause 25.2.

27.2 In evaluating the Bids, BUIDCo will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:

(a) making any correction for errors pursuant to Clause 26; or

(b) making an appropriate adjustments for any other acceptable variations, deviations.

27.3 BUIDCo reserves the right to accept or reject any variation or deviation. Variations and deviations and other factors, which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for BUIDCo, shall not be taken into account in Bid evaluation.

27.4 If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract, BUIDCo may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, BUIDCo may require that the amount of the performance security set forth in Clause 31 be increased at the expense of the successful Bidder to a level sufficient to protect BUIDCo against financial loss in the event of default of the successful Bidder under the Contract.

27.5 A bid, in the opinion of employee which contains several items in the Bill of Quantities which are unrealistically priced low and which cannot be substantiated satisfactorily by the bidder, may be rejected as non-responsive.

F. AWARD OF CONTRACT

28. Award Criteria

28.1 Subject to Clause 29, BUIDCo will award the Contract to the Bidder whose Bid has been determined

(i) to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Priceon overall evaluation for both schedule A (Percentage Rate Method) & Schedule B (Item Rate Method); and

(ii) to be within the available bid capacity adjusted to account for his bid price which is evaluated the lowest in any of the packages opened earlier than the one under consideration.

In no case, the contract shall be awarded to any bidder whose available bid capacity is less than the evaluated bid price, even if the said bid is the lowest evaluated bid. The contract will in such cases be awarded to the next lowest bidder at his evaluated bid price.

29. BUIDCo's Right to Accept any Bid and to Reject any or all Bids

Notwithstanding Clause 28, BUIDCo reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of Contract, without thereby in incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for BUIDCo's action.

30. Notification of Award and Signing of Agreement

30.1 The Bidder whose Bid has been accepted will be notified of the award by BUIDCo prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the *General Conditions of Contract* called the "Letter of Acceptance") will state the sum that BUIDCo will pay the Contractor in consideration of the execution, completion and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

30.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of the performance security in accordance with the provisions of Clause 31.

30.3 The Agreement will incorporate all agreements between BUIDCo and the successful Bidder. It will be signed by BUIDCo and the successful Bidder, after the performance security is furnished.

31. Performance Security

31.1 Within 15 (Fifteen) days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to BUIDCo a Performance Security in any of the forms given below for an amount equivalent 2% of the Contract price plus additional security for unbalanced Bids in accordance with the Clause 27.4 of ITB and the provisions of Bihar Financial Rules.

31.2 If the performance security is provided by the successful Bidder in the form of Bank Guarantee, it shall be issued either (a) at the Bidder's option, by a Nationalized/ Scheduled Indian bank within state or (b) acceptable to BUIDCo.

31.3 Failure of the successful Bidder to comply with the requirements of Sub-Clause 31.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security.

32. Advance Payment and Security

32.1 BUIDCo will provide an Advance Payment on the Contract Price as stipulated in the General Conditions of Contract, subject to maximum amount, as stated in the Contract Data.

33. Corrupt or Fraudulent Practices

33.1 BUIDCo will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract with BUIDCoor any other agencies, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contractor, or in execution.

33.2 Furthermore, Bidders shall be aware of the provision stated in Sub-Clause and Sub-Clause 14 of the General Conditions of Contract.

G. APPENDIX to ITB

Clause Reference with respect to Section-I.

1. Name of the Employer : Managing Director, BUIDCo. **[Cl. 1.1]**

2. The last five years means for this tender

2014 – 2015

2015– 2016

2016– 2017

2017- 2018

2018 - 2019

3. The required annual financial turn over amount is Rs. 2707.655 Lakh **[Cl. 4.5A(a)]**

4. The required minimum value of one similar work is Rs. 541.5311 Lakh **[Cl. 4.5A(b)]**

5. Minimum Quantities of work are :- as prescribed by BUIDCo **[Cl. 4.5A(c)]**

Executed in a year during the last 5 years the minimum quantities of the following items of work as indicated in Appendix.

– Rising Main & Distribution Network - 63000 Meters .

– House Service Connection- 7303 nos.

6. The cost of electric work is :- As per BOQ

7. The cost of water supply/ sanitary works is :- As per BOQ

8. Liquid assets and/or availability of credit facilities is 10% 0f Estimated Cost. **[Cl. 4.4B(c)]**

9. Price level of the financial year 2018.

10. The Pre-bid meeting will take place at BUIDCo Office at 03:00 PM on date- 03.09.2019

11. The technical bid will be opened at 03***.30 pm on 18.09.2019 through*** website **www.eproc.bihar.gov.in.**

12. Address of the Employer **[Cl. 4.5(a)]**

Managing Director,

Bihar Urban Infrastructure Development Corporation Limited.

Near Rajapur Pul, West Boring Canal Road, Patna-800001
(Tel: 0612-2506213/2506109,Email: mdbuidco@gmail.com)

13. Identification: **[/cl. 19.2(b)]**

Bid for:

Design and Construction of Drinking Water Supply Scheme of Jamalpur Nagar Parishad under AMRUT and State Plan Scheme (Phase II) with six months of Trial run and thereafter operation and maintenance of system for next five years.

(A) Construction of DC/CI Distribution Network (Zone-1 and Zone-4) -73.2006 Km, providing house service connection-6605, SCADA system -2 Nos.-3046.961 Lakh under Amrut Scheme.

(B) Construction of Distribution Network (Zone-2 and Zone-3) -51.6007 Km, providing house service connection-8000, SCADA-2 Nos.-2488.35 Lakh".

NIT No. – BUIDCo/Yo-1240/19-60, Date: 22.08.2019

14. **Bids may be submitted only in Item Rate Method**

15. **The bidders not to quote the rate beyond 10% below of the estimated cost. Failing which the bid shall be rejected.**

16. **Schedule of rate applicable for Percentage Rate Method is SOR 2018.**

17. **The bid should be submitted (Upload) latest by 5.00 PM on 17.09.2019 *through website:www.eproc.bihar.gov.in only.*** **[Cl. 20.1(a)]**

18. The technical bid will be opened at ***03.30 PM on 18.09.2019 through*** website **www.eproc.bihar.gov.in.** **[Cl. 23.1]**

19. **The Bank Draft in favor of Managing Director, Bihar Urban Infrastructure Development Corporation Limited. Patna.** **[Cl. 34.1]**

20. **Escalation factors (for the cost of works executed and financial figure to a common base value for works completed)**

Year before	Multiply factor
One	1.10
Two	1.21
Three	1.33
Four	1.46
Five	1.61

Annexure-I

List of Key Plant & Equipment to be deployed on PHED Works

[Reference CI. 4.5 (B) (a)]

Sl No.	Type of Equipment	Max *** Age as on (07-08)	Water Supply Scheme Package Size **			
			Rs. 1 – 5 Crores	Rs. 5 – 30 Crores	Rs. 30 –50 Crores	Above Rs.50 Crores
1	Concrete Mixer	5	1	2	2	3
2	Vibrator	5	2	4	4	6
3	Rotary Drilling / Reverse Rotary / DTH Rig Machine	5	1	1	2	2
4	Compressor	5	1	1	2	2
5	Crane (1.5 MT to 2.5 MT)	5	1	1	2	2
6	Truck/Tractor with trailer	5	1	1	2	3
7	Hydraulic Excavator	5	-	-	-	2
8	Digital Level Instrument ****	5	-			

* The Actual Number of equipment's to be decided by the Concerned Public Health division/circle/Zone/Department before floating the tender.

** On the basis of nature of construction work list of key plant & equipment's will be decided.

*** Life of machine minus Two Years or Five Years on 1.04.14 whichever is more.

**** Required for drainage/Sewerage Scheme

The lists are only suggestive but not binding

Annexure-II
List of Key Personnel to be deployed on Contract Work
[Reference CI. 4.5 (B) (b)]

List of Key Personnel to be deployed on Contract Work [Reference Cl. 4.5(B) (b)]									
Sl. No.	Personnel	Qualification	Contract Package Size						
			Rs.5-30 lacs	Rs30-70 Lacs	Rs70 Lacs to 2 Crores	Rs.2-10 Crores	Rs10-30 Crores	Rs30-50 Crores	More than 50 Crores
1	Project Manager	B.E. Civil + 10Years Exp. (5 years as Manager in PHED works) or retired E.E. & above of PHED	-	0	0	1	1	1	1
2	Site Engineer	B.E. Civil + 07Years Exp. (3 years as Manager in PHED works) or retired A.E. & above of PHED	-	0	1	1	2	3	4
3	Site Supervisor	B.E. Mech./Civil + 05 Years Exp. Or Dip. Mech./Civil + 07 years Exp. Or or retired J.E. & above of PHED	1	1	1	2	2	3	4
4	*Surveyor*	*B.E. Civil + 03 Years Exp. or Dip. Civil + 05 years Exp.*							*3*
	Total		**1**	**1**	**2**	**4**	**5**	**7**	**12**

The lists are only suggestive but not binding

SECTION 2

QUALIFICATION INFORMARION

(To be filled in by Bidder)

QUALIFICATION INFORMATION

The information to be filled in by the Bidder in the following pages will be used for purposes of post qualification as provided for in Clause 4 of the Instructions to Bidders. This information will not be incorporated in the Contract.

1. For Individual Bidders

1.1 Constitution or legal status of Bidder
(Attach copy)

Place of registration:

Principal place of business:

Power of attorney of signatory of Bid
(Attach)

1.2 Total value of Civil Engineering construction work performed in the last seven years** (in Rs. Million)

20_____20_____
20_____20_____
20_____20_____

1.3.1 Work performed as prime contractor, work performed in the past as a nominated sub- contractor will also be considered provided the sub-contract involved execution of all main items of work described in the bid document, provided further that all other qualification criteria are satisfied (in the same name) on works of a similar nature over the last five years.**

Project Name	Name of the Employer*	Description of work	Contract No.	Value of Contract (Rs. In Crores)	Date of issue of work order	Stipulated period of completion	Actual date of completion *	Remarks explaining reasons for delay & work completed)

* *Attach certificate(s) from the Engineer(s)-in-Charge*
** *Immediately preceding the financial year in which bids are received.*
β *Attach certificate from Chartered Accountant*

1.3.2. Quantities of work executed as prime contractor, work performed in the past as a nominated sub-contractor will also be considered provided the sub-contract involved execution of all main items of work described in the bid document, provided further that all other qualification criteria are satisfied (in the same name and style) in the last seven years :**

Year	Name of the work	Name of the Employer*	Quantity of work performed (cum) @ Remarks						
			Cement Concrete (including RCC & PCC)	Masonry	Earth works	WBM	WMM	Bituminous Work	Remarks* (indicate contract Ref)
20__20__ 20__20__ 20__20__ 20__20__ 20__20__									

1.4 Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.

(A) Existing commitments and on-going works:

Description of works	Place & State	Contract No.	Name & Address of Employer	Value of Contract (Rs Cr)	Stipulated Period of Completion	Value of works* remaining to be completed (Rs Cr)	Anticipated date of completion
1	2	3	4	5	6	7	8

** Attach certificate(s) from the Engineer(s)-in-Charge*
@ The item of work for which data is requested should tally with that specified in ITB clause 4.5A (c)
*** Immediately preceding the financial year in which bids are received.*
 # Delete, if prequalification has been carried out.

(B) Works for which bids already submitted :

Description of works	Place & State	Name & Address of Employer	Estimated value of works (Rs Cr)	Stipulated period of completion	Date when decision is expected	Remarks, if any
1	2	3	4	5	6	7

1.5 Availability of key items of Contractor's Equipment essential for carrying out the Works [Ref. Clause 4.5(B)(a)]. The Bidder should list all the information requested below. Refer also to Sub Clause 4.3 (d) of the Instruction to Bidders.

Description of works	Requirement		Availability proposals			Remarks (from whom to be purchased)
	No.	Capacity	Owned/Leased to be procured	Nos./Capacity	Age/ Condition	
1	2	3	4	5	6	7

1.6 Qualifications and experience of key personnel required for administration and execution of the Contract [Ref. Clause 4.5(B)(b)]. Attach biographical data. Refer also to Sub Clause 4.3 (e) of instructions to Bidders and Sub Clause 9.1 of the Conditions of Contract.

Position	Name	Qualification	Year of Experience (General)	Years of experience in the proposed position
Project Manager				
Etc.				

1.7 Proposed sub-contracts and firms involved. [Refer ITB Clause 4.3(k)]

Sanction of the works	Value of Sub-contract	Sub-contractor (Name & Address)	Experience in similar work
1	2	3	4

Attach copies of certificates on possession of valid license for executing water supply/ sanitary work/ building electrification works [Reference Clause 4.5(d) & Clause 4.5(e)]

*1.8 Financial reports for the last seven years: balance sheets, profit and loss statements, auditors' reports (in case of companies/corporation), etc. List them below and attach copies.

1.9 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List them below and attach copies of support documents.

1.10 Name, address and telephone, telex and fax numbers of the Bidders' bankers who may provide references if contacted by BUIDCo.

1.11 Information on litigation history in which the Bidder is involved.

Other Party(ies)	Employer	Cause of Dispute	Amount involved	Remarks showing Present Status

1.12 Statement of compliance under the requirements of Sub Clause 3.2 of the instructions to Bidders. (Name of Consultant engaged for project preparation is ** ..... …….....)

_____

_____

1.13 Proposed work method and schedule. The Bidder should attach descriptions, drawings and charts as necessary to comply with the requirements of the Bidding documents. [Refer ITB Clause 4.1 & 4.3(1)]

1.14 Programme

1.15 Quality Assurance Programme

2. Additional Requirements

2.1 Bidders should provide any additional information required to fulfill the requirements of Clause 4 of the Instructions to the Bidders, if applicable.

(i) Affidavit

(ii) Undertaking

*** (iii) Update of original prequalification application

*** (iv) Copy of original prequalification application

*** (v) Copy of prequalification letter

_____

** *Fill the Name of Consultant.*

*** *Delete, if prequalification has not been carried out.*

SAMPLE FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CREDIT FACILITIES

(CLAUSE 4.2 (i) OF ITB)

BANK CERTIFICATE

This is to certify that M/s. _____ is a reputed company with a good financial standing.

If the contract for the work, namely _____is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs._____ to meet their working capital requirements for executing to the above contract during the contract period.

_____

(Signature)

Name of Bank

Senior Bank Manager

Address of the Bank

AFFIDAVIT

1. **I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.**

2. **The undersigned also hereby certifies that neither our firm M/s_____ _____ has been blacklisted nor has abandoned any work in any government department, India nor any contract awarded to us for such works have been rescinded, during last five years prior to the date of this bid.**

3. **The undersigned hereby authorizes and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by BUIDCo to verify this statement or regarding my (our) competence and general reputation.**

4. **The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of BUIDCo.**

_____

(Signed by an Authorized Officer of the Firm)

_____

Title of Officer

_____

Name of Firm

_____

DATE

UNDERTAKING

I, the undersigned do hereby undertake that our firm M/s _____ _____ would invest a minimum cash up to 25% of the value of the work during implementation of the Contract.

_____

(Signed by an Authorised Officer of the Firm)

_____

Title of Officer

_____

Name of Firm

_____

DATE

SECTION 3

GENERAL CONDITIONS OF CONTRACT

Table of Contents

Finishing Control

Quality Control

Other Condition & Control

GENERAL GUIDELINES

1. **This book of "General Conditions of Contract" is applicable to both types of tenders i.e. "Percentage rate tenders" and "Item rate tenders". Accordingly alternative provisions for conditions Nos. 4, The appropriate alternatives will be applicable in specific cases depending on whether this is used for percentage rate tender or item rate tender Schedules A to F, special conditions/ specifications and drawing only will be issued to intending bidders. The standard form shall form part of the agreement to be drawn and signed by both parties after acceptance of tender.**

3. **All blanks are confined to Notice Inviting Tender and Schedules A to F.**

4. **Authority approving the Notice Inviting Tender (NIT) shall fill up all the blanks in 6 and in Schedules B to F before issue of Tender Papers.**

5. **The intending bidders will quote their rates in Schedule A.**

6. **The Performa for registers and Schedules A to F are only for information and guidance. These are not to be filled in the Standard Form. The Schedules with all blanks, duly filled shall be separately issued to all intending tenderers.**

Bihar Urban Infrastructure Development Corporation Limited
(A Govt. Of Bihar Undertaking)

1. Tender on the behalf of Government of Bihar invites percentage rate For SOR Item and Item rate for Non SOR Item bids from the eligible and approved contractor registered with State other State &Central Government / PSU or any Agency of National or International repute for each of the following works.

District	Name of work	Estimated cost in Rs.	Earnest moneyinRs.	Time allowed for completion	Last date and time for receipt of application for issue of tender forms	Time and date of opening of tender	Place of sale and submission of tender
1	2	3	4	5	6	7	8
As per NIT							www.eproc.bihar.gov.in *only*

The bidders who download the bidding documents from the internet site www.eproc.bihar.gov.in

would have to pay the cost of bid documents and submit it in a separate envelope marked cost of bidding document downloaded from internet.

Criteria of eligibility for issue of tender document

1.1 Issue of Tender to any Contractor registered with Central Government / any State Government or any PSU or an agency of international or national repute may be submitted without the registration. However, registration with the concerned works department will be essential after issue of L.O.A.

Following documents duly attested by gazetted officer and photocopied are required at the time of submission of bid (In case of other State PWD/ CPWD/ any PSU eligible contractors or Agencies of National/ International repute following documents (from a to c) have to be submitted after letter of acceptance).

(a) Registration paper (renewed) of appropriate class and deptt.

(b) Latest sales tax clearance/ sales tax registration in State of Bihar.

(c) Latest labour license (renewed) in State of Bihar.

(d) Power of attorney/ partnership deed/ MoU of private limited company.

(e) Bank Draft for B.O.Q. cost.

(f) Tools & plans ownership/ lease certificate required in aforesaid work duly verified from Project director / other State PWD / CPWD Contractor will provide definite proof from appropriate authority for tools & Plant and Undertaking to install it on works site after getting letter of acceptance.

2. Agreement shall be drawn with the successful tenderer on Agreement Form attached. Tenderer shall quote his rates as overall percentage above/below for SOR Items where as for Non SOR items bidder should quote item wise rate. The amount of B.O.Q. as per various terms and conditions of the said form which will form part of the agreement.

3. The amount of Estimated Cost or B.O.Q. Cost of the work may vary.

4. The earnest money will be applicable on the sanction cost of B.O.Q. only.

5. The time allowed for carrying out the work will be from the same day after the date of written orders to commence the work or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the tender documents.

6. The site for the work is available.

OR

The site for the work shall be made available in parts as specified below :-

_____

_____

_____

7. Deleted

Tender documents consisting of plans, specifications, the schedule of quantities of the various classes of work to be done and the set of terms & conditions of contract to be complied with by the contractor whose tender may be accepted and other necessary documents can be seen at the siteof thewww.eproc.bihar.gov.in. Tender documents, including standard form, will be ***Downloaded*** from www.eproc.bihar.gov.induring the ***Dates*** specified in Appendix to ITB.

8. Original Draft of Cost of B.O.Q and Earnest Money in Prescribed form, which should always be placed in sealed envelope, with the name of work and due date written on the envelopes, will be received by the Managing Director /Chief General Manager BUIDCo

9. The Contractor shall be required to deposit an amount equal to 2% of the tendered value of the work as performance guarantee in the form as mentioned in Bihar Financial Rules. For works costing more than one Crore, bank guarantee is acceptable.

10. The description of the work is as follows: -

As per NIT

Copies of other drawings and documents pertaining to the works will be open for inspection by the tenderers at the office of the above-mentioned officer.

Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and bub-soil (so far as is practicable), the form and nature of the site, the means of access to the site the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tool & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by BUIDCo and local conditions and other factors having a bearing on the execution of the work.

11 Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.

12 The competent authority on behalf of Governor of Bihar reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall bound to perform the same at the rate quoted.

13 The contractor shall not be permitted to tender for works in the BUIDCo(responsible for award and execution of contracts) in which his near relative is posted as **Accountant** or as an officer in any capacity between the grades of C.E/S.E/EE/AE/JE (all inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any **officer** in BUIDCo. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of **BUIDCo**.

14 No Engineer of Gazetted rank or other Gazetted officer employed in Engineering or Administrative duties in an Engineering Department of the Government of Bihar is allowed to work as a contractor for a period of two years after his retirement from Government service, without the previous permission of the Government of Bihar in writing. This contract is liable to be cancelled if either the contractor or any of his employee is found any time to be such a person who had not obtained the permission to the Government of Bihar as aforesaid before submission of the tender or engagement in the contractors service.

15 The tender for the works shall remain open for acceptance for a period of 120 days from the date of opening of tenders. If any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit **100%** of the said earnest money as aforesaid.

17. BUIDCo has right to cancel or postpone any work without given any notice or clarification.

18. BUIDCo may add or delete any of the condition required for execution of any work.

19. This Notice Inviting Tender shall form a part of the contract document. The successful tenderer/contractor, the **Competent Authority**, shall issue the letter of acceptance and will sign the contract within 15 days after submitting the performance guarantee.

Bihar Urban Infrastructure Development Corporation Limited
(A Govt. Of Bihar Undertaking)

STATE - BIHAR

Organization : BUIDCo

Percentage Rate Tender For SOR Items & Item Rate Non SOR items& Contract for Works

(A) Tender for the work of: -

As per NIT

(i) To be submitted (Upload)by DATE*.....up to TIME 4.00 PM*

(ii) To be opened at ***DATE ..... TIME04:00 PM Through website.***www.eproc.bihar.gov.in

T E N D E R

I/We have read and examined the notice inviting tender, schedule, A,B,C,D,E & F. Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the Governor of Bihar within the time specified in Schedule 'F', viz., schedule of quantities and in accordance in all in respects with the specifications, designs, drawings and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect in accordance with, such conditions so far as applicable.

We agree to keep the tender open for one hundred twenty (120) days from the due date of submission thereof and not to make any modifications in its terms and conditions.

Bid cost(Non Refundable) and EMD for one or all groups as mentioned in NIT shall be submitted by the bidder. If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/we agree that the said Governor of Bihar or his successors in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if/we fail to commence work as specified, I/we agree that Governor of Bihar or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, up to maximum of the percentage mentioned in Schedule 'F' and those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated .....

Signature of Contractor
Postal Address

Witness :

Address :

Occupation :

A C C E P T A N C E

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the Governor of Bihar for a sum of Rs.....(Rupees.....)

The letters referred to below shall form part of this contract Agreement :-

a)

b)

c)

For & on behalf of the Governor of Bihar.

Signature .....

Dated .....

-

Bihar Urban Infrastructure Development Corporation Limited

(A Govt. of Bihar Undertaking)

General Rules & Directions

1. All work proposed for execution by contract will be notified in a form of invitation to tender pasted in public places and signed by the officer inviting tender or by publication in News papers and the internet as the case may be.

This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender, and the amount of the security deposit to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills. Copies of the specifications, designs and drawings and any other documents required in connection with the work signed for the purpose of identification by the officer inviting tender shall also be open for inspection by the contractor at the office of officer inviting tender during office hours.

2. In the event of the tender being submitted by a firm, it must be signed separately either by one or all the partners or person duly authorized by the partners, it must be signed on behalf of the firm by a person holding the requisite authorizations, such authorizations to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.

3. Receipts for payment on account of work done, when executed by a firm, must also be signed by one or all the partners or a duly authorized signatory of the firm.

Applicable for Item Rate Tender only (PWD- 3)

4. Any person who submits a tender shall fill up the usual printed form, stating at what rate he is willing to undertake each item of the work. Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort, will be liable to rejection. No single tender shall include more than one work, but contractors who wish to tender two or more works shall submit separate tenders for each; with the nature and number of works to which they refer on the envelope.

The rate(s) must be quoted in decimal coinage. Amounts must be quoted in full rupees by ignoring fifty paisa and less and considering more that fifty paisa as rupee one.

Applicable for Percentage Rate Tender only (PWD - 2)

4A. In case of Percentage Rate Tenders, tenderer shall fill up the usual printed form, stating at what percentage below/above (in figures as well as in words) the total estimated cost given in Schedule of Quantities at Schedule- A, he will be willing to execute the work Tenders, which propose any alteration in the work specified in the said form of invitation tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort, will be liable to rejection. No single tender shall include more than one work but contractors who wish to tender for two or more works shall submit separate tender for each. Tender shall have the name and number of the works to which they refer, written on the envelope.

If for any special reasons, the contract provides for the payments for work done to be made at a specified percentage below or above the rates entered in the sanctioned estimate of the work (or the Scheduled of Rates), it should be stated in clear terms in the contract that the deductions or additions, as the case may be of the percentage, will be calculated on the

gross, and not the net amounts of thebills for work done and in fixing the percentage it should be borne in mind that the calculations will be made.

5. The officer inviting tender or his duly authorized assistant will open tenders in the presence of any intending contractors who may be present at the time, and will enter the amount of the several tenders in a comparative statement in a suitable form. In the event of a tender being accepted, a receipt for the earnest money forwarded therewith shall thereupon be given to the contractor who shall thereupon for the purpose of identification sign copies of the specifications and other documents mentioned in Rule-I. In the event of a tender being rejected, the earnest money forwarded with such unaccepted tender shall thereupon be returned to the contractor remitting the same, without any interest.

6. The officer inviting tenders shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any other tender.

7. The receipt of an accountant or clerk for any money paid by the contractor will not be considered as an acknowledgment or payment to the officer inviting tender and the contractors shall be responsible for seeing that he procures a receipt signed by the office inviting tender or a duly authorized person.

8. The memorandum of work tendered for and the schedule of materials to be supplied by the department and their issue-rates, shall be filled and completed in the office of the officer inviting tender before the tender form is issued. If a form is issued to an intending tenderer without having been so filled in and incomplete, he shall request the officer to have this done before he completes and delivers his tender.

9. For works of sensitive nature the tenderers shall sign a declaration under the Official Secrets Act 1923, for maintaining secrecy of the tender documents drawing or other records connected with the work given to them. The unsuccessful tenderers shall return all the drawing given to them.

10. **Applicable for Item Rate Tender only (PWD - 3)**

In the case of Item Rate Tenders, only rates quoted shall be considered. Any tender containing percentage below/above the rates quoted is liable to be rejected. Rates quoted by the contractor in item rate tender in figures and words shall be accurately filled in so that there is no discrepancy if any discrepancy found or the rates which correspond with the amount worked out of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or in words then the rates quoted by the contractor in words shall be taken as correct. Where the rates quoted by the contractor in figures and in words tally but the amount is not worked out correctly, the rates quoted by the contractor will unless otherwise proved be taken as correct and not the amount.

10A. **Applicable for Percentage Rate Tender only (PWD - 2)**

In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the contractor in percentage rate tender shall be accurately filled in figures and words, so that there is no discrepancy. However if the contractor has worked out the amount of the tender and if any discrepancy is found in the percentage quoted in words and figures, the percentage which corresponds with the amount worked out by the contractor shall, unless otherwise proved, be take as correct. If the amount of the tender is not worked out by the contractor or it does not correspond with the percentage written either in figures or in words then the percentage quoted by the contractor in words shall be taken as correct. Where the percentage quoted by the contractor in figures and in words tally but the amount is not worked out correctly, the percentage quoted by the contractor will, unless otherwise proved, be taken as correct and not the amount.

11. In the case of any tender where unit rates of any item/items appear unrealistic, such tender will be considered as unbalanced and in case the tenderer is unable to provide satisfactory explanation such a tender is liable to be disqualified and rejected.

12. All rates shall be quoted on the tender form. The amount for each item should be worked out and requisite totals given. Special care should be taken to write the rates in figures as well as in words and the amount in figures only, in such a way that interpolation is not possible. The total amount should be written both in figures and in words. In case of figures, the word 'Rs' should be written before the figure of rupees and word 'P' after the decimal figures, e.g. 'Rs 2.15 P' and in case of words, the word, 'Rupees' should precede and the word 'Paise' should be written in the end. Unless the rate is in whole rupee and followed by the word 'only' it should invariably be up to two decimal places. While quoting the rate in schedule of quantities, the word 'only' should be written closely following the amount and it should not be written in the next line.

Applicable for Item Rate Tender only

12A. In Percentage Rate Tender, the tenderer shall quote percentage below/above (in figures as well as in words) at which he will be willing to execute the work. He shall also work out the total amount of his offer and the same should be written in figures as well as in words in such a way that no interpolation is possible. In case of figures, the word 'Rs' should be written before the figure of rupees and word P after the decimal figures, e.g. 'Rs 2.15 P and in case of words, the word 'Rupees' should precede and the word 'paisa' should be written at the end.

Applicable for Percentage Rate Tender only (PWD- 2)

The Quoted rate less than x % below the BOQ cost will be unworkable and bid will be rejected where x = 10 %; if materials will not be issued by BUIDCo. And if materials will be issued by BUIDCo then

$$X = (A – B) / A \times 10\ \%$$

Where A = BOQ Cost

B = Cost of materials stipulated to be issued by BUIDCo.

Where the value of X will not be less than 10% in other words it will be within 10%.

13. (i) The contractor whose tender is accepted, will be required to furnish performance guarantee of 2 (two percent) including earnest money of the tendered amount within specified period. This guarantee shall be in the form of Govt. Securities or fixed deposit receipt of any scheduled bank, guarantee bonds of any scheduled bank or State Bank of India or Bank guarantee from any schedule bank in the State for works of more than one crore.

(ii) The contractor whose tender is accepted will also be required to furnish by way of Security Deposit for the fulfillment of his contract, an amount equal to 8 % of the tendered value of the work. The security deposit will be collected by deductions from the running bills of the contractor at the rates mentioned above

14. On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Engineer-in-Charge shall be communicated in writing to the Engineer-in-Charge.

15. Sales-tax, purchase tax, turnover tax, service tax, entry tax royalty or any other tax on material in respect of this contract shall be payable by the Contractor and Government will not entertain any claim whatsoever in respect of the same.

16. The contractor shall give a list of bothgazetted and non-gazetted P.W.D. employees related to him posted in the division, if any.

17. The tender for the work shall not be witnessed by a contractor or contractors who himself/themselves has/have tendered or who may and has/have tendered for the same work. Failure to observe this condition would render, tenders of the contractors tendering, as well as witnessing the tender, liable to summary rejection.

18. The tender for composite work includes in addition to building work all other works such as sanitary and water supply installations drainage installation, electrical work, horticulture work, roads and paths etc. The tenderer apart from being a registered contractor (B&R) of appropriate class, must associate himself with agencies of appropriate class which are eligible to tender for sanitary and water supply drainage, electrical and horticulture works in the composite tender.

19. The contractor shall submit list of works which are in hand (progress) in the following form:-

Name of Work	Name of Particular of Div. where work is	Value of Work	Position of work in Progress	Remarks
1	2	3	4	5

20. The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued thereunder from time to time. If he fails to do so, his failure will be a breach of the contract and the General Manager (Works)/ Project Director may in his discretion without prejudice to any other right or remedy available in law cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.

CONDITIONS OF CONTRACT

Definitions : 1. The contract means the document forming the tender and acceptances thereof and the formal agreement executed between the competent authority on behalf of the Governor of Bihar and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time form one contract and shall be complementary to one another.

2. In the contract, the following expressions shall, unless the context otherwise requires have the meanings, hereby respectively assigned to them :-

i) The expression works or work shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

ii) The site shall mean the land/or other places on. into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.

iii) The Contractor shall mean the individual, firm or company, whether incorporate or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm of company.

iv) The Engineer-in-Charge means the Engineer officer who shall supervise and be in-charge of the work and who shall sign the contract on behalf of the Governor of Bihar as mentioned in Schedule 'F' hereunder.

v) Government or Government of Bihar shall mean the Governor of Bihar.

vi) Excepted Risk are risks due to riots (other than those on account of contractor employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, any act of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority Provided that the contractor is also to show that he has taken all due precautions to avoid / un minimise any adverse after / damage from the above or causes solely due to use or occupation by Government of the part of the works in respect of which a certificate of completion has been issued or a caused solely due to Government's faulty design of works.

vii) Bill of quantity means the price and completed Bill of Quantities forming part of the Bid.

viii) The Defect liability certificate is the certificate issued by Engineer-in-Charge after defect liability period has ended and upon correction of defects by the contractor.

ix) The defect liability period will be decided by BUIDCO for different nature of works from date of completion of the work and must be mentioned in the agreement.

It will be decided by the department for different nature of work from time to time as mentioned in contract Data.

x) The intended completion date is the time intended to complete the work by the contractor.

xi) The start date is given in the contract data. It is the date when the contractor shall commence execution of the works. It does not necessarily coincide with any of the site possession date.

xii) A sub contractor is a person or corporate body who has a contract with the contractor to carry out a part of the construction work in the contract, which includes work on the site.

xiii) Temporary works are works designed, constructed, installed and removed by the contractor that are needed for construction or installation of the works.

xiv) Market Rate shall be the rate as decided by the competent authority on the basis of the cost of materials and labour at the site where the work is to be executed plus the percentage mentioned in Schedule 'F' to cover, all overheads and profits.

xv) Schedule(s) referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the standard Schedule of Government mentioned in Schedule 'F' hereunder, with the amendments thereto issued up to date of receipt of the tender.

xvi) Department means any department of Government of Bihar, which invite tenders on behalf of Governor of Bihar as specified in schedule 'F'.

xvii) Specifications means the specifications followed by relevant department of the Government of India / State Government.

xviii) Tender value means the value of the entire work as stipulated in the letter award.

Scope and Performance

3. Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.

4. Heading and Marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken info consideration in the interpretation or construction thereof or of the contract.

5. The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, Schedule of Rates and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other that that of this contract.

Works to be carried out :

6. The work to be carried out under the Contract shall, except as otherwise provided these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities (Schedule - A) shall unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.

Sufficiency of Tender

7. The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.

Discrepancies and Adjustment of Errors

8. The several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale and special conditions in preference to General Conditions.

8.1 In the case of discrepancy between the schedule of Quantities, the Specifications and/or the Drawings, the following order of preference shall be observed :-

i) Description of Schedule of Quantities.

ii) Particular Specification and Special Condition, if any

iii) Drawings.

iv) MORT & H specification.

v) Indian Standard Specifications of B.I.S.

8.2 If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor.

8.3 Any error in description, quantity or rate in Schedule of Quantities or any omission there from shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.

Signing of Contract

9. The successful tenderer/contractor, after submitting the performance guarantee i.e. within 15 days of receipt of letter of acceptance shall attend the office of the Engineer-in-Charge for authentication signing and completion of the contractor document and execute the agreement consisting of :-

i) the notice inviting tender, all the documents including drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.

ii) Standard P.W.D. Form as mentioned in Schedule 'F' consisting of :

Various standard clauses with corrections up to the date stipulated in Schedule 'F' along with annexure thereto.

iii) Drawing.

CLAUSE OF CONTRACT

CLAUSE 1

Performance Guarantee

(i) The contractor shall submit an irrevocable PERFORMANCE GUARANTEE of 2% (Two percent) of the tendered amount including earnest money in the shape as mentioned in the Bihar Financial Rules or Bank Guarantee (for work costing more than one crore) or any other deposits mentioned for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within period specified in scheduled 'F' from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period as specified in schedule 'F' on written request of the contractor stating the reason for delays in procuring the Bank Guarantee, to the satisfaction of the Engineer-in-Charge. This guarantee shall be in the form of N.S.C. of Post Office/ Pledged in favour of department; D.D. of any Scheduled Bank or State Bank of India or Bank Guarantee (for work costing more than Rupees one Crore.

(ii) The performance Guarantee shall be initially valid up to 28 days beyond the defect liability.

(iii) The Engineer-in-Charge shall not make a claim under the Performance guarantee except for amounts to which the Governor of Bihar is entitled under the contract (notwithstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:

(a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance guarantee.

(b) Failure by the contractor to pay Governor of Bihar any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-Charge.

(c) Failure by the contractor to rectify any defects as defined in the defect liability clause in the schedule – F of contract data to the satisfaction of the Engineer incharge.

(iv) In the event of the contract being determined or rescinded under provisions of any of the clause/condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Governor of Bihar.

CLAUSE 1 A

Recovery of Security Deposit

The person/persons whose tender(s) may be accepted (hereinafter called the contractor) shall permit BUIDCo at the time of making any payment to him for work done under the contract to deduct a sum at 8 % (eight percent) from the gross amount of each running bill till full amount of security deposit 10% (ten percent) of agreement value or value of work (whichever is higher) is reached. If value of work exceeds the agreement value, security deposit (10%) will be recovered for the exceeded work.

All compensations or the other sums of money payable by the contractor under the terms of this contract may be deducted from, or paid by the sale of a sufficient part of his security deposit or from the interest arising there from, or from any sums which may be due to or may become due to the contractor by Government on any account whatsoever and in the event of his Security Deposit being reduced by reason of any such deductions or sale as aforesaid, the contractor shall within 10 days make good in cash or fixed deposit receipt tendered by the State Bank of India or by Scheduled Banks or Government Securities (if deposited for more than 12 months) endorsed in favour of the Engineer-in-Charge, any sum or sums which may have been deducted from, or raised by sale of his security deposit or any part thereof. The security deposit shall be collected from the running bills of the contractor at the rates

mentioned above and the earnest money at the time of tenders will be treated a part of the Security Deposit.

CLAUSE 2

Compensation for Delay (Liquidated Damage

If the contractor fails to maintain the required progress in terms of clause 5 or to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the Superintending Engineer (whose decision in writing shall be final and binding) may decide on the amount of tendered value of the work for every completed day/month (as applicable) that the progress remains below that specified in Clause 5 or that the work remains incomplete.

This will also apply to items or group of items for which a separate period of completion has been specified.

i) *Compensation for delay of work -@ 2 % per month of delay to be computed on per Day basis*

Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the Tendered Value of work or to the Tendered Value of the item or group of items of work for which a separate period of completion is originally given.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the BUIDCo. In case, the contractor dies not achieve a particular milestone mentioned in schedule- F, or the rescheduled milestone(s) in terms of Clause 5.4, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of extension of time. Withholding of this amount on failure to achieve a milestone, shall be autoPmatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.

CLAUSE 2A

Incentive for early completion

In case, the contractor completes the work ahead of scheduled completion time, a bonus @ 1% (one percent) of the tendered value per month computed on per day basis, shall be payable the contractor, subject to a maximum limit of 5% (five percent) of the tendered value. The amount of bonus, if payable, shall be paid along with final bill after completion of work. Provided always that provision of the Clause 2A shall be applicable only when so provided in 'Schedule F'.

CLAUSE 3

When Contract can be Determined / Resigned

Subject to the other provisions contained in this clause the Engineer-In-Charge may, without prejudice to his any other rights or remedy against the contractor in respect of any delay inferior workmanship, any claims for damages and/or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases:

i) It the contractor having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or unworkman like manner shall omit to comply with the requirement of such notice for a period of seven days thereafter.

ii) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wind up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court or the

creditor to appoint a receiver or a manager or which entitle the court to make a winding up order.

iii) if the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Engineer-in-Charge (which shall be final and binding) he will be unable to secure completion of the work by the date of completion and continues to do so after a notice in writing of seven days from the Engineer-in-Charge.

iv) If the contractor fails to complete the work within the stipulated date or items of work with individual date of completion, if any stipulated, on or before such date(s) of completion and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge.

v) If the contractor persistently neglects to carry out his obligations under the contract and/or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge.

vi) If the contractor commits any acts mentioned in Clause 21 hereof:

vii) If the work is not started by the contractor within 1/8th of the stipulated time subject to the maximum of 45 days.

When the contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge on behalf of the Governor of Bihar shall have powers:

a) To determine or rescind the contract as aforesaid (of which termination or rescission notice in writing to the contractor under the hand of Engineer-in-Charge shall be conclusive evidence). Upon such determination or rescission the Earnest Money Deposit, Security Deposit already recovered and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of the Government.

b) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined or rescinded as above, shall not be allowed to participate in the tendering process for the balance work.

In the event of above course(s) being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

CLAUSE 3A

In case, the work cannot be started due to reasons not within the control of the contractor as decided by Chief Engineer within ¼th of the stipulated time for completion of work, either party may close the contract. In such eventuality, the Earnest Money deposit and the Performance Guarantee of the contractor shall be refunded, but no payment on account of interest, loss of profit or damages etc. shall be payable at all. the reasons shall be examined by the Superintending Engineer and his decision shall be final and binding.

CLAUSE 4

Contractor liable to pay compensation even if action not taken under Clause 3

In any case in which any of the powers conferred upon the Engineer-in-Charge by Clause- 3 thereof, shall have become exercisable and the same are not exercised the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by the contractor and

the liability of the contractor for compensation shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the powers vested in him under the preceding clause he may, if he so desires after giving a notice in writing to the contractor, take possession of (or at the sole discretion of the Engineer-in-Charge which shall be final and binding on the contractor) use as on hire (the amount of the hire money being also in the final determination of the Engineer-in-Charge) all or any tools, plant, materials and stores, in or upon the works, or the site thereof belonging to the contractor, or procured by the contractor and intended to be used for the execution of the work. or any part thereof, paying or allowing for the same in account at the contract rates or, in the case of these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final, and binding on the contractor, clerk of the works, foreman or other authorized agent to remove such tools, plant, materials, or stores from the premises (within a time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

CLAUSE 5

Time and Extension for Delay

The time allowed for execution of the Works as specified in the Schedule 'F' or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the works shall commence from such time period as mentioned in letter of acceptance or from the date of handing over of the site whichever is later. If the Contractor commits default in commencing the execution of the work as aforesaid, Government shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the security deposit absolutely.

5.1 As soon as possible after the contract is concluded the Contractor shall submit a Time & Progress Chart for each milestone and get it approved by the Department. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the work. It shall indicate the forecast of the dates of commencement and completion of various trades or sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and Contractor within the limitations of time imposed in the contract documents, and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work, exceeds one month (save for special jobs for which a separate Programme has been agreed upon) complete the work as per milestone given in schedule 'F'.

5.2 If the work(s) be delayed by.

i) force majeure, or

ii) Serious loss or damage by fire, or

iii) Civil commotion, local.

iv) delay on the part of other contractors or tradesmen engaged by Engineer-in-Charge in executing work not forming part of the Contract, or

v) Non-availability of stores, which are the responsibility of Government to supply or

vii) Non-availability or break down of tools and Plant to be supplied or supplied by Government or

vii) any other cause which, in the absolute discretion of the authority mentioned in Schedule 'F' is beyond the Contractor's control.

then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer-in-Charge but shall nevertheless use constantly his best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the works.

5.3 Request for the rescheduling of Milestones and extension of time, to be eligible for consideration, shall be made by the contractor in writing within fourteen days of the happening of the hindering event causing delay on the prescribed form. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired.

5.4 In any such case the authority mentioned in Schedule 'F' may give a fair and reasonable extension of time and reschedule the milestones for completion of work. Such extension shall be communicated to the Contractor by the Engineer-in-Charge in writing, within 3 months of the date of receipt of such request. Non application by the contractor for extension of time shall not be a bar for giving a fair and reasonable extension by the Engineer-in-Charge and this shall be binding on the contractor.

5.5 The basic centerlines, reference points and benchmarks will be fixed by the department. The contractor shall established at his own cost at suitable points, additional reference lines and bench marks as may be necessary and instructed by the engineer-in-charge. The contractor shall remain responsible for the sufficiency and accuracy of all the bench marks and reference lines.

CLAUSE 5A

The Engineer may require the contractor to attend a progress review meeting during execution of work.

The Engineer shall record the minutes of the meeting and provide a copy to the Contractor for compliance. These minutes will be a part of evidence in case of any request for extension of time or impunitive action against the contractor.

CLAUSE 6

Measurement of Work Done

Engineer-in-Charge shall, except as otherwise provided, ascertain and determine measurement and the value in accordance with the contract of work done.

All measurement of all items having financial value shall be entered in Measurement Book and/or level field book so that a complete record is obtained of all works perform under the contract.

All measurements and levels shall be taken jointly by the Engineer-in-Charge or his authorized representative and by the contractor or his authorized representative at bast once in a month during the progress of the work and such measurements shall be signed and dated by the Engineer-in-Charge and the contractor or their representatives in token their acceptance. If the contractor objects to any of the measurements recorded, a note shall be made to that effect with reason and signed by both the parties.

If for any reason the contractor or his authorized representative is not available and the work of recording measurements is suspended by the Engineer-in-Charge or his representative, the Engineer-in-Charge and the Department shall not entertain any claim from contractor for any loss or damages on this account. If the contractor or his authorized representative does not remain present at the time of such measurements after the contractor or his authorized representative has been given a notice in writing three (3) days in advance or fails to countersign or to record objection within a week from the date of the measurement, then such measurements recorded in his absence by the Engineer-in-Charge or his representative shall be deemed to be accepted by the Contractor.

The contractor shall, without extra charge, provide all assistance with every appliance labour and other things necessary for measurements and recording levels.

Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the specifications notwithstanding any provision in the relevant Standard Method of measurement or any general or local custom. In the case of items which are not covered by specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the Bureau of India Standards and if for any item no such standard is available then a mutually agreed method as approved by the department shall be followed.

The contractor shall give not less than seven days notice to the Engineer-in-Charge or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimension thereof be taken before the same is covered up or placed beyond the reach of measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer-n-Charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of measurements without such notice having been given or the Engineer-in-Charge's consent being obtained in writing the same shall be uncovered at the contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the department to check the measurements recorded jointly or otherwise as aforesaid and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.

It is also a term of this contract that recording of measurements of any item of work in the measurement book and/or its payment in the interim, on account or final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement defects noticed till completion of the defects liability period.

CLAUSE 7

Payment on Intermediate Certificate to be Regarded as Advances

No payment shall be made for work for less than the estimated work of Rs. 2.5 Lacs till the whole of the work shall have been completed and certificate of completion given. For works estimated to cost over Rs. 2.5 Lacs the interim or running account bill shall be submitted by the contractor for the work executed on the basis of such recorded measurements on the format of the Department in triplicate on or before the date of every month fixed for the same by the Engineer-in-Charge. The contractor shall not be entitled to be paid any such interim payment if the gross work done together with net payment/ adjustment of advances for material collected, if any, since the last such payment is less than the amount specified in Schedule ‘F’ , in which case the interim bill shall be prepared on the appointed date of the month after the requisite progress is achieved. The Engineer-in-Charge shall arrange to have the bill verified by taking or causing to be taken, where necessary, the requisite measurements of the work. In the event of the failure of the contractor to submit the bills, Engineer-in-Charge shall prepare or cause to be prepared such bills in which event no claims whatsoever due to delays on payment including that of interest shall be payable to the contractor. Payment on account of amount admissible shall be made by the Engineer-in-Charge certifying the sum to which the contractor is considered entitled by way of interim payment at such rates as decided by the Engineer-in-Charge. The amount admissible shall be paid by 10th working day after the day of presentation of the bill by the Contractor to the Engineer-in-Charge or his Dy. Project Director together with the account of the material issued by the department, or dismantled materials, if any. In the case of works outside the headquarters of the Engineer-in-Charge the period of ten working days will be extended to fifteen working days.

All such interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Engineer-in-Charge relating to the work done or materials delivered forming part of such payment may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Engineer-in-Charge under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.

Pending consideration of extension of date of completion interim payments shall continue to be made as herein provided as per clause - 2, without prejudice to the right of the department

to take action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.

CLAUSE 8

Completion Certificate and Completion Plans

Within ten days of the completion of the work, the contractor shall give notice of such completion to the Engineer-in-Charge and within fifteen days of the receipt of such notice the Engineer-in-Charge shall inspect the work and if there is no defect in the work shall furnish the contractor with a final certificate of completion, otherwise a provisional certificate of physical completion indicating defects (a) to be rectified by the contractor and/or (b) for which payment will be made at reduced rates, shall be issued. But no final certificate of completion shall be issued, nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall be executed all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work people on the site in connection with the execution of the works as shall have been erected or constructed by the contractor(s) and cleaned off the dirt from all wood work, doors, windows, walls, floor or other parts of the building, in, upon, or about which the work is to be executed or of which he may have had possession for the purpose of execution thereof, and not until the work shall have been measured by the Engineer-in-Charge. If the contractor shall fail to comply with the requirements of this clause as to removal of scaffolding, surplus materials and rubbish and all huts and sanitary arrangements as aforesaid and cleaning off dirt on or before the date fixed for the completion of work, the Engineer-in-Charge may at the expense of the contractor remove such scaffolding surplus materials and rubbish etc. and dispose of the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall have no claim in respect of scaffolding or surplus materials as aforesaid except for any sum actually realised by the sale thereof.

CLAUSE 8A

Contractor to Keep Site Clean

When the annual repairs and maintenance of works are carried out, the splashes and droppings from white washing, color washing, painting etc. on walls, floor, windows etc. shall be removed and the surface cleaned simultaneously with the completion of these items of work in the individual rooms, quarters or premises etc. where the work is done without waiting for the actual completion of all the other items of work in the contract. In case the contractor fails to comply with the requirements of this clause, the Engineer-in-Charge shall have the right to get this work done at the cost of the contractor either departmentally or through any other agency. Before taking such action, the Engineer-in-Charge shall give ten days notice in writing to the contractor.

CLAUSE 8 B

Completion Plans to be Submitted by the Contractor

The contractor shall submit completion plan as required vide General Specifications for Electrical works (Part-I internal) 1972 and (Part-II External) 1974 as applicable within thirty days of the completion of the work.

In case, the contractor fails to submit the completion plan as aforesaid, he shall be liable to pay a sum equivalent to 2.5% of the value of the work subject to a ceiling of Rs. 15,000 (Rs. Fifteen thousand only) as may be fixed by the General Manager (Works) concerned and in this respect the decision of the General Manager(Works) shall be final and binding on the contractor.

CLAUSE 9

Payment of Final Bill

The final bill shall be submitted by the contractor in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-Charge whichever is earlier. No further claims shall be made by the contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in-Charge, will, as far as possible be made within the period specified herein under, the period being reckoned from the date of receipt of the bill by the Engineer-in-

Charge or his authorized Dy. Project Director, complete with account of materials issued by the Department and dismantled materials.

i) If the Tendered value of work is up to Rs. 1 crores: 2 months

ii) If the Tendered value of work exceeds Rs. 1 crores: 4 months

CLAUSE 9 A

Payment of Contractor's Bills to Banks

Payments due to the contractor may, if so desired by him, be made to his bank instead of direct to him provided that the contractor furnishes to the Engineer-in-Charge (1) an authorisation in the form of a legally valid document such as a power of attorney conferring authority on the bank to receive payments and (2) his own acceptance of the correctness of the amount made out as being due to him by BUIDCo or his signature on the bill or other claim preferred against BUIDCo before settlement by the Engineer-in-Charge of the account or claim by payment to the bank. While the receipt given by such banks shall constitute a full and sufficient discharge for the payment, the contractor shall wherever possible present his bills duly receipted and discharges through his bankers.

Nothing herein contained shall operate to create in favour of the bank any rights or equities vis-a-vis the Governor of Bihar.

CLAUSE 10

Materials supplied by BUIDCo

Materials which BUIDCo will supply in rare case are shown in schedule 'B' which also stipulates quantum, place of issue and rate(s) to be charged in respect thereof. The contractor shall be bound to procure them from the Engineer-in-Charge.

As soon as the work is awarded, the contractor shall finalise the programme for the completion of work as per clause 5 of this contract and shall give his estimates of materials required on the basis of drawings/or schedule of quantities of the work. The Contractor shall give in writing his requirement to the Engineer-in-Charge which shall be issued to him keeping in view the progress of work as assessed by the Engineer-in-Charge, in accordance with the agreed phased programme of work indicating monthly requirements of various materials. The contractor shall place his indent in writing for issue of such materials at least 7 days in advance of his requirement.

Such materials shall be supplied for the purpose of the contract only and the value of the materials so supplied at the rates specified in the aforesaid schedule shall be set off or deducted, as and when materials are consumed in items of work (including normal wastage) for which payment is being made to the contractor, from any sum then due or which may therefore become due to the contractor under the contract or otherwise or from the security deposit. At the time of submission of bills the contractor shall certify that balance of materials supplied is available at site in original good condition.

The contractor shall submit along with every running bill (on account or interim bill) material wise reconciliation statements supported by complete calculations reconciling total issue, total consumption and certified balance (diameter/section-wise in the case of steel) and resulting variations and reasons therefore. Engineer-in-Charge shall (whose decision shall be final and binding on the contractor) be within his rights to follow the procedure of recovery in clause 42 at any stage of the work if reconciliation is not found to be satisfactory.

The contractor shall bear the cost of getting the material issued, loading, transporting to site, unloading, storing under cover as required, cutting assembling and joining the several parts together as directed by the engineer-in-charge. Notwithstanding anything to the contrary contained in any other clause of the contract and (or the PWD Code) all stores/materials so supplied to the contractor or procured with the assistance of the BUIDCo shall remain the absolute property of BUIDCo and the contractor shall be the trustee of the stores/materials, and the said stores/materials shall not be removed/disposed off from the site of the work on any account and shall be at all times open to inspection by the Engineer-in-Charge or his authorized agent. Any such stores/materials remaining unused shall be returned to the Engineer-in-Charge in as good a condition in which they were originally supplied at a require, but in case it is decided not to take back the stores/materials the contractor shall have no

claim for compensation on any account of such stores/materials so supplied to him as aforesaid and not used by him or for any wastage in or damage to in such stores/materials.

On being required to return the stores/materials, the contractor shall hand over the stores/materials on being paid or credited such price as the Engineer-in-Charge shall determine, having due regard to the condition of the stores/materials. The price allowed for credit to the contractor, however, shall be at the prevailing market rate not exceeding the amount charged to him, excluding the storage charge, if any. The decision of the Engineer-in-Charge shall be final and conclusive. In the event of breach of the aforesaid condition, the contractor shall in addition to the throwing himself open to account for contravention of the terms of the licenses or permit and/or for criminal breach of trust, be liable to Government for all advantages or profits resulting or which in the usual course would have resulted to him by reason or such breach. Provided that the contractor shall in no case be entitled to any compensation or damages on account of any delay in supply or non-supply thereof all or any such materials and stores provided further that the contractor shall be bound to execute the entire work if the materials are supplied by the Government within the original scheduled time for completion of the work plus 50% thereof or schedule time plus 6 months whichever is more if the time of completion of work exceeds 12 months but if a part of the materials only has been supplied within the aforesaid period then the contractor shall be bound to do so much of the work as may be possible with the materials and stores supplied in the aforesaid period. For the completion of the rest of the work, the contractor shall be entitled to such extension of time as may be determined by the Engineer-in-Charge whose decision in this regard shall be final and binding on the contractor.

The contractor shall see that only the required quantities of materials are got issued. Any such material remaining unused and in perfectly good/original condition at the time of completion or determination of the contract shall be returned to the Engineer-in-Charge at the stores from which it was issued or at a place directed by him by a notice in writing. The contractor shall not be entitled for loading, transporting, unloading and stacking of such unused material except for the extra lead, if any involved, beyond the original place of issue. Quantities issued in excess of requirement with respect to work done and not returned back to the department, recovery will be made of double of issue rate.

CLAUSE 10 A

Materials to be provided by the Contractor

The contractor shall, at his own expense, provide all materials, required for the works other than those, which are stipulated, to be supplied by the BUIDCo.

The contractor shall, at his own expense and without delay, supply to the Engineer-in-Charge samples of materials to be used on the work and shall get these approved in advance. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract. The contractor shall, if requested by the Engineer-in-Charge furnish proof, to the satisfaction of the Engineer-in-Charge that the materials so comply. The Engineer-in-Charge shall within fifteen days of supply of samples or within such further period as he may require intimate to the Contractor in writing whether sample are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange to supply to the Engineer-in-Charge for his approval fresh samples complying with the specifications laid down in the contract. When materials are required to be tested in accordance with specifications, approval of the Engineer-in-Charge shall be issued after the test results are received.

The Contractor shall at his risk and cost submit the samples of materials to be tested or analysed and shall not make use of or incorporate in the work any materials represented by the samples until the required tests or analysis have been made and materials finally accepted by the Engineer-in-Charge. The Contractor shall not be eligible for any claim or compensation either arising out of any delay in the work or due to any corrective measures required to be taken on account of and as a result of testing of materials.

The contractor shall, at his risk and cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting, and preparing the required number of samples for such tests at such time and to such place or places as may be directed by the

Engineer-in-Charge and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications. The Engineer-in-Charge or his authorized representative shall at all time have access to the works and to all workshops and places where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance in obtaining the right to such access.

The Engineer-in-Charge shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default the Engineer-in-Charge shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss for damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full powers to require other proper materials to be substituted thereof and in case of default the Engineer-in-Charge may cause the same to be supplied and all costs which may attend such removal and substitution shall borne by the Contractor.

CLAUSE 10 B

Secured Advance on Non-perishable Materials

i) The contractor, on signing an indenture in the form to be specified by the Engineer-in-Charge, shall be entitled to be paid during the progress of the execution of the work up to 75% of the assessed value of any materials which are in the opinion of the General Manager (Works) nonperishable, non-fragile and noncombustible and are in accordance with the contract and on the site in connection therewith and are adequately stored and/or protected against damage by weather or other causes but which have not at the time of advance been incorporated in the works. When materials on account of which advance has been made under this sub-clause are incorporated in the work the amount of such advance shall be recovered/deducted from the next payment made under any or the clause or clauses of this contract.

ii) Mobilization advance not exceeding 10% of the tendered value may be given, if requested by the contractor in writing within one month of the order to commence the work. In such a case the contractor shall execute a Bank Guarantee/ Bond from a Scheduled Nationalised Bank as specified by the Engineer-in-Charge for the full amount of such advance before it is released. Such advance shall be in two or more installments to be determined by the Engineer-In-charge at his absolute discretion. The first installment of such advance before shall be released by the Engineer-in-Charge to the contractor on a request made by the contractor to the Engineer-in-Charge in this behalf. The second and subsequent installment shall be released by the Engineer-in-Charge only after the contractor furnishes a proof of the satisfactory utilisation of the earlier installment to the entire satisfaction of the Engineer-In-Charge.

Plant & Machinery & Shuttering Material Advance

iii) An advance for plant machinery required for the work and brought to site by the Contractor may be given if requested by the contractor in writing within one month of bringing such plant and machinery to site. Such advance shall be given on such plant and machinery which in the opinion of the Engineer-in-Charge will add to the expeditious execution of work and improve the quality of work. The amount of advance shall be restricted to 5% of the tender value. In the case of new plant and equipment to be purchased for the work the advance shall be restricted to 85% of the price of such new plant and equipment paid by the contractor for which the contractor shall produce evidence satisfactory to the Engineer-in-Charge and approval from Engineer-in-Charge. In the case of second hand and used plants and equipment, the amount of such advance shall be limited to 50% of the depreciated value of plant and equipment as may be decided by the Engineer-in-Charge. The contractor shall, if so required by the Engineer-in-Charge, submit the statement value of such old plant and equipment duly approved by a Registered Value recognized by the Central Board of Direct Taxes under the Income-Tax Act, 1961. No such advance shall be paid on any plant and equipment of perishable nature and on the plant and equipment of a value less than Rs. 50,000/- Seventy five percent of such amount of advance shall be paid after the plant & equipment is brought to site and balance twenty five percent on successfully commissioning the same only after approval from Engineer-in-Charge.

Leasing of equipment shall be considered at par with purchase of equipment and shall be covered by tripartite agreement with the following:

1. Leasing company which gives certificate of agreeing to lease equipment to the contractor.
2. Engineer in Charge, and
3. The contractor.

This advance shall further be subject to the condition that such plant and equipment (a) are considered by the Engineer-in-Charge to be necessary for the works; (b) and are in and are maintained in working order; (c) hypothecated to the BUIDCo as specified by the Engineer-in-Charge before the payment of advance is released. The contractor shall not be permitted to remove from the site such hypothecated plant and equipment without the prior written permission of the Engineer-in-Charge. The contractor shall be responsible for maintaining such plant and equipment in good working order during the entire period of hypothecation falling which such advance shall be entirely recovered in lump sum. For this purpose steel scaffolding and from work shall be treated as plant and equipment.

The contractor shall insure the Plant and Machinery for which mobilization advance is sought and given, for a sum sufficient to provide for their replacement at site. Any amounts not recovered from the insurer will be borne by the contractor.

Interest & Recovery

iv) The mobilization advance and plant and machinery advance in (ii)&(iii) above bear simple interest and should be equal to the prevailing rate of interest charged by the bank as mentioned in contract date schedule 'F' and shall be calculated from the date of payment to the date of recovery, both days inclusive, on the outstanding amount of advance. Recovery of such sums advanced shall be made by the deduction from the contractor's bills commencing after first ten per cent of the gross value of the work is executed and paid, on pro-rata percentage basis to the gross value of the work billed beyond 10% in such a way that the entire advance is recovered by the time eighty per cent of the gross value of the contract is executed and paid, together with interest due on the entire outstanding amount up to the date of the installment.

v) If the circumstances are considered reasonable by the Engineer-in-Charge, the period mentioned in (ii) and (iii) for request by the contractor in writing for grant of mobilization advance and plant and equipment advance may be extended in the discretion of the Chief General Manager.

vi) The said bank guarantee for advances shall initially be made for the full amount and valid for the contract period, and be kept renewed from time to time to cover the balance amount and likely period of complete recovery together with interest.

vii) Any materials including tools plants equipmentsetc brought to the site shall not be removed from the sites without the written permission of the Engineer-in-charge.

CLAUSE 10 C

Payment on Account of Increase in Prices/Wages due to Statutory Order(s)

If after submission of the tender the price of any material incorporated in the works (not being a material supplied from the Engineer-in-Charge's stores in accordance with clause 10 thereof) and/or wages of labour increases as a direct result of the coming into force of any fresh law, or statutory rule or order (but not due to any changes in sales tax) and such increase in the price and/or wages prevailing at the time of the last stipulated date for receipt of the tenders including extensions if any for the work, and the contractor thereupon necessarily and properly pays in respect of that material (incorporated in the works) such increased price and/or in respect of labour engaged on the execution of the work such increased wages, then the amount of the contract shall accordingly be varied and provided further that any such increase shall not be payable if such increase has become operative after the stipulated date of completion of the work in question.

If after submission of the tender, the price of any material incorporated in the works (not being a material supplied from the Engineer-in-Charge's stores in accordance with clause 10

thereof) and/or wages of labour is decreased as a direct result of the coming not force of any law or statutory rules or order (but not due to any changes in sales tax) and such decrease in the prices and/ or wages prevailing at the time of receipt of the tender for the work. The government shall in respect of materials incorporated in the works (not being materials supplied from the Engineer-in-Charge's stores in accordance with Clause-10 hereof) and/or labor engaged on the execution of the work after the date of coming into force of such law statutory rule or order be entitled to deduct from the dues of the contractor such amount as shall be equivalent to the difference between the prices of the materials and/or wages as prevailed at the time of the last stipulated date for receipt of tenders including extensions if any for the work and the price of materials and/or wages of labour on the coming into force of such law, statutory rule or order.

The contractor shall, for purpose of this condition, keep such books of account and other documents as are necessary to show the amount of any increase claimed or reduction available and shall allow inspection of the same by a duly authorised representative of BUIDCo, and further shall, at the request of the Engineer-in-Charge may require any documents so kept and such other information as the Engineer-in-Charge may require.

The contractor shall, within a reasonable time of his becoming aware of any alteration in the price of any such material and/or wages of labour, give notice thereof to the Engineer-in-Charge stating that the same is given pursuant to this condition together with all information relating thereto which he may be in position to supply.

CLAUSE 10 CA

Payment on Account of Increase/decrease in Prices of construction materials after receipt of tender.

If after submission of the tender, the price of cement or steel reinforcement bars / bitumen incorporated in the works (not being a material supplied from the Engineer-in-Charge's stores in accordance with Clause 10 thereof) increase(s) beyond the price(s) prevailing at the time of the last stipulated date for receipt of tenders (including extensions, if any) for the work, then the amount of the contract shall accordingly be varied and provided further that any such increase shall not be payable if such increase has become operative after the stipulated date of completion of work in question.

If after submission of the tender, the prices of cement and/or steel reinforcement bars / bitumen incorporated in the works (not being a material stipulated from the Engineer-in-Charge's stores in accordance with the Clause 10 thereof) is decreased, Government shall in respect of these materials incorporated in the works (not being materials supplied from the Engineer-in-Charge's stores in accordance with Clause 10 thereof) be entitled to deduct from the dues of the contractor such amount as shall be equivalent to the difference between the prices of Cement and/or Steel reinforcement bars/ bitumen as prevailed at the time of last stipulated date for receipt of tenders including extensions if any for the work and the prices of these materials on the coming into force of such base price of cement and/or steel reinforcement bars/ bitumen issued under authority of Schedule of Rate Committee.

The increase/decrease in prices shall be determined by the All India Wholesale Price Indices for Cement and Steel (bars and rods) as published by Economic Advisor to Government of India, Ministry of Commerce and Industry and base price for cement and/or steel reinforcement bars / bitumen as issued under authority of Schedule of Rate Committee as valid on the last stipulated date of receipt of tender, including extension if any and for the period under consideration.

The amount of the contract shall accordingly be varied for cement or steel reinforcement bars / bitumen and will be worked out as per the formula given below:-

Adjustment for cement component

(i) Price adjustment for increase or decrease in the cost of cement procured by the contractor shall be paid in accordance with the following formula:

$V_0 = 0.85 \times P_c / 100 \times R \times (C_1 - C_0)/C_0$

V_0 = increase or decrease in the cost of work during the month under consideration due to changes in rates for cement.

R = Value of the work.

C_0 = The all India wholesale price index for cement on 28 days preceding the date of opening of Bids as published by the Ministry of Industrial Development, Government of India, New Delhi.

C_1 = The all India average wholesale price index for cement for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.

P_c = Percentage of cement component of the work.

Adjustment for Steel component

(ii) Price adjustment for increase or decrease in the cost of steel procured by the Contractor shall be paid in accordance with the following formula:

$V_s = 0.85 \times P_s/100 \times R \times (S_1-S_0)/S_0$

V_s = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for steel.

S_0 = The all India wholesale price index for steel (Bars and Rods) on 25 days preceding the date of opening of Bids as published by the Ministry o Industrial Development, Government of India New Delhi.

S_1 = The all India average wholesale price index for steel (Bars and Rods) for the month under consideration as published by Ministry of Industrial Development, New Delhi.

P_s = Percentage of Steel component of the work.

Note : For the application of this clause, index of Bars and Rods has been chosen to represent steel group.

Adjustment of bitumen component

(iii) Price adjustment for increase or decrease in the cost of bitumen shall be paid in accordance with the following formula:

$V_b = 0.85 \times P_b/ 100 \times R \times (B_1-B_0)/B_0$

V_b = Increase or decrease in the cost of work during the month under consideration due to changes in rates for bitumen.

B_0 = The office retail price of bitumen at the IOC depot at nearest center on the day 28 days prior to date of opening of Bids.

B_1 = The official retail price of bitumen of IOC depot at nearest center for the 15th day of the month under consideration.

P_b = Percentage of bitumen component of the work.

Adjustment for CI Pipes and Specials Component

$$Vs = 0.85 \times \frac{PCI}{100} \times R \frac{(S1-S0)}{So}$$

Vs = Increase or decrease in cost of work during the Month under consideration due to changes in the rates of pig iron

PCI = Percentage of C.I component of the work.

R = Value of the work.

S1 = Rate of Pig iron for the month under consideration as issued by Kudermukh iron ore Company Ltd (A GOI Undertaking)

S0 = Basic rate of pig iron on 25 days preceding the date of opening of Bids as issued by Kudermukh iron ore Company Ltd (A GOI undertaking)

Adjustment for DI Pipes and Specials Component

$$Vs = 0.85 \times 0.65 \frac{P_{DI}}{} \times R \frac{(S1-S0)}{}$$

100 So

Vs = Increase or decrease in cost of work during the Month under consideration due to changes in the rates of pig iron

P_{DI} = Percentage of D.I component of the work.

R = Value of the work.

S1 = Rate of Pig iron for the month under consideration as issued by Kudermukh iron or Company Ltd (A GOI Undertaking) andas per PHED letter no. 682 dated 24/7/15

S_0 = Basic rate of pig iron on 25 days preceding the date of opening of Bids as issued by Kudermukh iron ore Company Ltd (A GOI undertaking)

Adjustment for M.S. /G.I. Pipes and Fittings Component

$$Vs = 0.85 \times \frac{P_{GI}}{100} \times R \frac{(S1-S0)}{So}$$

Vs = Increase or decrease in cost of work during the Month under consideration due to changes in the rates of pig iron

P_{GI} = Percentage of G.I. component of the work.

R = Value of the work.

S1 = Rate of HR Coil / plate for the month under consideration as issued by SAIL.

S_0 = Rate of HR Coil / plate on 25 days preceding the date of opening of Bids as issued by SAIL

CLAUSE 10 CC

Payment due to increase / Decrease in Prices / Wages after receipt of tender (Time of completion more than 18 months)

Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with the following principles and procedures and as per formula given in the contract data :

(a) The price adjustment shall apply for the work done from the start date given in the contract data upto end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor.

(b) Following expressions and meanings are assigned to the work done during each month:

R = Total value of work done during the month. It would include the amount of secured advance granted, if any, during the month, less the amount of secured advance recovered, if any during the month. It will exclude value for works executed under variations for which price adjustment will be worked separately based on the terms mutually agreed.

(c) To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.

The formula (e) for adjustment of prices are:

Adjustment for labour component

(i) Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula:

$V_L = 0.85 \times P_1/100 \times R \times (L_1 - L_0)/L_0$

V_L = increase or decrease in the cost of work during the month under consideration due to changes in rates for local labour.

L_0 = the consumer price index for industrial workers for the State on 28 days preceding the date of opening of Bids as published by Labour Bureau, Ministry of Labour, Government of India.

L_1 = The consumer price index for industrial workers for the State for the under consideration as published by Labour Bureau, Ministry of Labour, Government of India.

P_1 = Percentage of labour component of the work.

Adjustment for cement component

(ii) Price adjustment for increase or decrease in the cost of cement procured by the contractor shall be paid in accordance with the following formula:

$V_0 = 0.85 \times P_0/100 \times R \times (C_1 - C_0)/C_0$

V_0 = increase or decrease in the cost of work during the month under consideration due to changes in rates for cement.

C_0 = The all India wholesale price index for cement on 28 days preceding the date of opening of Bids as published by the Ministry of Industrial Development, Government of India, New Delhi.

C_1 = The all India average wholesale price index for cement for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.

P_c = Percentage of cement component of the work.

Adjustment for Steel component

(iii) Price adjustment for increase or decrease in the cost of steel procured by the Contractor shall be paid in accordance with the following formula:

$V_s = 0.85 \times P_s/100 \times R \times (S_1 - S_0)/S_0$

V_s = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for steel.

S_0 = The all India wholesale price index for steel (Bars and Rods) on 25 days preceding the date of opening of Bids as published by the Ministry o Industrial Development, Government of India New Delhi.

S_1 = The all India average wholesale price index for steel (Bars and Rods) for the month under consideration as published by Ministry of Industrial Development, New Delhi.

P_1 = Percentage of labour component of the work.

Note : For the application of this clause, index of Bars and Rods has been chosen to represent steel group.

Adjustment of bitumen component

(iv) Price adjustment for increase or decrease in the cost of bitumen shall be paid in accordance with the following formula:

$V_b = 0.85 \times P_b/100 \times R \times (B_1 - B_0)/B_0$

V_b = Increase or decrease in the cost of work during the month under consideration due to changes in rates for bitumen.

B_0 = The office retail price of bitumen at the IOC depot at nearest center on the day 28 days prior to date of opening of Bids.

B_1 = The official retail price of bitumen of IOC depot at nearest center for the 15^{th} day of the month under consideration.

P_1 = Percentage of bitumen component of the work.

Adjustment of POL (fuel and lubricant) component

(v) Price adjustment for increase or decrease in the cost of POL (fuel and lubricant) shall be paid in accordance with the following formula.

$V_f = 0.85 \times P_f/100 \times R \times (F_1 - F_0)/F_0$

V_f = Increase or decrease in the cost of work during the month under consideration due to changes in rates for fuel and lubricants.

F_0 = The official retail price of High Speed Diesel (HSD) at the existing consumer pumps of IOC at nearest center on the day 28 days prior to the date of opening of Bids.

F_1 = The official retail price of HSD at the existing consumer pumps of IOC at nearest center for the 15th day of month of the under consideration.

P_1 = Percentage of fuel and lubricants component of the work.

Note : For the application of this clause, the price of High Speed Diesel oil has been chosen to represent fuel and lubricants group.

Adjustment for Plant and Machinery Spares component

(vi) Price adjustment for increase or decrease in the cost of plant and machinery spares procured by the Contractor shall be paid in accordance with the following formula :

$V_p = 0.85 \times P_p/100 \times R \times (P_1-P_0)/P_0$

V_p = Increase or decrease in the cost of work during the month under consideration due to changes in rates for plant and machinery spares.

P_0 = The all India wholesale price index for heavy machinery and parts on 28 days preceding the date of opening of Bids as published by the Ministry of Industrial Development Government of India, New Delhi.

P_1 = The all India average wholesale price index for heavy machinery and parts for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.

P_1 = Percentage of plant and machinery spares component of the work.

Note : For the application of this clause, index of Heavy Machinery and Parts has been chosen to represent the Plant and Machinery Spares group.

Adjustment for CI Pipes and Specials Component

(vii)

$$Vs = 0.85 \times \frac{PCI}{100} \times R \frac{(S1-S0)}{So}$$

Vs = Increase or decrease in cost of work during the Month under consideration due to changes in the rates of pig iron

P_{CI} = Percentage of C.I component of the work.

R = Value of the work.

S1 = Rate of Pig iron for the month under consideration as issued by Kudermukh iron ore Company Ltd (A GOI Undertaking)

S_0 = Basic rate of pig iron on 25 days preceding the date of opening of Bids as issued by Kudermukh iron ore Company Ltd (A GOI undertaking)

Adjustment for DI Pipes and Specials Component

(viii)

$$Vs = 0.85 \times 0.65 \frac{P_{DI}}{100} \times R \frac{(S1-S0)}{So}$$

Vs = Increase or decrease in cost of work during the Month under consideration due to changes in the rates of pig iron

P_{DI} = Percentage of D.I component of the work.

R = Value of the work.

S1 = Rate of Pig iron for the month under consideration as issued by Kudermukh iron or Company Ltd (A GOI Undertaking)

S_0 = Basic rate of pig iron on 25 days preceding the date of opening of Bids as issued by Kudermukh iron ore Company Ltd (A GOI undertaking)

Adjustment for M.S./G.I. Pipes and Fittings Component

(ix)

$$Vs = 0.85 \times \frac{P_{GI}}{100} \times R \frac{(S1-S0)}{So}$$

Vs = Increase or decrease in cost of work during the Month under consideration due to changes in the rates of pig iron

P_{GI} = Percentage of G.I. component of the work.

R = Value of the work.

S1 = Rate of HR Coil / plate for the month under consideration as issued by SAIL.

S_0 = Rate of HR Coil / plate on 25 days preceding the date of opening of Bids as issued by SAIL

Adjustment of other materials component

(vii) Price adjustment for increase or decrease in cost of local materials other than cement, steel, bitumen and POL procured by the contractor shall be paid in accordance with the following formula:

$V_m = 0.85 \times P_m/100 \times R \times (M_1-M_0)/M_0$

V_m = Increase or decrease in the cost of work during the month under consideration due to changes in rates for local materials other than cement, steel, bitumen and POL.

M_0 = The all India wholesale price index (all commodities) on 28 days preceding the date of opening of Bids, as published by the Ministry of Industrial Development, Government of India, New Delhi.

M_1 = The all India wholesale price index (all commodities) for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.

P_1 = Percentage of local material component (other than cement, steel, bitumen and POL) of the work.

The following percentages will govern the price adjustment for the entire contract:

1.	Labour - P_1	25 %
2.	Cement – P_c	5 %
3.	Steel – P_s	5 %
4.	Bitumen – P_b	10 %
5.	POL – P_f	5 %
6.	Plant & Machinery Spares – P_p	5 %
7.	Other materials – P_m	45 %
	Total	100%

An example

(viii) In contract where clause 10CA is applicable, this clause 10CC will not be applicable and in contract where this clause 10CC is applicable previous clause 10CA will not be applicable.

CLAUSE 10 D

Dismantled Material Govt. Property

The contractor shall treat all materials obtained during dismantling of a structure, excavation of the site for a work, etc. as Government's property and such materials shall be disposed off to the best advantage of Government according to the PWD codal provision.

CLAUSE 11

Work to be Executed in Accordance with Specifications, Drawings, Orders etc.

The contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and

faithfully to the design, drawings and instructions in writing in respect of the work signed by the Engineer-in-Charge and the contractor shall be furnished free of charge one copy of the contract documents together with specification, designs, drawings and instruction as are not included in the standard specifications of Public Works Department specified in Schedule 'F' or in any Bureau of Indian Standard or any other, published standard or code or, Schedule of Rates or any other printed publication referred to elsewhere in the contract.

The contractor shall comply with the provisions of the contract and with the care and diligence execute and maintain the works and provide all labour and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The Contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction.

CLAUSE 12

Deviations/ Variations Extent and Pricing

The Engineer-in-Charge (As per codal provision) shall have power (i) to make alternation in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge after approval from competent authority and such alterations omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.

12.1 The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered be extended, if requested by the contractor, as follows:

i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus.

ii) 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge after approval from competent authority

12.2 In the case of extra item(s) the contractor may within fifteen days of receipt of order or occurrence of the item(s) claim rates, supported by proper analysis, for the work and the Engineer-in-Charge after approval from competent authority shall within one month of the receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates as per power delegated in PWD Code and on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

In the case of substituted items, the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the aforesaid para.

(a) If the market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted) the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

(b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted) the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

Deviation, Deviated Quantities, Pricing

In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in Schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis, for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates as per power delegated in PWD Code and on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

12.3 The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work in excess of the limits laid down in Schedule 'F' and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of receipt of the notice, revise the rates as per power delegated in PWD Code for the work in question within one month of expiry of the said period of fifteen days having regard to the market rates or current schedule of rate.

12.4 The contractor shall send to the Engineer-in-Charge once every three months an up to date account giving complete details of all claims for additional payments to which the contractor may consider himself entitled and of all additional work ordered by the Engineer-in-Charge after approval from competent authority which he has executed during the preceding quarter failing which the contractor shall be deemed to have waived his right. However, the General Manager (Works) is authorized for consideration of such claims on merits.

12.5 For the purpose of operation of Schedule 'F' the following works shall be treated as works relating to foundation :

i) For buildings, compound walls plinth level or 1.2 meters (4 feet) above ground level whichever is lower excluding items of flooring and D.P.C. but including base concrete below the floors.

ii) For abutments, piers, retaining walls of culverts and bridges, walls of water reservoirs the bed of floor level.

iii) For retaining walls where floor level is not determinate 1.2 meters above the average ground level or bed level.

iv) For Roads all items of excavation and filling including treatment of sub-base.

12.6 Any operation incidental to or necessary has to be in contemplation of tenderer while filing tender, or necessary for proper execution of the item included in the Schedule of quantities or in the schedule of rates mentioned above, whether or not, specifically indicated in the description of the item and the relevant specifications, shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations.

CLAUSE 13

Foreclosure of Contract due to Abandonment or Reduction in Scope of Work

If at any time after acceptance of the tender Government 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, the Engineer-in-Charge shall give notice in writing to that effect to the contractor and the contractor shall act accordingly in the matter. 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.

The contractor shall be paid at contract rates for works executed at site only.

CLAUSE 14

Cancellation of contract in full or part

If the contractor :

i) at any time makes default in proceeding with the works or any part of the work with due diligence and continues to do so after a notice in writing of 7 days from the Engineer-in-Charge; or

ii) Commits default to comply with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge; or

iii) Fails to complete the works or items of work with individual dates of completion, on or before the date(s) of completion, and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge; or

iv) Shall offer or give or agree to give to any person in Government service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract for Government; or

v) Shall enter into a contract with Government/ BUIDCo in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the Accepting Authority/Engineer-in-Charge; or

vi) Shall obtain a contract with Government / BUIDCo as a result of wrong tendering or other non-bonafide methods of competitive tendering; or

vii) Being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors; or

viii) Being a company, shall pass a resolution or the Court shall make an order for the winding up of the company, or a receiver or manager on behalf of the debenture holders or otherwise shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or

ix) Shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days; or

x) Assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer sublet or otherwise parts with the entire works or any portion thereof without the prior written approval of the Competent Authority;

The Competent Authority may, without prejudice to any other right or remedy which shall have accrued or shall accrue hereafter to Government, by a notice in writing to cancel the contract as a whole or only such items of work in default from the Contract.

The Engineer-in-Charge shall on such cancellation by the Competent Authority have powers to :

(a) Take possession of the site and any materials, constructional plant, implements stores, etc., thereon; and/or

(b) Carry out the incomplete work by any means at the risk and cost of the contractor.

On cancellation of the contract in full or in part, the Engineer-in-Charge shall determine what amount, if any, is recoverable from the contractor for completion of the works or part of the works or in case the works or part of the works is not to be completed, the loss of damage suffered by Government. In determining the amount, credit shall be given to the contractor for

the value of the work executed by him up to the time of cancellation, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor.

Any excess expenditure incurred or to be incurred by BUIDCo in completing the works or part of the works or the excess loss or damages suffered or which may be suffered by BUIDCoas aforesaid after allowing such credit shall without prejudice to any other right or remedy available to BUIDCoin law be recovered from any moneys due to the contractor on any account, and if such moneys are not sufficient the contractor shall be called upon in writing and shall be liable to pay the same within 31 days.

If the contractor fails to pay the required sum within the aforesaid period of 30 days the Engineer-in-Charge shall have the right to sell any or all of the contractors unused materials, constructional plant, implements, temporary buildings, etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the contractor under the contract and if thereafter there be any balance is outstanding from the contractor, it shall be recovered in accordance with the provisions of the contract.

Any sums in excess of the amounts due to BUIDCo and unsold materials, constructional plant, etc., shall be returned to the contractor, provided always that if cost or anticipated cost of completion by BUIDCo of the works or part of the works is less than the amount which the contractor would have been paid had he completed the works or part of the works, such benefit shall not accrue to the contractor.

CLAUSE 15

Suspension of Work

i) The contractor shall, on receipt of the order in writing of the Engineer-in-Charge (whose decision shall be final and binding on the contractor) suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof, for any of the following reasons :

a) on account of any default on the part of the contractor or;

b) for proper execution of the works or part thereof for reasons other than the default of the contractor; or

c) for safety of the works or part thereof.

The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-Charge.

ii) If the suspension is ordered for reasons (b) and (c) in sub-para (i) above, the contractor shall be entitled to an extension of time equal to the period of every such suspension PLUS 25%, for completion of the item or group of items of work for which a separate period of completion is specified in the contract and of which the suspended work forms a part, and;

CLAUSE 16

Action in case Work not done as per Specifications

All works under or in course of execution or executed in pursuance of the contract shall at all times be open and accessible to the inspection and supervision of the Engineer-in-Charge, his authorized subordinates in charge of the work and all the superior officers, officer of the Quality Control Organization of the Department and of the Cabinet (Technical) Vigilance, and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions of have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

If it shall appear to the Engineer-in-Charge or his higher authority or his authorised subordinates in charge of the work or to the Cabinet (Technical) Vigilance or his subordinate officers, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with materials or article provides by him for the execution of the work which are unsound or

of a quality inferior to that contracted or otherwise not in accordance with the contract the contractor shall, on demand in writing which shall be made within the period specified in schedule – F of contract data from the Engineer-in-Charge specifying the work, materials or articles complained of notwithstanding that the same may have been passed, certified and paid for forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost. In the event of the contractor failing do so within a period specified by the Engineer-in-Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as under clause 2 of the contract (for non-completion of the work in time) for this default.

In such case the Engineer-in-Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the competent authority may consider reasonable during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the structure and incidental items rectified, or removed and re-executed at the risk and cost or contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the contractor.

CLAUSE 17

Contractor Liable for Damages, defects during maintenance period

If the contractor or his working people or servants shall break, deface, injure or destroy any part of building in which they may be working, or any building, road, road curb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wired, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within defect liability period after a certificate final or otherwise of its completion shall have been given by the Engineer-in-Charge as aforesaid arising out of defect or improper materials or workmanship the contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or in default the Engineer-in-Charge cause the same to be made good by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the contractor, or from his security deposit except for the portion pertaining to asphaltic work which is governed by sub-para (iii) of clause 35 or the proceeds of sale thereof or of a sufficient option thereof. The security deposit of the contractor shall not be refunded before the expiry of defected liability period after the issue of the certificate final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later.

In case of Maintenance and Operation works of Electrical & Mechanical services, the security deposit deducted from contractors shall be refunded within one month from the date of final payment or within one month from the date of completion of the maintenance contract which ever is earlier.

CLAUSE 18

Contractor to Supply Tools & Plants etc.

The contractor shall provide at his own cost all materials (except such special materials, if any, as may in accordance with the contract be supplied from the Engineer-in-Charge's stores), plant, tools, appliances, implements, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specification or other document forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-Charge as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials, necessary for the purpose of setting out works, and counting, weighing and assisting the measurement for examination at any time and from time to time of the work or materials. Failing his so doing the same may be provided by the Engineer-in-Charge at cost to the contractor, under this

contract or otherwise and/or from his security deposit or the proceeds of sale thereof, or of a sufficient portions thereof.

CLAUSE 18 A

Recovery of Compensation paid to Workman

In every case in which by virtue of the provisions sub-section (1) of Section 12, of the Workmen's Compensations Act, 1923, Government is obliged to pay compensation to a workman employed by the contractor, in execution of the works, Government will recover from the contractor the amount of the compensation so paid; and without prejudice to the right of the Government under sub-section (2) of section 12, of the said Act, Government shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by Government / BUIDCo to the contractor whether under this contract or otherwise. Government / BUIDCo shall not be bound to contest any claim made against it under sub-section (1) Section 12, of the said Act, except on the written request of the contractor and upon his giving to Government / BUIDCo full security for all costs for which Government / BUIDCo might become liable in consequence of contesting such claim.

CLUASE 18 B

Ensuring Payment and Amenities to Workers if Contractor fails

In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and of the Contract Labour (Regulation and Abolition) Central Rules, 1971, BUIDCo is obliged to pay any amounts of wages to a workman employed by the contractor in execution of the works, or to incur any expenditure in providing welfare and health amenities required to be provided under the above said Act and the rules under Clause 19H or under the P.W.D. Contractor's Labour Regulations, or under the Rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by P.W.D. Contractors, BUIDCo will recover from the contractor the amount of wages so paid or the amount of expenditure so incurred; and without prejudice to the rights of the BUIDCo under sub-section (2) of Section 20, and sub-section (4) of Section 21, of the Contract Labour (Regulation and Abolition) Act, 1970, BIUIDCo shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by Government/BUIDCo to the contractor whether under this contract or otherwise BUIDCo shall not be bound to contest any claim made against it under sub-section (1) of Section 20, sub-section (4) of Section 21, of the said Act, except on the written request of the contractor and upon his giving to the BUIDCo full security for all costs for which Government/BUIDCo might become liable in contesting such claim.

CLAUSE 19

Labour Laws to be complied by the Contractor

The contractor shall obtain a valid license under the State Labour Act, and the Contract Labour (Regulation and Abolition) Central rules 1971, before the commencement of the work, and continue to have a valid license until the completion of the work. The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) ACt, 1986.

The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) ACt, 1996 and the building and other Construction Workers Welfare Cess Act, 1996.

Any failure to fulfill these requirements shall attract the penal provisions of the contract arising out of the resultant non-execution of the work.

The bidder should registered in EPF.

The bidder should submit the Project Insurance and professional liability insurance documents after award of the contract.

CLAUSE 19 A

No labour below the prescribed age shall be employed on the work.

CLAUSE 19 B

Payment of Wages

Payment of wages :

i) The contractor shall pay to labour employed by him either directly or through sub-contractors, wages not less than fair wages as defined in P.W.D. Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

ii) The contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work including any labour engaged by his sub-contractors in connection with the said work, as if the labour had been immediately employed by him.

iii) In respect of all labour directly or indirectly employed in the works for performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with the Public Works Department contractor's Labour Regulations made by Government from time to time in regard to payment of wages, wage period, deductions from wages recovery of wages not paid and deductions unauthorisedly made, maintenance of wage books or wage slips, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of the like nature or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and the Contract Labour (Regulation And Abolition) Central Rules, 1971, wherever applicable.

iv) a) The Engineer-in-Charge concerned shall have the right to deduct from the moneys due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of nonfulfilment of the conditions of the contract for the benefit of the workers, non-payment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non-observance of the Regulations.

b) Under the provision of Minimum Wages (Central) Rules 1950, the contractor is bound to allow to the labours directly or indirectly employed in the works one day rest for 6 days continuous work and pay wages at same rate as for duty. In the event of default the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labours and pay the same to the persons entitled thereto from any money due to the contractor by the Engineer-in-Charge concerned.

v) The contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Act, 1970, or the modifications thereof or any other laws relating thereto and the rules made hereunder from time to time.

vi) The contractor shall indemnify and keep indemnified BUUIDCo against payments to be made under and for the observance of the laws aforesaid and the P.W.D. Contractor's Labour Regulations without prejudice to his right to claim indemnity from his sub-contractors.

vii) The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

viii) Whatever is the minimum wage for the time being, or if the wage payable higher than such wage, such wage shall be paid by the contractor to the workmen directly without the intervention of Jamadar and that Jamadar shall not be entitled to deduct or recover any amount from the minimum wage payable to the workmen as and by way of commission or otherwise.

ix) The contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the Jamadar from the wage of workmen.

CLAUSE 19 C

In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expense arrange for the safety provisions as per P.W.D. Safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the contractor fails to make arrangement and provide necessary facilities as aforesaid he shall be liable to pay a penalty of Rs. 200/- for each default and in addition the Engineer-in-Charge shall be at liberty to make arrangement and provide facilities as aforesaid and recover the costs incurred in that behalf from the contractor.

CLAUSE 20

Minimum wages Act to be complied with.

The contractor shall at least pay and comply with all the provisions of the Minimum wages Act s and rules framed there under other labour laws related to contract labour .

CLAUSE 21

Work not to be sublet. Action in case of insolvency

The contract shall not be assigned or sublet without the written approval of the Engineer-in-Charge. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so, or if any bribe, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the contractor, or any of his servants or agent to any public officer or person in the employment of BUIDCo in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Engineer-in-Charge on behalf of the Governor of Bihar shall have power to adopt the courses specified in Clause 3 hereof in the interest of BUIDCo and in the event of such course being adopted the consequences specified in the said Clause 3 shall ensue.

CLAUSE 22

Compensation

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of BUIDCowithout reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.

CLUASE 23

Changes in firm's Constitution to be intimated

Where the contractor is a partnership firm, the previous approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the contractor is an individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention of Clause 21 thereof and the same action may be taken, and the same consequences shall ensue as provided in the said Clause 21.

CLAUSE 24

Approval of Engineer In charge

All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Engineer-in-Charge who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.

CLAUSE 25

Settlement of Disputes & Arbitration

Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, design, drawings and instructions here-in-before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim right matter or thing whatsoever in any way arising out of or relating to contract, designs, drawings, specifications, estimates, 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 cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter.

i) If the contractor considered any work demanded of him to be outside the requirements of the contract, or dispute any drawings, record or decision given in writing by the Engineer-in-Charge on any matter in connection with or arising out of the contract or carrying out of the contract or carrying out of the work, to be unacceptable, he shall promptly within 7 days request the General Manager(Works), BUIDCo in writing for written instruction or decision. Thereupon, the General Manager(Works), BUIDCo shall give his written instructions or decision within a period of fifteen days from the receipt of the contractor's letter.

If the General Manager(Works), BUIDCo fails to give his instructions or decision in writing within the aforesaid period or if the contractor is dissatisfied with the instructions or decision of the General Manager(Works),BUIDCo the contractor may, within 15 days of the receipt of General Manager(Works)'s decision, appeal to the Chief General Manager, BUIDCo who shall afford an opportunity to the contractor to be heard, if the latter so desires, and to offer evidence in support of his appeal. The Chief General Manager, BUIDCo shall give his decision within 30 days of receipt of contractor's appeal. If the contractor is dissatisfied with this decision, the contractor shall within a period of 30 days from receipt of the decision, give notice to the Chief General Manager, for reference of the same toarbitration tribunal failing which the said decision shall be final binding and conclusive and not referable to adjudication by the arbitrator.

ii) Except where the decision has become final, binding and conclusive in terms of Sub Para (i) above disputes or difference shall be referred for adjudication through Arbitration Tribunal already established by the state government under Bihar Public Work Contract Disputes arbitrational Tribunal Act 2008.

It is also a term of this contract that if the contractor does not make any reference to the arbitration Tribunal in respect of any claims in writing as aforesaid within 45 days of receiving the intimation from the Engineer-in-Charge that the final bill is ready for payment, the claim of the contractor shall be deemed to have been waived and absolutely barred and the BUIDCo shall be discharged and released of all liabilities under the contract in respect of these claims.

The arbitration shall be conducted in accordance with the provisions of the Bihar Public works contract Dispute Arbitration Tribunal Act 2008 or any statutory modifications or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceeding under this clause.

All arbitration shall be held at PATNA and at no other place.

CLAUSE 26

Contractor to indemnity Govt. against Patent Rights

The contractor shall fully indemnify and deep indemnified the Governor of Bihar against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claims made under the action brought against Government in respect of any such matter as aforesaid the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation that may arise therefrom, provided that the contractor shall not be liable to indemnify the Governor of Bihar if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Engineer-in-Charge in this behalf.

CLAUSE 27

Lumpsum Provisions in Tender

When the estimate on which a tender is made includes lump sum in respect of parts of the work, the contractor shall be entitled to payment in respect of the items of work involved or

the part of the work in question at the same rates as are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in-Charge capable of measurement, The Engineer-in-Charge may at his discretion pay the lump-sum amount entered in the estimate, and the certificate in writing of the Engineer-in-Charge shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provisions of the clause.

CLAUSE 28

Action where no Specifications are specified

In the case of any class of work for which there is no such specifications as referred to in Clause 11, such work shall be carried out in accordance with the Bureau of Indian Standards Specifications, Indian Road Congress for road works and Indian Building Congress for building works or any central government agency. In case there are no such specifications in Bureau of Indian Standards, the work shall be carried out as per manufacturers specifications. If not available then as per Department Specifications. In case there are no such specifications as required above, the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-Charge.

CLAUSE 29

i) Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the contractor, the Engineer-in-Charge or the Government shall be entitled to with hold and also have a lien to retain such sum or sums in whole or in part from the security, if any deposited by the contractor and for the purpose aforesaid, the Engineer-in-Charge or the Government shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalisation or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the Engineer-in-Charge or the Government shall be entitled to withhold and have a lien to retain to the extent of payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract with the Engineer-in-Charge of the Government or any contracting person through the Engineer-in-Charge of the Government or any contraction person through the Engineer-in-Charge pending finalisation of adjudication of any such claim.

   It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge or BUIDCo will be kept withheld or retained as such by the Engineer-in-Charge or BUIDCo till the claim arising out of or under the contract is determined by the arbitrator (if the contract is governed by the arbitration clause) or by the competent court, as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the Engineer-in-Charge or the BUIDCo shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company as the case may be, whether in his individual capacity or otherwise.

ii) BUIDCo shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract etc., to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over-payment and it shall be lawful for BUIDCo to recover the same from him in the manner prescribed in sub-clause (i) of this clause or in any other manner legally permissible; and if is found that the contractor was paid less than what was due

to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by BUIDCo to the contractor, without any interest thereon whatsoever.

CLAUSE 29 A

Lien in respect of claims in other Contracts

Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or the BUIDCo or any other contracting person or persons through Engineer-in-Charge against any claim of the Engineer-in-Charge or BUIDCo or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Engineer-in-Charge or the BUIDCo or with such other person or persons.

It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-in-Charge or the BUIDCo will be kept withheld or retained as such by the Engineer-in-Charge or the BUIDCo till his claim arising out of the same contract or any other contract is either mutually settled or determined by the arbitration clause or by the competent court, as the case may be and that the contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

CLAUSE 30

Unfiltered water supply

The contractor(s) shall make his/their own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following conditions.

i) That the water used by the contractor(s) shall be fit for construction purposes to the satisfaction of the Engineer-in-Charge.

ii) The Engineer-in-Charge shall make alternative arrangements for supply of water at the risk and cost of contractor?(s) if the arrangements made by the contractor(s) for procurement of water are in the opinion of the Engineer-in-Charge, unsatisfactory.

CLAUSE 31

Return of surplus material

Notwithstanding anything contained to the contrary in this contract, where any materials for the execution of the contract are procured with the assistance of BUIDCo either by issue from BUIDCo stocks or purchase made under orders or permits or licences issued by BUIDCo the contractor shall hold the said materials economically and solely for the purpose of the contract and not dispose of them without the written permission of the BUIDCo and return, if required by the Engineer in Charge, all surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever on being paid or credited such price as the Engineer in Charge shall determine having due regard to the condition of the materials. The price allowed to the contractor however shall not exceed the amount charged to him excluding the element of storage charges. The decision of the Engineer in Charge shall be final and conclusive. In the event of breach of the aforesaid condition the contractor shall in addition to throwing himself open to action for contravention of the term of the licence or permit and/or for criminal breach of trust, be liable to BUIDCo for all moneys, advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach.

CLAUSE 32

Hire of Plant & Machinery

i) The contractor shall arrange at his own expense all tools, plant machinery and equipment (hereinafter referred to as T & P) required for execution of the work except for the Plant & Machinery listed in Schedule 'C' and stipulated for issue to the contractor. If the contractor requires any item of T & P on hire from the T & P available will, if such item is available, hire it to the contractor at rates to be agreed upon between

him and the Engineer-in-Charge. In such a case all the conditions hereunder for issue of T & P shall also be applicable to such T & P as is agreed to be issued.

ii) Plant and Machinery when supplied on hire charges shown in Schedule 'C' shall be made over and taken back at the departmental equipment yard/shed shown in Schedule 'C' and the contractor shall bear the cost of carriage from the place of issue to the site of work and back. The contractor shall be responsible to return the plant and machinery in the condition in which it was handed over to him, and he shall be responsible for all damage caused to the said plant and machinery at the site of work or elsewhere in operation and otherwise during transit including damage to or loss of plant and for all losses due to his failure to return the same soon after the completion of the work for which it was issued. The Project Director shall be the sole judge to determine the liability of the contractor and its extent in this regard and his decision shall be final and binding on the contractor.

iii) The plant and machinery as stipulated above will be issued as and when available and if required by the contractor. The contractor shall arrange his programme of work according to the availability of the plant and machinery and no claim, whatsoever, will be entertained from him for any delay in supply by the Department.

iv) The hire charges shall be recovered at the prescribed rates from and inclusive of the date the plant and machinery made over up to and inclusive of the date of the return in good order even though the same may not have been working for any cause except major breakdown due to no fault of the contractor or faulty use requiring more than three working days continuously (excluding intervening holidays and Sundays) for bringing the plant in order. The contractor shall immediately intimate in writing to the Engineer in Charge when any plant or machinery gets out of order requiring major repairs as aforesaid. The Engineer in Charge shall record the date and time of receipt of such intimation in the log sheet of the plant or machinery. Based on this if the breakdown occurs before lunch period or major breakdown will be computed considering half a day's breakdown on the day of complaint. If the breakdown occurs in the post lunch period of major breakdown will be computed starting from the next working day. In case of any dispute under this clause the decision of the General Manager (Works) shall be final and binding on the contractor.

v) The hire charges shown above are for each day of 8 hours (inclusive of the one-hour lunch break) or part thereof.

vi) Hire charges will include service of operating staff as required and also supply of lubricating oil and stores for cleaning purposes. Power fuel of approved type, firewood, kerosene oil etc. for running the plant and machinery and also the full time chowkidar for guarding the plant and machinery against any loss or damage shall be arranged by the contractor who shall be fully responsible for the safeguard and security of plant and machinery. The contractor shall on or before the supply of plant and machinery sign an agreement indemnifying BUIDCo against any loss or damage caused to the plant and machinery either during transit or at site of work.

vii) Ordinarily, no plant and machinery shall work for more than 8 hours a day inclusive of one hour lunch break. In case of an urgent work however, the Engineer in Charge may, at his discretion, allow the plant and machinery to be worked for more than normal period or 8 hours a day. In that case the hourly hire charges for overtime to charge (1/8)th of the daily charges) subject to a minimum of half day's normal charges on any particular day. For working out hire charges for over time a period of half an hour and above will be charged as one hour and a period of less than half an hour will be ignored.

viii) The contractor shall release the plant and machinery every seventh day for periodical servicing and/or wash out which may take about three to four hours or more. Hire charges for full day shall be recovered from the contractor for the day of servicing/Wash out irrespective of the period employed in servicing.

ix) The plant and machinery once issued to the contractor shall not be returned by him on account of lack of arrangements of labour and materials, etc. on his part, the same will

be returned only when they are required for major repairs or when in the opinion of the Engineer in Charge the work or a portion of work for which the same was issued is completed.

x) Log Book for recording the hours of daily work for each of the plant and machinery supplied to the contractor will be maintained by theDepartment and will be countersigned by the contractor or his authorised agent daily. In case the contractor contests the correctness of the entries and/or fails to sign the Log Book the decision of the Engineer in Charge shall be finaland binding on him. Hire charges will be calculated according to the entries in the Log Book and will be binding on the contractor. Recovery on account of hire charges for road rollers shall be made for the minimum number of days worked out on the assumption that a roller can consolidate per day and maximum quantity of materials or area surfacing as noted against each in the annexed statement (see attached annexure).

xi) In the case of concrete mixers, the contractors shall arrange to get the hopper cleaned and the drum washed at the close of the work each day or each occasion.

a) In case rollers for consolidation are employed by the contractor himself, log book for such rollers shall be maintained in the same manner as is done in case of departmental rollers, maximum quantity of any item to be consolidated for each roller day shall also be same as in Annexure to Clause 34(x). For less use of rollers recovery for the less roller days shall be made at the stipulated issue rate.

xii) The contractor shall be responsible to return the plant and machinery in the condition in which it was handed over to him and he shall be responsible for all damage caused to the said plant and machinery at the site of work or elsewhere in operation or otherwise or during transit including damage to or loss of parts, and for all losses due to him failure to return the same soon after the completion of the work for which it was issued. The Project Director shall be the sole judge to determine the liability of the contractor and its extent in this regard and his decision shall be final and binding on the contractor.

xiii) The contractor will be exempted for levy of any hire charges for the number of days he is called upon in writing by the Engineer in Charge to suspend execution of the work provided by BUIDCo plant and machinery in question have, in fact remained idle with the contractor because of the suspension.

xiv) In the event of the contractor not requiring any item of plant and machinery issued by BUIDCo though not stipulated for issue in Schedule 'C' any time after taking delivery at the place of issue, he may return it after two days written notice or at any time without notice if he agrees to pay hire charges for two additional days without in any way affecting the right of the Engineer in-Charge to use the said plant and machinery during the said period of two days as he likes including hiring out to a third party.

CLAUSE 33

Contractors Superintendence, Supervision, Technical Staff & Employees

Employment of Technical Staff and employees

i) The contractor shall provide all necessary superintendence during execution of the work and as along thereafter as may be necessary for proper fulfilling of the obligations under the contract.

The contractor along with bidding of the tender , intimate in writing to the Engineer-in-Charge the name, qualifications, experience, age, address and other particulars along with certificates, of the technical representative to be in charge of the work. If there is any change then the new incumbents qualifications and experience shall not be lower than specified in Schedule in I.T.B. (Annexure – 2). The Engineer-in-Charge shall within 15 days of issue of letter of acceptance intimate in writing his approval or otherwise it is deemed to be approved. Any such approval may at any time be withdrawn and in case of such withdrawal the contractor shall appoint another such representative according to the provisions of this clause. Decision of the tender accepting authority / General Manager (Works) shall be final and binding on the

contractor in this respect. Technical staff shall be available at site within fifteen days of start of work.

If the contractor (or any partner in case of firm/company) himself has such qualifications, it will not be necessary for the said contractor to appoint such a principal technical representative but the contractor shall designate and appoint a responsible agent to represent him and to be present at the work whenever the contractor is not in a position to be so present. All the provisions applicable to the principal technical representative under the Clause will also be applicable in such a case to contractor or his responsible agent. The principal technical representative and/or the contractor or his responsible authorised agent shall be actually available at site at least two working days every week, these days shall be determined in advance and also during recording of measurement of works and whenever so required by the Engineer-in-Charge by a notice as aforesaid and shall also note down instructions conveyed by the Engineer-in-Charge or his designated representative in the site order book and in token of acceptance of measurements. There shall be no objection if the representative/agent looks after more than one work and not more than three works in the same station provided these details are disclosed to the Engineer-in-Charge and he shall be satisfied that the provisions and the purpose of the clause are fulfilled satisfactorily.

If the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that no such technical representative or agent is effectively appointed or is effectively attending or fulfilling the provision of this clause, a recovery shall be effected from the contractor as specified in Schedule 'F' and the decision of the Engineer-in-Charge as recorded in the site order book and measurement recorded in Measurement Books shall be final and binding on the contractor. Further if the contractor fails to appoint a suitable technical representative or responsible agent and if such appointed persons are not effectively present or do not discharge their responsibilities satisfactorily, the Engineer-in-Charge shall have full powers to suspend the execution of the work until such date as a suitable agent is appointed and the contractor shall submit a certificate of employment of the technical representative/responsible agent along with every on account bill/fixed bill and shall produce evidence if at any time so required by the Engineer-in-Charge.

ii) The contractor shall provide and employ on the site only such technical assistants as are skilled and experienced in their respective fields and such foremen and supervisory staff as are competent to give proper supervision to the work.

The contractor shall provide and employ skilled, semiskilled and unskilled labour as is necessary for proper and timely execution of the work.

The Engineer in Charge shall be at liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Engineer in Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer in Charge and the persons so removed shall be replaced as soon as possible by competent substitutes.

CLAUSE 34

i) Sales Tax or any other tax on materials in respect of this contract shall be payable by the contractor according to law in effect.

ii) The contractor shall deposit royalty and obtain necessary permit for supply of the red earth, moorum, sand chips bajri, stone, kankar, etc. from local authorities.

iii) If pursuant to or under any law, notification or order any royalty, cess or the hike becomes payable to the Government of India and does not at any time become payable by the contractor to the State Government/ Local authorities in respect of any material used by the contractor in the works then in such a case, it shall be lawful to the

Government of India and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from the dues of the contractor.

CLAUSE 35

Conditions for reimbursement of levy/taxes if levied after receipt of tenders

i) All tendered rates shall be inclusive of all taxes and levies payable under respective statutes. However, pursuant to the Constitution (46th Amendment) Act. 1982, if any further tax or levy is imposed by Statute, after the last stipulated date for the receipt of tender including extensions if any and the contractor thereupon necessarily and properly pays such taxes/levies the contractor shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of the Chief General Manager (whose decision shall be final and binding on the contractor) attributable to delay in execution of work within the control of the contractor.

ii) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorised representative of the Government and/or the Engineer-in-Charge and further shall furnish such other information/document as the Engineer-in-Charge may require from time to time.

iii) The contractor shall, within a period of 30 days of the imposition of any such further tax or levy, pursuant to the Constitution (Forty Sixth Amendment) Act 1982, give a written notice thereof to the Engineer-in-Charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

CLAUSE 36

Imprisonment of Contractor

If the contractor is imprisoned, becomes insolvent compound with his creditors, has a receiving order made against him or carries on business under a receiver for the benefit of the creditors or any of them, or being a partnership firm becomes dissolved, or being a company or corporations goes into liquidation or commences to be wound up not being a voluntary winding up for the purpose only of amalgamation or reconstitution the department shall be at liberty.

(a) To give such liquidator, receiver, or other person in whom the contract may become vested, the option of carrying out the contract or a portion there of to be determined by BUIDCo, subject to his providing an appropriate guarantee for the performance of such contract or.

(b) To terminate the contract, forthwith by notice in writing to the contractor, the liquidator, the receiver or person in whom the contract may become vested and take further action as provided in the relevant clauses of the contract.

CLAUSE 37

Termination of Contract on death of contractor

Without prejudice to any of the rights or remedies under this contract if the contractor dies, the Divisional Officer on behalf of the Governor of Bihar shall have the option of terminating the contract without compensation to the contractor after the affidavit of his/ their legal heir/heirs that they are not going to be in this profession in future.

CLAUSE 38

If relation working in PWD then the contractor not allowed to tender

The contractor shall not be permitted to tender for works in the P.W.D. Division (responsible for award and execution of contracts) in which his near relative is posted as Accountant or as an officer in any capacity between the grades of the General Manager (Works) and Dy. Project Director (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any GazettedOfficer in the P.W.D. or in BUIDCo. Any breach of this condition by the contractors of BUIDCoshall lead to blacklisting. If the contractor is registered in any other department, he shall be debarred from tendering in BUIDCo for any breach of this condition.

NOTE : By the term “near relatives” is meant wife, husband, parents and grand parents, children and grand children, brothers and sisters, uncles, aunts and cousins and their corresponding in law.

CLAUSE 39

No-Gazetted-Engineer to work as Contractor within two years of retirement

No engineer of gazetted rank of other gazetted officer employed in engineering of administrative duties in an engineering department of the Government of Bihar shall work as a contractor or employee of a contractor for a period of two years after his retirement from government service without the previous permission of State Government in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained said permission prior to engagement in the contractor's service, as the case may be.

CLAUSE 40

Return of material and recovery for excess material issued

i) After completion of the work and also at any intermediate stage in the event of non reconciliation of materials issued, consumed and in balance (see Clause 10) theoretical quantity of materials issued by the BUIDCo for use in the work shall be calculated on the basis and method given hereunder.

a) Quantity of cement & bitumen shall be calculated on the basis of quantity of cement & bitumen required different items of work as shown in the Schedule of Rates mentioned in-Schedule 'F'. In case any item is executed for which standard constants for the consumption of cement or bitumen are not available in the above mentioned schedule/statement or cannot be derived from the same shall be calculated on the basis of standard formula to be laid down by the Engineer in Charge.

b) Theoretical quantity of steel reinforcement of structural steel sections shall be taken as the quantity required as per design or as authorised by Engineer in Charge, including authorized lappages, chairs etc., plus 3% wastage due to cutting into pieces, such theoretical quantity being determined and compared with the actual issues each diameter wise, section wise and category wise separately.

c) For any other material as per actual requirements.

ii) Over the theoretical quantities of materials so computed a variation shall be allowed as specified in Schedule 'F'. The difference in the net quantities of material actually issued to the contractor and the theoretical quantities including such authorised variation, if not returned by the contractor or if not fully reconciled to the satisfaction of the Engineer in Charge within fifteen days of the issue of written notice by the Engineer in Charge to this effect shall be recovered at the rates specified in Schedule 'F' without prejudice to the provision of the relevant conditions regarding return of materials governing the contract. Decision of Engineer in Charge in regard to theoretical quantities of materials, which should have been actually used as per the Annexure of the standard schedule of rates and recovery at rates specified in Schedule 'F', shall be final & binding on the contractor

For non scheduled items, the decision of the General Manager (Works) regarding theoretical quantities of materials, which should have been actually used, shall be final and binding on the contractor.

iii) The said action under this clause is without prejudice to the right of BUIDCo to take action against the contractor under any other conditions of contract for not doing the work according to the prescribed specifications.

CLAUSE 41

Release of Security deposit

On completion of the whole of the work, half of the total amount of security shall be repaid to the contractor after six months of completion. However, the balance half of the total amount of security will be returned after completion of defect liability period and after the Engineer has certified that all defects notified by him to the contractor before the end of this period have been corrected and also after recovery of any dues.

CLUASE 42

Responsibility of Technical Staff and employees

Technical officers / staff deployed by the Contractor at any construction site will also be responsible for inferior quality / poor performance of any work and his name will be circulated to all works Sites of BUIDCo to debar from any other site, if his name is being proposed by other contractor.

CLAUSE 43

Contractor's Risks

All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

CLAUSE 44

Insurance

The Contractor shall provide, in the joint names of BUIDCo and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks :

(a) loss of or damage to the Works, Plant and Materials ;

(b) loss of or damage to Equipment;

(c) loss of or damage of property (except the Works, Plant, Materials and Equipment) in connection with the Contract; and

(d) personal injury or death.

Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

If the Contractor does not provide any of the policies and certificates required, BUIDCo may effect the insurance which the Contractor should have provided and recover the premiums BUIDCo has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

Alteration to the terms of an insurance shall not be made without the approval of the Engineer.

Both parties shall comply with any conditions of the insurance policies.

CLAUSE 45

Cash Flow Estimate to be Submitted

The Contractor shall, within the time stated in special Conditions of contract after the date of the Letter of Acceptance, provide to the Engineer for his information a detailed cash flow estimate, in quarterly periods, of all payments to which the Contractor will be entitled under the Contract and the Contractor shall subsequently supply revised cash flow estimates at quarterly intervals, if required to do so by the Engineer. in charge

CLAUSE 46

Safety, Security and Protection of the Environment

The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein :

(a) have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by BUIDCo) in an orderly state appropriate to the avoidance of danger to such persons,

(b) Provide and maintain at his own cost all lights, guards, fencing, warning signs and watchmen and where necessary or required by the Engineer or by any duly constituted authority, for the protection of the Works or for the safety and convenience of the public or others, and

(c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

CLAUSE 47

Cost of Samples

All samples shall be supplied by the Contractor at his own cost if the supply thereof is clearly intended by or provided for in the Contract.

CLAUSE 48

Cost of Tests

The cost of making any test shall be borne by the Contractor if such test is :

(a) clearly intended by or provided for in the Contract, or

(b) particularized in the Contract (in case only of a test under load or of a test to ascertain whether the design of any finished or partially finished work is appropriate for the purposes which it was intended to fulfill) in sufficient detail to enable the Contractor to price or allow for the same in his Tender.

CLAUSE 49

Cost of Tests not Provided for

If any test required by the Engineer which is :

(a) not so intended by or provided for,

(b) (in the cases above mentioned) not so particularized, or

(c) (though so intended or provided for) required by the Engineer to be carried out at any place other than the Site or the place of manufacture, fabrication or preparation of the materials or Plant tested,

shows the materials, Plant or workmanship not to be in accordance with the provisions of the Contract to the satisfaction of the Engineer, then the cost of such test shall be borne by the Contractor, but in any other case department will bear the cost.

CLAUSE 50

Commencement of Works

The contractor shall commence the Works as soon as is reasonably possible after the receipt by him of a notice to this effect from the Engineer, which notice shall be issued within the time stated in the Appendix to Tender after the date of the Letter of Acceptance. Thereafter, the Contractor shall proceed with the Works with due expedition and without delay.

CLAUSE 51

Substational completion of parts

If any part of the Permanent Works has been substantially completed and has satisfactorily passed any Test on Completion prescribed by the Contract, the Engineer may issue a Taking-Over Certificate in respect of that part of the Permanent Works before completion of the Works and, upon the issue of such Certificate, the Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work in that part of the Permanent Works during the Defects Liability Period.

CLAUSE 52

Force Majeure

Force Majeure

Neither party shall be liable to the other for any loss or damage occasioned by or arising out of acts of GOD such has Unprecedented flood, Volcanic eruption, Earthquake or other convulsion of nature and other acts such as general/ partial strikes by a section of government employees/ invasion, the act of foreign countries/ hostilities or war like operations before or after declaration of war, rebellion/ military or usurped power which prevent performance of the contract and which could not have been foreseen or avoided by a prudent person.

CLAUSE 53

Recovery

Force Majeure

Any amount found recoverable from the contractor shall be recovered as public demand under the Bihar Public Demand Act. without prejudice to any other mode of recovery.

SECTION 4

CONTRACT DATA
(PROFORMA OF SCHEDULES)

PROFORMA OF SCHEDULES

(Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE 'A'

Schedule of quantities

Sl. No.	Description of Item(with brief specification and reference to book of specification)	BILL OF QUANTITY				Amount
		Quantity	Unit	Rate		
				In figure	In words	
1	2	3	4	5	6	7
	Attached					

SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

S. No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of Issue
1	2	3	4	5
			NIL	

SCHEDULE 'C'

Tools and plants to be hired to the contractor

Sl. No.	Description	Hire charge per day	Place of Issue
1	2	3	4
		NIL	

SCHEDULE 'D'

Extra schedule for specific requirements/ document for the work, if any.

SCHEDULE 'E'

Schedule of component of Cement, Steel, other Materials, Labour etc. for price escalation.

CLAUSE 10 CC **- As per SBD, GoB**

Component of Cement-
expressed as percent of total value of work. **Pc**

Component of Steel-
expressed as percent of total value of work.
Component of CI/DI Pipes and specials **Ps**

Component of civil (except cement & steel)/
Electrical construction Materials expressed
as percent of total value of work- **Pm**

Component of Bitumen -
expressed as percent of total value of work. **Pb**

Component of Labour-
expressed as percent of total value of work. **P1**

Component of P.O.L. –
expressed as percent of total value of work. **Pf**

Component of Plant & Machinery –
expressed as percent of total value of work. **Pp**

SCHEDULE 'F'

Reference to General Condition of Contract

Name of work	**As per NIT**
Estimated cost of work	**As per NIT**
Earnest money	**As per NIT**
Performance Guarantee	**2% of tendered value**
Security Deposit	**8% of tendered value (to be deducted from RA Bill)**
Defect Liability period	**1 Year from the date of completion of project.**
Rate of Interest	**Prevailing lending rate of interest floated by SBI at the time of first installation of Mobilization Advance**

GENERAL RULES AND DIRECTIONS : **Managing Director,BUIDCo.**
Maximum percentage for quantity of items of work to be executed beyond Which rates are to be determined in Accordance with Clauses 12.2 & 12.3 See below

Definitions:

2(v)	**Engineer-in-Charge**	**To be given in the letter for award of work by BUIDCo**
2(x)	**Percentage on cost of materials and labour to cover all overheads and profits.**	**10 %**
2(xi)	**Standard Schedule of Rates**	**As published & issued by BCD SOR 2016 and RCD SOR 2018**

2(xii) **Department & Employer** — **Managing Director, Bihar Urban Infrastructure Development Corporation Ltd. (BUIDCo) (A Govt. of Bihar Undertaking)**

9(ii) **Standard PWD Contract Form** — **PWD 2/3 as modified & corrected upto**

Clause 1

i) **Time allowed for submission of performance Guarantee from the date of issue of letter of acceptance, in days** — **15days**

ii) **Maximum allowable extension beyond the period provided in i) above in days** — **0days**

Clause 2

Authority for fixing compensation under clause 2. — **Chief Engineer, BUIDCo**

Clause 2A

Whether Clause 2A shall be applicable — **N/A**

Clause 5

Number of days from the date of issue of notice to start. — **07 days**

Mile stone(s) as per table given below:

Table of Mile Stone(s)

Sl. No.	Description of Milestone(Physical)	Time allowed in days (from date of start)	Amount to be with-held in case of non achievement of milestone
1.	1/8TH (of whole work)		
2.	3/8TH (of whole work)		
3	3/4TH (of whole work)		
4.	Full		

OR

Sl. No.	Financial Progress	Time allowed (from date of start)	Amount to be with-held in case of non achievement of milestone
1.	1/8TH (of whole work)	1/4TH (of whole work)	In the event of not achieving the necessary progress as assessed from the running payments, 1% of the tendered value of work will be withheld for failure of each milestone.
2.	3/8TH (of whole work)	1/2TH (of whole work)	
3.	3/4TH (of whole work)	3/4TH (of whole work)	
4.	Full	Full	

Time allowed for execution of work — **20 Months**

Authority to give fair and reasonable extension of time for completion of work. — **Chief Engineer, BUIDCo.**

Clause 7

Gross work to be done together with net payment/ adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	**Not Applicable**

Clause 10CC

Cluase 10CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column	**As per SBD, GoB**

Clause 11

Specifications to be followed for execution of work	**Bihar PWD/ CPWD**

Clause 12

Deviation, variation Extent and pricing.	**As per P.W.D. Code clause 182A, 292XII, 293XVII & 294XVI**

Clause 16

Competent Authority for deciding reduced rates.	**Chief Engineer, BUIDCo**

- **The following document also forms part of the contract. *Special Condition attached.***
- **The law, which applies to the contract, is The Law of Union of India.**
- **The court of jurisdiction** **Patna, Bihar**
- **The Language of contract document** **English**
- **The limit of sub-contracting** **Nil**
- **The Currency of the Contract is** **Indian Rupees**
- **Place of Arbitration** **Patna**

SECTION 5

SPECIAL CONDITION OF CONTRACT

(Condition of Particular Application)

BIHAR URBAN INFRASTRUCTURE DEVELOPMENT CORPORATION Ltd
GOVERNMENT OF BIHAR

Name of work

Design and Construction of Drinking Water Supply Scheme of Jamalpur Nagar Parishad under AMRUT and State Plan Scheme (Phase II) with six months of Trial run and thereafter operation and maintenance of system for next five years.

(A) Construction of DC/CI Distribution Network (Zone-1 and Zone-4) -73.2006 Km, providing house service connection-6605, SCADA system -2 Nos.- 3046.961 Lakh under AMRUT Scheme.

(B) Construction of Distribution Network (Zone-2 and Zone-3) -51.6007 Km, providing house service connection-8000, SCADA-2 Nos.- 2488.35 Lakh"

For the general guidance and information of the prospective tenderers a brief note on the existing water supply system for Jamalpur Nagar Parishad is given below, HOWEVER THE TENDERERS MUST NOTE THAT BEFORE PARTICIPATING IN THE BID, THEY MUST VISIT THE SITE AND SATISFY THEMSELVES BY BECOMING FULLY CONVERGENT/ FAMILIAR WITH THE ENTIRE EXISTING SYSTEM AND ALL RELEVANT SITE CONDITIONS. THE RATES QUOTED MUST BE INCLUSIVE OF ALL TAXES AND DUTIES FOR ALL THE COMPONENTS.

(A) Kind and Scope of Work

The Successful bidder is to design, build, operate and maintain a complete and fully functioning water supply system in the Water Supply Area in accordance with the Bid Documents. The obligations of the Operator shall be regulated by the Design Build and Operation & Maintenance Agreement for the Water Supply Area to which the present Technical Specifications form an integral part. The scope of work shall include the following activities:

• Carry out detailed assessment of existing utilities to be included in the Operator's operations and maintenance contract;

• Field survey and investigation with total station survey, Preparation of Maps and drawings on AutoCAD and GIS and Geo technical survey wherever required.

• Establish and confirm organic and inorganic content of the existing raw water source (Ground Water), sanitary survey of the ground water source;

• Prepare detailed design for improvements (as assessed required by the Operator for fulfilling the output requirements) of existing utilities to be included in the Operator's operations and maintenance contract;

• Prepare detailed designs of new works and processes required to fulfill the output requirements for the defined main pipes, reservoirs and distribution system (replacements and extensions);

• Supply all materials for the construction and installation of the plant and supply and install all pipes and controls required for the water facilities;

• Provide and install required mechanical and electrical equipment for full operation of the specified

• Supply and install all cabling and control panels for safe and effective operation of the plant and equipment;

• Supply and install all storage facilities, pumping requirements, distribution piping, valves, and house connections;

• Prepare operations and maintenance manuals for all installations;

• Carry out Tests on Completion and Tests after Completion and commission the works;

• Recruit and train water supply personnel in the operation and maintenance of the Works;

• Provide lubricants and tools for routine maintenance;

• Provide spare parts for all items of equipment and accessories; and

• Operate and maintain the water supply and distribution system for the period defined in the Operations and Maintenance Contract.

The design, construction, operation and maintenance of the water supply system shall be executed in compliance with international best practise and all relevant Indian legislation.

(B) Design and Build Specifications

The Operator shall be responsible for the provision of all relevant permits necessary for construction, the preparation of detailed design and the construction of the element as defined in the attached bid document.

The water supply system shall as a minimum include the infrastructure defined in Appendix A
The design and construction of the water supply system shall facilitate future expansion of the system
as the population of the water supply area grows.

(C) Operation and Maintenance of the Site

The Operator shall be responsible for the operation and maintenance of the water supply system as described in the attached Operations and Maintenance Specifications.
The Operator shall manage, operate and maintain all plant and ancillary equipment that support the operation of the Project, including without limitation:

- High Yielding Tube well, motor pump and accessories;
- Transmission mains;
- Main piping system;
- Disinfection plant(s) with installations;
- Reservoirs with all installations;
- Distribution pipeline system with all fittings and particulars;
- Service connections;
- Any other work as defined in the Contract.

All Personnel employed by the Operator at the Project shall hold relevant qualifications and appropriate training and shall have sufficient relevant experience in the operation and management of the Works, to ensure the Project is operated and maintained in compliance with the requirements of the Contract. The Operator shall familiarise himself with the terms of the Indian legislation for Water Supply and any statutory consents for the Water Supply System and shall perform the Service in conformity with all of the conditions of these consents.

(D) Technical Documentation

The following documents shall form an integral part of the contract:

- The Design Build Operate & Maintain Agreement for the Operator in the Water Supply Area
- The Bidders Technical Proposal on Operation & Maintenance. The Operator shall have familiarized himself with;
- The Project Implementation Plan.

Items of work to be taken up but not limited to

ZONE-1

(1) Supplying all materials including pipes, specials and valves, labours, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI class K-7 or K-9 pressure pipes conforming to ISS No 1536/1989 or IS 1829 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift **including all types of road cutting and restoring the same** and providing necessary masonary pillars of required size and shape for crossing the pipes in ditches etc, as required and cost of rubber gasket (conforming to IS: 5382/1969) and making gasket joints and providing necessary Sluice Valve of required size conforming to IS 2906-1980 and IS 780-1980 of IN 1.0 with ISI certification mark and fixing in trenches with a pair of tail pieces, including the cost of sluice valve and tail pieces, making lead caulked joints

and flanged joint as per IS Specification, including supplying all fitting and jointing materials (pig lead conforming to ISS 782-1978; yarn conforming to ISS 6587-1972 nuts & bolts conforming to ISS 1364-1983) including drilling holes in flanges if required and incidental charges also providing and laying CI specials of required size conforming to IS : 9523 and suitable Air valves with its all accessories ,spindle fire hydrant etc. whereas required all complete job as per direction of E/I including all taxes, duties and incidental charges providing necessary thrust block where as required, construction of masonary chamber for valves with cost of construction materials and earth work in back filling the trenches after laying of different types and sizes of pipe ,pcc, brick flat soiling ,disinfecting CI water mains by flushing with water containing bleaching powder, specials and valves with earth removed during excavation within initial lead and lift etc. including providing night guard, barrier and red light to safe guard against accident, testing of laid pipes against 60 M water head etc. all complete job as per specification and direction of E/I.

A. Distribution main

100mm	CI class LA	21539.8 m
150mm	CI class LA	7460.7 m
200mm	CI class LA	3311.3m
250mm	DI class K-7	1608.4 m
300mm	DI class K-7	953 m
350mm	DI class K-7	372.4 m
400mm	DI class K-7	0m
450mm	DI class K-7	0 m
500mm	DI class K-7	0 m

(3) Site development including providing local sand filling as required and brick flat soling around the pump house within all premises etc all complete job as per direction of E/I.
(4) Providing house service connection with water meter and all required accessories as per direction of E/I.
(5) Design and building of SCADA system for water supply scheme including supply and installation of all electromagnetic flow meter, ultrasonic level measuring device, hydrostatic level measuring device ,necessary software computer systems all complete as per direction of E/I

Works related with OPERATION AND MAINTENANCE OF ALL COMPONENTS

Deployment of manpower, supply of all chemicals, checking of status of supply in fed up area, repairing of leakages, maintaining log book at all pumping stations, submission of daily / weekly / monthly and yearly report of water quality, tested by district laboratories, replacing the damaged parts of any machinery / the machinery as a whole, annual / bi-annual maintenance of all built-up / installed civil/mechanical/electrical structures / units under the scheme , including round-the clock watch & ward **for 60 calendar months** from the date of completion of trial run (excluding energy charges)

O & M cost for the first 12 calendar months - 1 Job.

O & M cost for the Second 12 calendar months - 1 Job.

O & M cost for the Third 12 calendar months - 1 Job.

O & M cost for the Fourth 12 calendar months - 1 Job.

O & M cost for the Fifth 12 calendar months - 1 Job.

ZONE-2

(1) Supplying all materials including pipes, specials and valves, labours, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI class K-7 or K-9 pressure pipes conforming to ISS No 1536/1989 or IS 1829 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift **including all types of road cutting and restoring the same** and providing necessary masonary pillars of required size and shape for crossing the pipes in ditches etc, as required and cost of rubber gasket (conforming to IS: 5382/1969) and making gasket joints and providing necessary Sluice Valve of required size conforming to IS 2906-1980 and IS 780-1980 of IN 1.0 with ISI certification mark and fixing in trenches with a pair of tail pieces, including the cost of sluice valve and tail pieces, making lead caulked joints and flanged joint as per IS Specification, including supplying all fitting and jointing materials (pig lead conforming to ISS 782-1978; yarn conforming to ISS 6587-1972 nuts & bolts conforming to ISS 1364-1983) including drilling holes in flanges if required and incidental charges also providing and laying CI specials of required size conforming to IS : 9523 and suitable Air valves with its all accessories ,spindle fire hydrant etc. whereas required all complete job as per direction of E/I including all taxes, duties and incidental charges providing necessary thrust block where as required, construction of masonary chamber for valves with cost of construction materials and earth work in back filling the trenches after laying of different types and sizes of pipe ,pcc, brick flat soiling ,disinfecting CI water mains by flushing with water containing bleaching powder, specials and valves with earth removed during excavation within initial lead and lift etc. including providing night guard, barrier and red light to safe guard against accident, testing of laid pipes against 60 M water head etc. all complete job as per specification and direction of E/I.

A. Distribution main

100mm	CI class LA	16753.1 m
150mm	CI class LA	4244.5 m
200mm	CI class LA	3218.4 m
250mm	DI class K-7	1848.5 m
300mm	DI class K-7	1044.2 m
350mm	DI class K-7	0 m
400mm	DI class K-7	0m
450mm	DI class K-7	0 m
500mm	DI class K-7	0 m

(3) Site development including providing local sand filling as required and brick flat soling around the pump house within all premises etc all complete job as per direction of E/I.

(4) Providing house service connection with water meter and all required accessories as per direction of E/I.
(5) Design and building of SCADA system for water supply scheme including supply and installation of all electromagnetic flow meter, ultrasonic level measuring device, hydrostatic level measuring device ,necessary software computer systems all complete as per direction of E/I
..

Works related with OPERATION AND MAINTENANCE OF ALL COMPONENTS

Deployment of manpower, supply of all chemicals, checking of status of supply in fed up area, repairing of leakages, maintaining log book at all pumping stations, submission of daily / weekly / monthly and yearly report of water quality, tested by district laboratories, replacing the damaged parts of any machinery / the machinery as a whole, annual / bi-annual maintenance of all built-up / installed civil/mechanical/electrical structures / units under the scheme , including round-the clock watch & ward **for 60 calendar months** from the date of completion of trial run (excluding energy charges)

O & M cost for the first 12 calendar months-1 Job.

O & M cost for the Second 12 calendar months-1 Job.

O & M cost for the Third 12 calendar months-1 Job.

O & M cost for the Fourth 12 calendar months-1 Job.

O & M cost for the Fifth 12 calendar months-1 Job.

ZONE-3

(1) Supplying all materials including pipes, specials and valves, labours, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI class K-7 or K-9 pressure pipes conforming to ISS No 1536/1989 or IS 1829 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift **including all types of road cutting and restoring the same** and providing necessary masonary pillars of required size and shape for crossing the pipes in ditches etc, as required and cost of rubber gasket (conforming to IS: 5382/1969) and making gasket joints and providing necessary Sluice Valve of required size conforming to IS 2906-1980 and IS 780-1980 of IN 1.0 with ISI certification mark and fixing in trenches with a pair of tail pieces, including the cost of sluice valve and tail pieces, making lead caulked joints and flanged joint as per IS Specification, including supplying all fitting and jointing materials (pig lead conforming to ISS 782-1978; yarn conforming to ISS 6587-1972 nuts & bolts conforming to ISS 1364-1983) including drilling holes in flanges if required and incidental charges also providing and laying CI specials of required size conforming to IS : 9523 and suitable Air valves with its all accessories ,spindle fire hydrant etc. whereas required all complete job as per direction of E/I including all taxes, duties and incidental charges

providing necessary thrust block where as required, construction of masonary chamber for valves with cost of construction materials and earth work in back filling the trenches after laying of different types and sizes of pipe ,pcc, brick flat soiling ,disinfecting CI water mains by flushing with water containing bleaching powder, specials and valves with earth removed during excavation within initial lead and lift etc. including providing night guard, barrier and red light to safe guard against accident, testing of laid pipes against 60 M water head etc. all complete job as per specification and direction of E/I.

A. Distribution main

100mm	CI class LA	18267 m
150mm	CI class LA	2859 m
200mm	CI class LA	1590 m
250mm	DI class K-7	659 m
300mm	DI class K-7	519 m
350mm	DI class K-7	598 m
400mm	DI class K-7	0m
450mm	DI class K-7	0 m
500mm	DI class K-7	0 m

(3) Site development including providing local sand filling as required and brick flat soling around the pump house within all premises etc all complete job as per direction of E/I.
(4) Providing house service connection with water meter and all required accessories as per direction of E/I.
(5) Design and building of SCADA system for water supply scheme including supply and installation of all electromagnetic flow meter, ultrasonic level measuring device, hydrostatic level measuring device ,necessary software computer systems all complete as per direction of E/I
..

Works related with OPERATION AND MAINTENANCE OF ALL COMPONENTS

Deployment of manpower, supply of all chemicals, checking of status of supply in fed up area, repairing of leakages, maintaining log book at all pumping stations, submission of daily / weekly / monthly and yearly report of water quality, tested by district laboratories, replacing the damaged parts of any machinery / the machinery as a whole, annual / bi-annual maintenance of all built-up / installed civil/mechanical/electrical structures / units under the scheme , including round-the clock watch & ward **for 60 calendar months** from the date of completion of trial run (excluding energy charges)

O & M cost for the first 12 calendar months-1 Job.

O & M cost for the Second 12 calendar months-1 Job.

O & M cost for the Third 12 calendar months-1 Job.

O & M cost for the Fourth 12 calendar months-1 Job.

O & M cost for the Fifth 12 calendar months-1 Job.

ZONE-4

(1) Supplying all materials including pipes, specials and valves, labours, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI class K-7 or K-9 pressure pipes conforming to ISS No 1536/1989 or IS 1829 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift **including all types of road cutting and restoring the same** and providing necessary masonary pillars of required size and shape for crossing the pipes in ditches etc, as required and cost of rubber gasket (conforming to IS: 5382/1969) and making gasket joints and providing necessary Sluice Valve of required size conforming to IS 2906-1980 and IS 780-1980 of IN 1.0 with ISI certification mark and fixing in trenches with a pair of tail pieces, including the cost of sluice valve and tail pieces, making lead caulked joints and flanged joint as per IS Specification, including supplying all fitting and jointing materials (pig lead conforming to ISS 782-1978; yarn conforming to ISS 6587-1972 nuts & bolts conforming to ISS 1364-1983) including drilling holes in flanges if required and incidental charges also providing and laying CI specials of required size conforming to IS : 9523 and suitable Air valves with its all accessories ,spindle fire hydrant etc. whereas required all complete job as per direction of E/I including all taxes, duties and incidental charges providing necessary thrust block where as required, construction of masonary chamber for valves with cost of construction materials and earth work in back filling the trenches after laying of different types and sizes of pipe ,pcc, brick flat soiling ,disinfecting CI water mains by flushing with water containing bleaching powder, specials and valves with earth removed during excavation within initial lead and lift etc. including providing night guard, barrier and red light to safe guard against accident, testing of laid pipes against 60 M water head etc. all complete job as per specification and direction of E/I.

A. Distribution main

100mm	CI class LA	16119 m
150mm	CI class LA	18442 m
200mm	CI class LA	2145 m
250mm	DI class K-7	245 m
300mm	DI class K-7	904 m
350mm	DI class K-7	0 m
400mm	DI class K-7	0m
450mm	DI class K-7	0 m
500mm	DI class K-7	0 m

(3) Site development including providing local sand filling as required and brick flat soling around the pump house within all premises etc all complete job as per direction of E/I.
(4) Providing house service connection with water meter and all required accessories as per direction of E/I.
(5) Design and building of SCADA system for water supply scheme including supply and installation of all electromagnetic flow meter, ultrasonic level measuring device, hydrostatic level measuring device ,necessary software computer systems all complete as per direction of E/I

Works related with OPERATION AND MAINTENANCE OF ALL COMPONENTS

Deployment of manpower, supply of all chemicals, checking of status of supply in fed up area, repairing of leakages, maintaining log book at all pumping stations, submission of daily / weekly / monthly and yearly report of water quality, tested by district laboratories, replacing the damaged parts of any machinery / the machinery as a whole, annual / bi-annual maintenance of all built-up / installed civil/mechanical/electrical structures / units under the scheme , including round-the clock watch & ward **for 60 calendar months** from the date of completion of trial run (excluding energy charges)

O & M cost for the first 12 calendar months-1 Job.

O & M cost for the Second 12 calendar months-1 Job.

O & M cost for the Third 12 calendar months-1 Job.

O & M cost for the Fourth 12 calendar months-1 Job.

O & M cost for the Fifth 12 calendar months-1 Job.

BREAK UP SCHEDULE FOR PAYMENT

Item No. 1 Rising and Distribution mains and other related works

- Supply of pipe at work site 60%
- Excavating Lowering in trenches, laying, jointing and back partly filling 20%
- Restoration with same of all kind of laying of pipe 10%
- Disinfection and successful testing 10%

Item no. 10 Supply all materials and providing house connections with complete 100%

Item no. 11 SCADA

. Scada system for water supply scheme including supply and installation of all complete 100%

SPECIAL CLAUSES PERTAINING TO TIME CONTROL QUALITY CONTROL AND COST CONTROL

(A) TIME CONTROL

Within the time stated in the Contract data the contractor shall submit to the Engineer in charge for approval a program showing the general methods, arrangements, order, and timing for all the activities in the works along with monthly cash flow forecast.
An update of the program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.
The contractor shall submit to the Engineer in charge, for approval, an updated program at intervals no longer than the period stated in the contract data. If the contractor does not submit an updated program within this period, the Engineer in charge may withhold the amount stated in the contract data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue program has been submitted.

The Engineer‟s approval of the program shall not alter the contractor‟s event occur or a variation is issued which makes it impossible for completion to be achieved by the intended completion date without the contractor taking steps to accelerate the remaining work and which would cause the contractor to incur additional cost.

(B) QUALITY CONTROL

The Engineer shall check the contractor‟s work and notify the contractor of any defects that are found. Such checking shall not affect the contractor‟s responsibilities. The Engineer in charge may instruct the contractor to search for a defect and to uncover and test any work that the Engineer in charge considers may have a defect.
If the Engineer in charge instructs the contractor to carry out a test not specified in the specification to check whether any work has a defect and the test shows that it does, the contractor shall pay for the test and any samples.

The Engineer in charge shall give notice to the contractor of any defects before the end of the defects liability period, which begins at completion and is defined in the contract data. The defects liability period shall be extended for as long as defects remain to be corrected.
Every time notice of a defect is given, the contractor shall correct the notified defect within the length of time specified by the Engineer‟s notice.

If the contractor has not corrected a defect within the time specified in the Engineer‟s notice, the Engineer in charge will assess the cost of having the defect corrected, and the contractor will pay this amount.

(C) COST CONTROL

The bill of quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the contractor.
The bill of quantities is used to calculate the contract price.

CERTIFICATE OF UNDERTAKING

1. We shall replace, repair and adjust free of all charges to the Employer any part of the work which fails to comply with the specifications for, wear and tear expected until the completion.

2. All the work will be reliable. The material and equipment supplied will be as per the information given in schedule.

3. All the work will be of a type which has been proved in service to be suitable for the duty required by the specifications and will have been manufactured and tested in accordance with the appropriate standard specifications approved by the Engineer in charge.

4. We accept and abide by the clauses relating to Quality and guarantee of work.

5. All the testing of materials like Cement, Steel, M.S. plates etc. required during the execution of the contract will be got tested by me at my own cost from Government recognized Laboratory. The sampling and testing will be done as given in relevant I.S. Codes.

6. We guarantee performance of all the equipment and material complying with the figures filled in respective schedule and the same will operate satisfactorily throughout the operating range specified in the tender.

7. We will comply with all necessary rectification within total time granted for rectification without any cost to BUIDCo.

SECTION 6
TECHNICAL SPECIFICATION
(ALONG WITH BASIC DRAWINGS)

GENERAL SPECIFICATIONS

1.1 Materials and methods of construction for all civil works shall be as per relevant Indian standard specification, part of which are incorporated in the standard specification of P.H.E.D. and P.W.D. Bihar and all will be followed during the execution of the work. The work shall be executed as per the guidelines and provisions of B.I.S. All materials shall conform to Indian standard code of practice National Building Code and CPHEEO manual to maintain quality of work.

1.2 General

All materials shall be best of their kind and shall confirm to the relevant latest Indian standard.

All materials shall be of approved quality as per samples and from origins approved by the Engineer in Charge. A set of specimen samples of all approved materials shall be kept in sealed container or otherwise at site, cost of which is to be borne by the contractor.

1.3 Bricks

Only 1st class kiln burnt bricks shall be used unless other wise specified. They shall be of a uniform deep cherry color; thoroughly burnt, regular in shape with sharp and square arris and they must emit a clear ringing sound on being struck. They must be free from cracks, chips, flaws, stones or lumps of any kind and they shall not absorb water more than one seventh of their own weight after soaking them in water for 15 minutes. The bricks shall show no sign of efflorescence either dry or subsequent to soaking in water.

1.4 Sand

The source from which sand is to be obtained shall be subject to the approval of Engineer-in-charge. The sand shall be clean, sharp and gritty to touch and be freed from soil and other impurities by washing. The sand shall be washed to such a degree that when a handful is mixed with clean water in a glass and allowed to stand for an hour the precipitate of mud over the sand shall not exceed 5%. The sand should conform to IS 382-1982 for fine and coarse aggregates from natural sources.

1.5 Coarse Sand

It is to be screened through a sieve of 64 meshes to the square inch so as to exclude large particles from the work. The fineness modulus shall not be less than 1.0

1.6 Fine sand

It is to be screened through a sieve of 64 meshes to the square inch so as to exclude large particles from the work. The fineness modulus shall not be less than 2.5

1.7 Stone chips

It shall be obtained from crushing trap quartzite or hard stones and from quarries approved by Engineer-in-charge. It shall be of approved quality and proper grade. It shall pass through ¾ “mesh and retained on ¼ “mesh. It shall be free from dirt, leaves, clay and any organic matter. The material conforming generally to IS 383-1983 for coarse and fine

aggregate from natural sources or IS 515-1959 for natural and manufactured aggregates for use in mass concrete with latest revisions.

1.8 Cement

Ordinary or lowest heat Portland cement (minimum 43 grade) conforming I.S.S. 269 –1989 or Portland slag cement confirming IS 455:1989 or Portland Pozzolana cement confirming IS 1489:1991of A.C.C./RAYMOND/TATA /LAFARGE/ULTRATECH shall be used after due approval of the Engineer-in-charge. All cement shall be fresh when delivered. Cements of different types are not to be mixed with one another. Consignments shall be used in the order of delivery. Admixture if any shall be used only after approvals of Engineer in charge.

1.9 Reinforcement

Steel reinforcement shall be of mild steel of tested quality conforming to I.S.S. – 432 -1966/ H.Y.S.D. bars conforming to ISS-1786/1779-of SAIL/TATA make.

All the reinforcement shall be clean and free from rust, mild scales, dust, paint, oil, grease, adhering soil or any other material or coating that may impair the bond between the concrete and the reinforcement, or cause corrosion of the reinforcement or disintegration of concrete. Neither the size nor length of bar or wire shall be less than the size or length described in the bar schedule or elsewhere and the length shall not be more than 50 mm in excess of the length as described.

Welded joints in reinforcement may be used but in cases of important connection, tests shall be made to prove that the joints are of the full strength of bars connected, welding of reinforcement shall be done in accordance with the recommendations of the relevant Indian standards for welding mild steel bars used in the reinforced concrete construction.

Bending and overlapping, placing in position, fabrication, binding, reinforcement with wire of approved gauge shall be done as per I.S. 432 – 1960 (revised) and I.S. 1786 – 1966 and I.S. 2502 (revised). Handling and storage of materials for concrete or RCC should be followed as per I.S. 4082 –1977.

1.10 Water

The water to be used in making and curing of concrete, mortar etc. shall be free from objectionable quantities of silts, organic matter, injurious amount of oils, acids, salts and other impurities etc. as per IS-456-1978. The Engineer-in-charge or his authorized representatives will determine whether or not such quantities of impurities are objectionable. Such comparison will usually be made by comparison of compressive strength, water requirement, time of setting and other properties of concrete made with distilled or every clean water and concrete made with the water proposed for use, Permissible limit for solids when tested in accordance with I.S. 3025-1964. Shall be as tabulated below

1. Organic	Permissible limit for solids Maximum permissible limit. 200 mg/litre.
2.Inorganic	3000 mg/litre.
3. Sulphate (As So4)	500 mg/litre.
4. Chloride (As CI.)	2000 mg/litre for P.C.C and 1000 mg/litre for R.C.C. work

5. Suspended matter 2000 mg/litre.

If any water to be used in concrete, suspected by the engineer-in-charge/or his authorized representative of exceeding the permissible limits of solids, samples of water will be obtained and get it tested by Engineer-in-charge in accordance with IS- 3025-1964.

1.11 Cement Mortar

The mortar shall consist of cement and sand mixed in proportion defined in relevant schedule item for various item of work. Only measured quantity shall be used. The sand shall be shoveled in a wooden measure of a clean masonry platform, after removing the measure box and spreading out sand if necessary, the cement (in required proportion) shall be emptied on the top of sand. The sand and cement shall be then turned over with shovels once dry and made into the form of a hollow cone; into this water can be poured and the whole shall then be turned over completely twice. The color and consistency shall at this stage be quite uniform, if not, further turning shall be done. Water shall be added by measured quantities. Only such quantities of mortar shall be mixed at one time as can be used at once before it can set. No mortar, which has once caked or begun to set, shall be used, nor shall such mortar be remixed; but it shall be removed from the site of the work immediately.

1.12 Cement concrete

The concrete shall consist of an aggregate of the proportion by volume defined in relevant schedule item or work. Only measured quantity shall be used. The aggregate shall consist of stone ballast of quality approved by Engineer-in-charge and shall consist of graded size 20 mm and down wards as per PWD specification or the size mentioned in the item description

1.13 Laying:

The cement, sand and stone chips shall be mixed properly in mechanical mixer in such a manner as to avoid loss of water. The concrete shall be mixed for minimum period of 2 minutes or until it is of even color and uniform consistency throughout. As soon as the concrete is mixed it should be removed to the work in iron vessels as rapidly as practicable. The concrete laid will be vibrated for compaction by the vibrators. Slum test will be carried at site during execution of work.

1.14 Curing:

The concrete laid shall not be disturbed and shall be kept thoroughly damped by means of wet matting and sand until it shall have become thoroughly set and hard enough to prevent its drying and cracking.

1.15 Forms:

Contractor shall furnish on the site of work sufficient number of centering, moulds or templates for its expeditious execution. The forms shall be made in such a way and of such materials as will ensure a smooth surface on the finished concrete. Forms and centering shall be left in place until the concrete has set sufficiently to permit the removal without danger to the structure.

1.16 Brick masonry work

1.17 Materials:

The brick works shall consist of bricks and mortar in accordance with general specification and plans.

1.18 Soaking bricks:

All bricks shall be soaked in clean water in tank for a period of at least twelve hour immediately before use. The contractor shall provide at his expense tanks of sufficient capacity to admit of the simultaneous immersion of bricks for the work its normal rate of progress.

1.19 Laying:

All the best shaped uniformly coloured bricks shall be picked out and used for face work without any extra payment to the contractor. All bricks work shall be constructed in English bond and shall follow the type bond junctions etc. All courses unless other wise specified or ordered by the Engineer in charge shall be truly horizontal and the walls shall be taken up truly plumb. Mortar joints shall never exceed 10 mm in thickness and this thickness shall be uniform throughout. Vertical joints in alternate courses shall not come directly over one another. The joints shall be racked out not less than 12mm deep when the mortar is green so as to provide proper key for the plaster or pointing to be done. Each face brick shall be set with both bed and vertical joints quite full of mortar. No damaged or broken brick shall be used in any part of the work except such as may be cut to size for closing the course. Closers shall be clean out to size as indicated in English bond and shall be situated near the end of walls. The masonry shall be carried up regularly and no step shall be allowed more than 60cm. Where the masonry of one part has to be delayed, the work must be raked back at an angle not exceeding 45 ^{o} Angles and Junctions. At all angles forming the junction of walls, the brick shall at each alternate course be carried into their respective walls so as to thoroughly unite the work with English bond. Care shall be taken that when a brick is left out to allow support for the scaffold pole on the wall face, such brick shall always be a header and that not more than one header for each pole shall be left out.

1.20 Scaffolding:

Proper scaffolding shall be provided whenever necessary having two sets of vertical supports and shall be subject to the approval of the Engineer in charge; who may order the contractor to alter or strengthen the scaffolding if he considers it necessary, without thus becoming responsible either for the safety of the work or workmen or for any additional payment**.** Holes shall be made good by bricks to match the face work when scaffolding is removed.

1.21 Curing of bricks:

All bricks work shall be keep well watered for 14 days after laying.

1.22 Reinforced Cement Concrete:

All R.C.C. work shall be of the grade M -15, M-20, M-25 as given in specifications. The materials will be measured when dry. The stone chips should be

thoroughly washed in clean water and stacked. Vibrator will be used for all R.C.C and P.C.C work. The aggregate shall consist of stone ballast of quality approved by Engineer-in-charge and shall consist of graded size 20 mm and downwards as per PWD specification or the size mentioned in the item description.

1.23 Laying:

Cement, sand and stone chips shall be mixed properly in a mechanical mixer in such a manner as to avoid loss of water. The concrete shall be mixed for minimum period of 2 minutes or until it is of even color and uniform consistency throughout. As soon as the concrete is mixed it should be removed to the work in iron vessels as rapidly as practicable. The concrete laid will be vibrated for compaction by vibrators. Slum test will be carried at site during execution of work.

1.24 Curing:

The concrete laid should not be disturbed and shall be kept damped by means of wet matting and sand until it shall have become thoroughly set and hard enough to prevent its drying and cracking.

1.25 Forms:

Contractor shall furnish on the site of work sufficient number of centering, forms, moulds or templates for its expeditious execution, the forms shall be made in such way and of such material as will ensure a very smooth surface on the finished concrete. Forms and centering shall be left in place until the concrete has set sufficiently to permit the removal without danger to the structure.

1.26 Reinforcement:

Steel bars for reinforcing concrete shall be of such shape to afford an approved mechanical bond with concrete to ensure intimate control between steel and concrete. Steel reinforcement shall be either mild steel of tested quality confirming to IS-432-1996 or cold worked steel high strength deformed bars as per IS-1786-1979 in strength grade Fe-415 or hot rolled high yield strength steel deformed bars with minimum yield strength of 425 N/mm^2 as per IS – 1939 –1966 (Amended 1968) Reinforcement bars will be rejected if the actual weight vary more than 5% from the standard weight. All bars must conform to the requirement of Indian standard specification. They shall be protected at all time before placed in the concrete from mechanical injury and the weather and when placed in the work, they shall be free from dirt, scales, loose or scaly rust, paint and oil. Bars which are to be embodied in concrete but remain exposed for sometime after being placed in the work shall, if directed be immediately coated with a thin grout of equal part of cement and sand. Bars shall be bending to the shape shown on the drawings and in conforming to approved templates. When bars are cut and bent on the work site the contractor shall employ competent men and provide the necessary appliances for the purpose. All steel shall be rigidly held in place with 18 gauge annealed steel wire, cement mortar (1:2) cubes. M.S. chairs and spacer shall be used in order to ensure accurate positioning of reinforcement. All joints in steel reinforcement shall be overlapped. The

length of overlap for tension and compression shall be as per the requirement of Indian standard specification. In water retaining structures a clear cover of 25 mm over steel should be provided.

1.27 Construction Joints

Construction joints shall be provided, where directed approved by the Engineer-in-charge. Such joints shall be kept in minimum and shall be right angles to the direction of main reinforcement. In case of column and walls the joint shall be horizontal and 8 to 15 cm below the bottom of the beam or slab running into the column or wall head or below the anchor reinforcement of beam and slab coming into the column and wall and the portion of the column or wall between the stopping level and the top of slab shall be concerted with the beam or slab.

1.28 Vertical Joints

At the end of any days work or run of concrete, the concrete should be finished off against temporary shutter stop, which should be vertical and securely fixed. This stop should be removed as early as weather permits.

1.29 Horizontal Joints:

Horizontal joints should be washed down two hours after a casting in the manner described above for vertical joints. If the concrete has been allowed to hard excessively, the surface shall be chipped over its whole surface to depth of at least 10 mm and there after thoroughly washed. Before fresh concrete is added on the other side of a construction joints, the surface of the old concrete will be thoroughly wetted then covered with a thin layer of cement mortar (1:2). All the construction joints in all concrete structure having contact with water or soil shall be provided with approved PVC water stops on both side with hot asphalt or approved metallic strips.

1.30 Expansion joints:

Expansion joints shall be provided wherever directed by the engineer in charge, or where necessary as per standard specification and practice. The filler to be used shall be of approved material.

1.31 Cube test:

Cube test for RCC work shall be done in lab and its compressive strength should be within the allowable limit.

1.32 Cement Plaster:

12 mm thick cement plaster in (1:4) proportion shall be applied on outside surface of all concrete works from 30cm below ground level up to top. The surface in contact with water will have 12 mm thick cement plaster of not less than (1:3) proportion with 3% water proofing compound. The concrete surface shall be properly hacked, washed, cleaned and applied with thick cement slurry before applying. All brick work unless otherwise specified will be plastered externally and internally with 12mm cement plaster (1:6) proportion. The plaster shall be protected from sun, rain and frost at the contractor's expense by such means as the Engineer in charge may approve. To protect the plaster

from the sun, ordinarily the whole surface shall be covered with wet sacks. The contractor shall keep the plaster continuously waited for a period of seven days after application.

1.33 Flooring

Except where in otherwise specified flooring will have minimum 15cm thick sand filling, one brick flat soling and 150mm thick dry rammed khoa beaten up to 112mm as base in ground floor and 25mm thick patent stone flooring shall be provided over this base. In case flooring in raw water pump house 25mm patent stone flooring shall be provided directly over R.C.C. slab in strip placed in suitable manner to avoid construction cracks.

1.34 Door and Window:

All the doors and windows shall be of good quality well seasoned and well-dressed Sal wood with oxidized iron fittings. All windows shall be provided with M.S. grill of approved design. Rolling shutter of approved make with pusher and pull operated properly fabricated with M.S. lathers including all accessories and necessary fitting of approved quality as per PWD specification will be provided in the pump house. All the doors and windows shall be painted with two coats of enamel paints over a coat of primer. The materials, the size, the shape and the fitting of doors and windows shall be approved by Engineer in Charge before put in position.

1.35 Roof and Roof treatment:

R.C.C. M. 20 grade roof slab of adequate thickness shall be provided. The roof shall be treated with 40 mm average PCC with Damp Proofing material.

1.36 Snowcem Wash:

All the building shall have two coat of snowcem wash of approved shade over a coat of cement primer including preparing the plastered surface smooth with sand paper, scaffolding, centering etc. all complete as per building specification.

1.37 Painting:

All steel or wood shall have two coats of synthetic enamel paint over a coat of primer as specified by the manufacturer of the paint. The make, shade and color of the paints shall have to be approved by the Engineer-in-charge before use.

1.38 Pipe Laying Works:

Centrifugally cast iron or ductile iron spun pipe shall be used for laying Rising and Distribution Mains as shown in drawing. Centrifugally cast iron spun pipe (LA-Class) conforming to IS 5382-1969 and ductile iron (class K-7/K-9) confirming IS 8329:2000 shall be used requisite number of CI Sluice valves and Scour valves will be provided on the mains. Necessary chambers for valves as per type design shall be constructed. Necessary CI Specials conforming to ISS:- 1538-1969 or DI specials confirming to IS

9523:2000; pig lead conforming to ISS:- 782-1978,yarn conforming to ISS:- 6587-1972 and making lead caulked joints as per IS Specification and direction Sluice valves and air valves etc. shall have ISI marking. All inlet, outlet pipe and scour pipes, which requires to be fixed in walls of water retaining structure shall have puddle collars and shall be properly fixed during the casting of concrete itself.

1.39 Excavation of Trenches:

No excavation of any trenches must be commenced until the pipes intended to be laid there in with all the necessary appliances for laying and jointing them have been Arranged along its side. In the execution of all work of pipe laying no greater length of trenches that can be laid in 48 hours must be opened and should the pipe laying be delayed or stopped from any cause, the excavation of trenches must be stopped until the laying is resumed. In trenches where pipes are to be laid ground shall be excavated to the required depths and gradients and holes shall be taken out where the joints occur, so that the barrels of the pipes shall be on a solid bed throughout. The trenches shall be excavated to depths sufficient to secure a covering over the pipe of not less than one meter.

1.40 Laying:

Pipes shall be laid in straight lines, free from all sharp bends and should be in proper alignment. Each pipes before it is laid shall be examined and tested with a hammer to prove its, soundness and then shall be brushed through and washed to remove all solid or dirt. Pipes shall be placed in trenches by means of chain pulley blocks taking care to see that soil does not get into the pipe.

1.41 Jointing:

Rubber gasket suitable for joints will be provided to connect cast iron spun pipe conforming to I.S. 5382-1969 (latest amendment) in tyton pipe jointing special type of rubber gasket are to be used, which will be inserted into the socket in the groove. The spigot end being lubricated with grease and slipped into the socket by means of a jack used on the other end. Flange joint will be provided to connect the C.I & DI flanged pipe. The rubber packing and nuts-bolts to be used for joining should be of approved quality.

1.42 Cleanliness:

The interior of the pipes must be carefully freed from all dust as the work proceeds, for which purpose a disc plate or brush sufficiently long to pass two or more joints from the end of pipe last laid shall be continuously drawn forward as the pipes are laid. The ends of the pipes must be securely protected during the progress of the work. The pipes laid shall not be made receptacle either for tools, hookahs, clothes or of any other matter during the progress of works. After completion of hydraulic testing, chlorination of pipelines is to be carried out before actual commissioning at his own cost.

1.43 Testing

The line of pipes after laying and jointing shall be tested to a pressure at least double that of working pressure, provided that in no case shall the pipes be tested to a less

pressure than that equivalent to a head of 60 meters, of water and the pipes and joints shall be absolutely watertight. The contractor shall provide the water, appliances and labour for testing the pipes at his own expense.

1.44 Painting:

All exposed surface of pipes, specials valves, Steel doors and windows, etc, shall have two coats of synthetic enamel paint of approved shade over a coat of red oxide primer etc all complete as per approval and direction of the Engineer–in-charge

1.45 Trial Run:

The trial run shall consist of a period of six months for total complete jobs of this tender of water supply scheme for Biharsharif Nagar Nigam. The contractor shall provide the skilled plant- operator/pump operators, supervisors along with other service staffs for this duration of trial run after completion of the total work on Turnkey job basis. The contractor staffs shall train the staffs/persons nominated by the Engineer in charge during this period. The contractor shall run the plant round the clock during this period and shall maintain a logbook to ascertain the quality and quantity of treated water, consumption of power and chemicals. Any shortcomings in quality and quantity of water shall be corrected by the contractor adopting proper correction measures and as per direction of Engineer in charge**.** After trial run the contractor will maintain the plant for five years.

3.0 General

This part covers conditions pursuant to the contract and shall supplement the general conditions, detailed specifications and requirements.

3.1 Limits of Contract

Equipment furnished shall be complete in every respect with all mountings, fittings, fixtures and standard accessories, normally provided with such equipment and /or need for erection, completion, and safe operation of the equipment as required by applicable codes, though they may not have been specifically detailed in the technical specifications unless included in the list of exclusions. All similar standard equipment provided shall be interchangeable with one another.

3.2 Engineering Data

The contractor shall furnish complete engineering data of each set of equipment such as name of the manufacturer, the type of model of each principle item of equipment proposed to be furnished and erected. Standard catalogues, pages and other documents of the tenderer may be used in the tender to provide additional information and data as deemed necessary by the tenderer. The review of this data by an Engineer will cover only general confirmation of the data to the specifications and documents interfaced with the equipment provided under the specifications, external connection and of the dimension, which might affect plant layout. This review by the Engineer in charge may not indicate a thorough review of all the dimensions, quantities and details of the equipment, materials, and any devices of the items indicated or accuracy of the information submitted. This review or approval by the Engineer in charge shall not be construed by the contractor and limiting his responsibilities and liabilities for mistakes, and deviations from the requirements specified under these specifications and documents. All engineering data submitted by the contractor after final process including review and approval by the Engineer in charge shall form part of contract documents and the entire work covered under these specifications shall be performed in the strict conformity unless otherwise expressly requested by the Engineer in charge.

3.3 Drawing

Each drawing submitted by the contractor shall be clearly marked with the name of the owner, unit designation, the specifications, number and name of the project. If standard catalogue pages are submitted the applicable items shall be marked therein. All titles, noting, markings and writings on drawing shall be in English. All dimensions shall be in metric units. All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawing shall be at contractor's risk. The contractor may make any changes in the design which are necessary to make the equipment conform to provisions and intent of contract and such changes will again be subject to the approval of the Engineer in charge and shall not relieve the contractor of any of the responsibilities and liabilities under contract. Drawing shall include all installation and detailed pipe drawing wherever applicable. All pipe of 100 mm and above in diameter shall be rounded in detail and smaller pipe

shall be shown schematically or by isometric drawings. All drawings shall be fully corrected to actual 'as built' construction.

3.4 Design Improvements

The Engineer or Contractor may propose changes in the specifications of the equipment or quality thereof and if the parties agree upon any such changes the specifications shall be modified accordingly. If any such change agreed upon in such that it affects price and schedule of completion, the parties shall agree in writing as to the extent of changes in period and or schedule of completion before the contractor proceeds with the change. Following such agreements, the provisions there of shall deemed to have been amended accordingly.

3.5 Transportation

The contractor whenever applicable shall after proper painting pack and cart all equipments in such manner as to protect them from damage and deterioration in transit by road or rail, during storage at site till the time or erection. The contractor shall be held responsible for all damages due to improper packing. While packing all the materials the limitations from point of view of availability or railway wagons, size and other modes of transport should be taken into account. The packing and protection should be in conformity with the requirements of the insurance companies and transport agencies. The contractor shall prepare detailed packing list of all packages and containers, bundles and loose materials forming each and every consignment for making all necessary Arrangements for loading, unloading and other handling, right from his works up to the site and also till the equipment is erected, tested and commissioned. He shall be solely responsible for proper storage and safe custody of all equipment.

All demurrage, warehouse and other expenses incurred due to delay in clearance of the material or any other reasons shall be to the account of contractor.

3.6 Protection to plant

All coated surfaces shall be protected against abrasion, impact, discoloration and any other damages. All exposed threaded portion shall be suitably protected with either metallic or non-metallic protective devices. All ends of the valves and piping and conduit equipment connections shall be properly sealed with suitable devices to protect them from exposure to weather and should also be properly treated and protected in suitable manner.

3.7 Preservative shop coating

All exposed metallic surfaces subject to corrosion shall be protected by shop application of suitable coating. All surfaces which will not be easily accessible after the shop assembly, shall before hand be treated and protected for the life of the equipment. All surfaces shall be thoroughly cleaned of all mill-scale, oxides and other coatings prepared in the shop. Surfaces that are to be finish painted after installation or require corrosion protection until installation shall be shop painted with at least two coats of primer. Transformer and other electrical equipment if included shall be shop finished with one or more coats of primer and two coats of high-grade resistance enamel. The finished color shall be as per manufacturer's specifications and standard to be selected by the Engineer in charge at a later date. Shop primer for all steel

surfaces shall be selected by the contractor after obtaining specific approval of the Engineer in charge regarding the quality of the primer proposed to be applied.

3.8 Material handling and storage

All the equipment furnished under the contract and arriving at site shall be promptly received unloaded, transported and stored in a storage space by the contractor. Contractor shall be responsible for examining all the shipment and notify the Engineer in charge immediately of any damages, storage, discrepancy that is for the purpose of the Engineer's information only. The contractor shall submit to the Engineer in charge every week, report detailing all receipts during the week. However the contractor shall be solely responsible for any storage on damage in transit handling and / or in storage and erection of equipment at site. The contractor shall maintain in accurate exhaustive record detailing out the list of all equipment received by him for the purpose of erection and keep such record open for inspection of the Engineer in charge. All the equipment shall be handled carefully to prevent any damage or loss. No bars, wire ropes strings etc shall be used without specific written permission of the Engineer in charge The equipment stored shall be properly protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from stores shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at site. All electrical panels, control gears, motors and other devices shall be properly dried up by heating before they are installed and energized. Motor bearing, slip rings commutators and other exposed parts shall be protected from moisture, ingress and corrosion during storage and periodically inspected. Heavy rotating parts in assembled conditions shall be periodically rotated to prevent corrosion due to prolonged storage. All the material stored in open or dust location must be covered with suitable weatherproof and flame proof covering whichever is applicable. The contractor shall be responsible for making suitable indoor storage. Normally all electrical equipments such as motors, control gears, generators exciters and consumables like electrodes, lubricants etc. shall be stored in closed storage place. The Engineer in charge in addition may direct contractor to move certain other materials, which in his opinion will require indoor storage, and the contractor shall strictly comply with it.

3.9 Contractor's material brought to Site.

The contractor shall bring to site all equipment components, parts, materials including construction equipment tools and tackle for the purpose of the work under intimation to the Engineer in charge. All such goods shall from time of their being brought vest in the owner but may not on any account be removed or taken away by the contractor without written permission from the Engineer in charge. The contractor shall nevertheless be solely liable and responsible for any loss or destruction there of and damage there to. The owner shall have lieu on such goods for any sum or sums, which may at the time be due to owing to him by the contractor. After giving 15 days notice in writing of his intention to do so, the owner shall be at liberty to sell and dispose of any such goods in a manner as he shall think fit including public Auction or private treaty and to apply the proceeds in or towards completion of work, the contractor shall remove from the site under the directions of the Engineer in charge, the material such as construction equipment, erection tools and tackles, scaffolding etc. within 15 days of issue of a notice by the Engineer in charge to do so. Then the Engineer in charge

shall have the liberty to dispose off such materials and credit the proceeds there of to the account of the contractor.

3.10 Maintenance tools and tackles

The contractor shall supply with the equipment one complete set of all special tools and tackles for the erection assembly and maintenance of the equipment. However these tools and tackles shall be separately packed and brought to site. The tenderer shall indicate all the above items in the annexure. This set shall be for owner's use and any of the equipment out of this set shall not be used by the tenderer.

3.11 Facilities to be provided by the owner

The contractor shall advice the owner within fifteen (15) days from the date of acceptance of the letter of intent about his exact requirement of space for his office, mess, rooms, storage and toilets etc. The above requirement shall be reviewed by the Engineer in charge and the space available will be allotted to the contractor for construction of temporary structures like office, storage sheds and staff colony etc. for his own use as well as sub-contractor's use. The temporary constructions shall have to be removed entirely on completion of the job.

3.12 Cleanliness

The areas where the equipment might drip oil and cause damage to the floor surface a suitable protective cover of flame resistant oil proof sheet shall be provided to protect the floor from such damage.

3.13 Construction management

Time is the essence of the contract and the contractor shall be responsible for performance of his works in accordance with the specified construction schedule. If at any time the contractor is falling behind the schedule he shall take necessary action to make good for such delays by increasing his work force or by working over time or otherwise accelerate the progress of work to comply with the schedule and shall communicate such action in writing to the Engineer in charge satisfying that his actions will compensate for delay. The contractor shall not be allowed any extra compensation for such action.

3.14 Contractor's co-operation with the owner

In cases where the performance of the erection work by the contractor affects the operation of the system facilities of the owner, such erection work at contractor shall be scheduled to be performed only in the manner stipulated by the Engineer in charge and the same shall be acceptable at all times to the contractor. The Engineer in charge may impose such restrictions on the electricity and water etc. as he may think fit and the contractor shall strictly adhere to such restriction and cooperate with the Engineer in charge. It will be the responsibility of the contractor to provide all necessary temporary instrumentation and other measuring devices required during start up and the operation of the equipment system which are erected by him. The contractor shall also be responsible for flushing and initial filling of all the oil and lubricants for the equipment furnished by him, so as to make such equipment ready for operation. The contractor shall be responsible for supplying such flushing oil and other lubricants.

3.15 Field office records

The contractor shall maintain up to date copies of all the drawings, specifications and other contract documents and any other supplementary data complete with the latest revision thereto. The contractor shall maintain in addition continuous record of all the changes to the above contract documents, drawings, specifications, supplementary data etc affected at the field and on completion of his total assignment under the contract shall incorporate all such changes on the drawings and other Engineering data to indicate as installed conditions of the equipment furnished and erected under contract such drawings and engineering data of equipments erected under the contract shall be submitted to the Engineer in charge in number of required copies.

3.16 Co-operation with other contractors and consulting Engineers appointed by BUIDCo.

The contractor shall agree to co-operate the owners other contractors and consulting Engineers and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid unnecessary duplication of errors. The contractor shall attend design co-ordination meetings at his cost whenever required.

3.17 Design Co-ordination

The contractor shall be responsible for the selection and the design for appropriate equipments to provide best-coordinated performance of entire system. The basic design requirements are detailed out in technical specifications. The design of various components, sub assemblies, assemblies, maintenance and all rotating components shall be so selected that the natural frequency of the complete unit is not critical at or close to the operating range of the unit.

3.18 Quality Assurance Program

To ensure that the equipment and services under the scope of this contract whether manufactured or performed within the contractor’s premises or at the owner’s site or at only other place of work are in accordance with the specifications. The contractor shall adopt suitable quality assurance programs to control such activities at all the points necessary. Such program shall be outlined by the contractor and shall be finally accepted by the Engineers after discussions before the award of contract and such agreed program shall form part of contract.

3.19 Unfavorable working conditions

The contractor shall confine all his field operations to those works which can be performed without subjecting the equipment and materials to adverse effects during inclement weather conditions like monsoon, storms etc. and during other unfavorable construction conditions. No field activities shall be performed by the contractor which might adversely affect the quality and efficiency thereof, unless special precautions or measures are taken by the contractor in a proper and satisfactory manner in the performance of such works and with the concurrence of Engineer in charge, such unfavorable conditions will in no way relieve the contractor of his responsibility to perform the works as per schedule.

3.20 Protective Guards

Suitable guards shall be provided for the protection of the personnel on all exposed rotating or moving parts. All such guards with necessary spaces and accessories shall be designed for easy installation and removal for maintenance purpose.

3.21 Welding

If the manufacturer has special requirements relating to the welding procedures for welds beyond his scope of work at the terminals of the equipment to be procured by the owner under separate specifications, the requirements shall be separately submitted to the Engineer in charge in advance of commencement of erection work.

3.22 Noise and Vibrations

The equipment supplied and erected by the tenderer will comply best design and erection practice and its working shall be within permissible noise and vibration levels.

3.23 Equipment Bases

A cast iron or welded steel base plate shall be provided for all rotating equipment, which is to be installed on a concrete base unless otherwise agreed to by the Engineer in charge. Each base plate shall support the unit and its drive assembly and shall be a neat design with pedestal anchoring the unit.

3.24 Rating plates, Nameplates and Labels

Each main, auxiliary item of plate is to have permanently attached to it in a conspicuous position a rating plate of non-corrosive metal upon which is to be engraved any identifying manufacturers name, equipment type or serial number together with details of loading conditions under which the items plant in question has been designed to operate and such diagram plates as may required by the Engineer in charge. Each items of plant is to be provided with a nameplate or label designating the service of the particular equipment. The inscriptions are to be approved by the Engineer in charge or shall be as detailed in the appropriate sections of the technical specifications. Such name plates or labels are to be white non hygroscopic material with engraved black lettering on alternatively in the cast of indoor circuit breakers etc. if transparent plastic material with suitably, coloured, lettering engraved on the back. Items of plant such as valves, which are subject to handling, are to be provided with an engraved chromium plated nameplate or label with engraving filled with enamel.

3.25 Foundation, Dressing and Grouting

The surfaces of the foundations shall be dressed to bring the top surface of the foundations to the required level prior to placement of the equipment/equipment bases on the foundations. All the equipment bases and structural steel plates shall be grouted and finished as per these specifications unless otherwise recommended by the manufacturer. The concrete foundation surfaces shall be properly prepared by chipping, grinding as required to bring the type of such foundation to the required level to provide necessary roughness for bondage and to assure enough bearing strength. All laitance and surface film shall be removed and cleaned.

3.26 Grouting Mix

The grouting mix shall be composed of Portland cement sand and water. The Portland cement to be used shall conform to IS 269. The grout proportions for flat bases where

the grouting space does not exceed 35 mm shall be 50 kg bags of cement, 75kgs of sand. Only the required quantity of water shall be added so as to make the mix flow able and the mix shall not show excess water on the top when it is being put in place. For thicker grout beds up to 65 mm the amount of sand shall be increased to 105 Kg per bag of cement. Bases which are at a level 25 mm above the outside rim with mortar mix in volumetric proportions of one bag of cement and 1.5 bags of sand, 1.5 per 6 mm granite gravel, an acceptable plasticizer may be added to the grout mixer in a proportion recommended by the manufacturer. All such grouts shall be mixed thoroughly for not less than 5 minutes in an approved mechanical mixer and shall be used immediate after mixing.

3.27 Place of grout

After the base has been prepared its alignment and level has been checked and approved before actually placing the grout a low dam shall be set around the base at a distance that will permit the pouring and manipulation of grout. The height of such dam shall be at least 25 mm above the bottom of the base. Suitable size and number of chains shall be introduced under base before placing the grout so that such chains can be moved back and forth to push the grout in every part of the space. The grout shall be poured through the grout holes if provided or shall be continued until the entire space below the base is thoroughly filled and the grout stands at least 25 mm higher all around than the bottom of the base. Enough care shall be taken to avoid any air or water pockets beneath the bases.

3.28 Finishing of the Edges by grout.

The poured grout shall be allowed to stand undisturbed till it is well set. Immediately there after the dam shall be removed and grout which extends beyond the edges of the structural or equipment base plates shall be cut off, flush and removed. The edges of the grout shall then be pointed and finished with one to two cement mortar pressed firmly to bond with the body of the grout and smoothed with a tool to present smooth vertical surface. The work shall be done in a clean and scientific manner and the adjacent floor spaces, exposed edges of foundations and structural steel and equipment base plates shall be thoroughly cleaned of any spillage of grout.

3.29 Checking of equipment after grouting

After the grout is set and cleared the contractor shall check and verify the alignment of the equipment. On alignment of shafts and rotating machinery the slopes of all bearing pedestals, centering of the rotors with respect to their sealing bore coupling etc. as applicable and the like items to ensure that no displacement has taken place during grouting. The values recorded prior to grouting shall be used during such post grouting checking up and verifications. Such pre and post records of alignment details shall be suitably doweled after alignment of shaft with tapered machined dowels as per direction of the Engineer in charge.

3.30 Shaft Alignment

All the shafts of rotating equipment shall be properly aligned to those of matching equipment to as perfect and as accurately as practicable. The equipment shall be free

from excessive vibration so as to avoid over heating of bearings or other conditions, which may tend to shorten the life of the equipment. All bearings, shafts and other rotating parts shall be thoroughly cleaned and suitably lubricated before starting.

3.31 Doweling

All the drive motors and other equipment shaft are suitably doweled after alignment as the shafts with tapered machined dowels as directed by the Engineer in charge.

3.32 Painting

All the exposed metal parts of equipment including piping, structures, railings etc. wherever applicable after installation unless otherwise surface protected shall be first painted with at least one coat, rust, scales greases oil and other foreign materials shall be removed by wire brushing scraping or sand blasting and approved by the Engineer in charge for painting. Afterwards the above parts shall be finished with two coats of alloyed resin machinery enamel paints. The quality of finished paints shall be as per standards of relevant IS or equivalent and to be of the approved color by the Engineer in charge.

3.33 Color code for pipe services

All pipe services, wherever applicable are to be painted in accordance with the owner's color scheme by the contractor.

3.34 Training of owner's personnel

The contractor shall undertake to train, free of cost engineering personnel selected and sent by the owner at the works of contractor for V.T. and centrifugal pumps, starters, switch gears etc. The period and nature of training for the individual personnel shall be given special training in shops where the equipment will be manufactured by the contractor, or his collaborator's work and where possible in any other plant where the equipment is under installation or testing to enable these personnel while under going training shall be responsible to the contractor for discipline. In event of the owner for any reason failing to avail the training facilities he shall not be entitled to any rebate on this account.

3.35 Lubrication

Equipment shall be lubricated by the systems suitable for duty of equipment. Lubricant level indicators, wherever provided shall be furnished and marked to indicate proper level under both stand still and operating conditions.

3.36 First fill of consumables, oils, Lubricants.

All first fill of consumables such as oil lubricants and essential chemicals etc. which will be required to put the equipment covered under scope of specifications in successful trial operations and O&M for five years shall be furnished by the contractor.

3.37 Check out of control systems

After completion of wiring and cabling the contractor shall check out the operation of all control systems for the equipment furnished and installed under the specifications and documents.

3.38 Equipment Performance Guarantee

The performance guarantee of the equipment under contract is detailed separately in technical specifications. This guarantee shall supplement the general performance guarantee provisions covered under general terms and conditions.

3.39 Guarantee

a) In the event of an emergency wherein the judgment of the Engineer in charge, delay would cause serious loss or damage, repairs or adjustments may be made by the Engineer in charge or a third party chosen by the Engineer in charge without advance notice to the contractor and the cost of such work shall be paid by the contractor or by the surety. In the event such action is taken by the Engineer in charge, the contractor will be notified promptly and he shall assist wherever possible in making the necessary corrections. This will not extinguish the contractor's liability under terms and condition of contract.

b) The cost of any special or general overhaul tendered necessary during the operation period due to defects in the plants or defective work carried out by the contractor, the same shall be borne by the contractor.

c) In case of those defective parts which are not repairable at site but are essential for the commercial operation of the equipment, the contractor and the Engineer shall mutually agree to a program of replacement or renewal which will minimize interruption to the maximum extent in the preparation of the equipment

d) At the end of guarantee period, the contractor's liability ceases except for latent defects in respect of goods supplied by sub-contractor to the contractor where a larger guarantee is (more than twelve months) is provided by subcontractor, the owner shall be entitled the benefit of such guarantee.

e) The provisions contained in this clause will not be applicable.

1) If the owner has not operated the equipment according to generally approved industrial practices in accordance with the conditions of operation specified and in accordance with operating manuals if any.

2) In case of normal wear and tear at the parts to be specifically mentioned by the contractor in the offer.

Pre-commissioning Trials

4.1 Start up

On completion of the erection of equipment and before start up, each item of the equipment shall be thoroughly cleaned and then inspected by the Engineer in charge and the contractor jointly for correctness and completeness of installation and acceptability for start up leading to initial pre-commissioning tests at site. The list of pre commissioning tests to be performed shall be mutually agreed and included in contractor's quality assurance Programme. The

contractor's commissioning /start up engineers specially identified as far as possible shall be responsible for carrying out all pre-commissioning tests. On completion of inspection, checking and after pre-commissioning tests are satisfactorily over the complete equipment shall be placed on initial operation during which period, the complete equipment shall be operated integral with sub-system and supporting equipment complete plant.

4.2 Commissioning spares

The contractor shall make Arrangements for an adequate inventory at site, of necessary commissioning spares prior to commissioning of equipments furnished and erected so that any damage or loss during these commissioning activities necessitating the requirements of spares will not come in way of timely completion of works under contract.

4.3 Registration and statutory Inspection

All the registration and statutory inspection fees if any in respect of work pursuant to this contract shall be to the account of contractor. Should any such inspection on registration need to be re-Arranged due to the fault of contractor, the additional fees for such inspection shall also be borne by the contractor.

4.4 Progress Reports and Photographs

During various stages of works in pursuant of the contract the contractor shall at his own cost submit periodic progress reports as may be reasonably required by the Engineer in charge with such materials as charts, networks, photographs, test certificates etc. Such progress reports and photographs shall be in the form and size as may be required by the Engineer in charge and shall be submitted in at least three copies and shall contain the date, the name of the contractor and the title of the photographs. The report shall also indicate reasons for variance between the schedule and actual progress and the action proposed for corrective measures whatever necessary.

4.5 Work and Safety Regulations

a) The contractor will notify the Engineer in charge of his intention to bring on to the site any equipment or any container with liquid or gaseous fuel or other substance, which may create hazards. The Engineer in charge shall have right to prescribe the condition under which such equipments or container may be handled and used during the performance works and the contractor shall strictly adhere to such instructions. The Engineer in charge shall have the right to inspect any construction plant and to forbid its use if in his opinion it is unsafe, no claim due to such prohibition shall be entertained by the owner.

b) Where it is necessary to provide and/or store petroleum products or petroleum mixtures and explosives the contractor shall be responsible for carrying out such provision and/or storage in accordance with the rules and regulations laid down in Petroleum Act 1934 Explosive Act 1948 and petroleum and carbide of calcium manual. All such storage shall have prior approvals necessary from chief Inspector of Explosives or any Statutory Authorities. The contractor shall be responsible for obtaining the same.

4.6 Electrical Safety Regulations

a) In no circumstances will the contractor interfere with the fuses and electrical equipment belonging to the owner or other contractor

b) Before the contractor connects any electrical appliances to any plugs or sockets belonging to owner or other contractor he shall

1) Satisfy the Engineer in charge that the appliances are in good working conditions.

2) Inform the Engineer in charge of maximum current rating voltage and phases of the appliances.

3) Obtain the permission of the Engineer in charge, detail the sockets to which appliances may be connected.

c) The Engineer in charge will not grant permission to connect until he is satisfied that

1) The appliance is in good condition and is fitted with suitable plug.

2) The appliance is fitted with suitable cable having two earth conductors one of which shall be an earthed metal sheath surrounding the core.

d) No electric cable in use by the contractor shall be in use by the contractor/owner will be disturbed without prior permission.

No weight at any description will be imposed on any such cable and no ladder of similar equipment will rest against or to be attached to it.

e) No work will be carried out on any live equipment. The equipment must be made safe to work issued before any work is carried out.

f) The contractor shall employ the necessary number of qualified full time electricians to maintain the temporary electrical installation.

Contractor shall make necessary Arrangements for the following

I) It is necessary to carry out the testing of number of equipments in the manufacturers works. This is stated in the item wise specification. However the items, which require third party inspection as tested below with brief requirement of tests.

II) The Arrangements for this shall be Arranged by the contractor, the cost of testing in factory payable to manufacturer (including power charges etc.) The testing fees of inspecting authorities etc. shall be Arranged by the contractor without any extra cost to the department.

Whenever department Engineers will be attending the inspection and testing to and fro charges will be born by the department as per Govt. civil service rules. However all other Arrangements shall be made by the contractor.

5.1 V.T. pumps

Testing

(a) Hydro static test of enclosures i. e Bowls, Suction case, Discharge case, Surface discharge head etc. and column pipes for V.T. pump.

(b) Balancing of impellers during strip test (Contractor shall furnish balancing test reports of the impellers other than the one tested during strip test)

(c) Performance test (as per IS) and as stated in detailed specifications.

Review of raw material test certificates.

(e) Dimensional check.

2) Motors

a) Routine Test

b) Review of Raw material test certificate.

c) Dimensional check

d) Routine test as per IS

3) Sluice Valve and Non Return Valves

a) Dimensional tests

b) Hydrostatic test for seat and body of all the valve

c) Review of raw material Test certificates.

d) Operation of the spindle and flap for Sluice valve.

4) L. T. Panel

(a) Dimensional Check

(b) Components check

(c) Functional tests.

(d) Components Certificates review.

(e) H.V. Test

5) Relay and metering panel

(a) Dimensional Check

(b) Components check

(c) Functional tests.

(d) Components Certificates review.

(f) H.V. Test

6) Air Brake fully automatic / Auto Transformer starter

a) Dimensional check

b) Component check

c) Functional Check

d) H.V. test

7) Transformer

a) Dimensional Check

b) Routine Testing as per IS

c) Oil sample test

8)M.S. pipes and specials

a) Thickness check

b) Hydro-static testing

9) Earthing – earth resistance.

5.2 (I) Field (Site) testing

The field-testing of the pumps shall be carried out after three months period after satisfactory commissioning of the pumps. During this period the pumps shall be continuously run as required by the Engineer in charge.

Following test shall be carried out in the presence of the Engineer Incharge, third party appointed for the purpose and officers such as E.E. (Mech.) and other officers designated by the Department.

1 Performance test of the pump
2 Control circuit testing and checking.
3 Relay operation
4 Vibration and noise of pump-motor sets.

The performance test shall be carried out by using calibrated instruments i.e. Ammeter, Voltmeter, two watt meters for measuring power consumption, C.T.'s

The discharge of each pump shall be measured either by electronic flow meter (clamp on type \ probes inserted in the rising main etc.) calibrated by the approved agency or by volumetric method in the clarifier/Reservoir by fixing level gauge & 'U' tube out side the clarifier/Reservoir whichever approved by the Engineer in charge.

The permissible tolerances shall be applicable as per respective IS of pumps.

The power consumption shall also be measured and the efficiency of the pump shall be calculated which should be verified with guaranteed performance given in tender

The efficiency shall be considered only at duty point.

The vibration and noise of the motor shall be within limits prescribed in respective limit.

The temperature rise of the motors and bearing and also those of transformer shall be checked during the 72 hrs non-stop operation of each pump set and shall not be more than those limits prescribed against respective items.

(II) It is necessary to get approval of Electrical Inspector on such Statuary Authority to the layout plan of transformer substation and also visit to site. The contractor may require to Arrange the visit of such officer and obtain written permission for charging the sub-station.

Necessary fees payable to these officers as per relevant act will be paid by the contractor. However all the Arrangements regarding drawing approval, inspection and obtaining permission, submission of required documents etc. will be made by the contractor. No charges will paid, nor any claim accepted for this.

(III) Contractor shall submit the drawings, technical data specifications etc of all the equipment and shall get them approved prior to placing final supply/ fabrication order to his principle supplier/ manufacturer.

IV) All the equipment shall be of reputed makes as specified against each item. However the list of approved makes is given below for ready reference.

1) Pumps

V.T. pumps – Kirloskar/ Jyoti/ Worthington/ M&P/ WPIL

2) **Valves** – I.V.C./I.V.I./Kirloskar/ KISWOK/ FOURESS

3) **Air Valve** I.V.C./I.V.I./Kirloskar/ Hawa/ KISWOK

4) **Pipe works -** Reputed make.

5) **Chain pulley blocks**

Indef / Morris / Hercules / WMI/ Power lift.

6) Electric motor

Vertical

Kirloskar/ Jyoti / NGEF/BHEL

b) Horizontal

Kirloskar/Jyoti/GEC/NGEF/BHEL/Crompton/ Siemens

7) Air Brake fully automatic/ Auto Transformer starter

Contactors for A.T.S. L&T/ Siemens / Bharatiya Cuttler Hammer / Jyoti / Crompton.

8) Air Circuit Breaker L&T/EE/ABB/Voltas

9) M.C.C.B. Breaker – L & T / Crompton / EE / Voltas / ABB.

10) Earth fault & over current relays E.E./A.B.B.

11) Transformer – Kirloskar / Bharat Bijlee / Crompton / GEC ALSTHOM / Andrew Youle / NGEF / BHEL / EMCO / Trans Delta/ISI MARK if any.

12) Cables

Tropodour / Finolex / Asian / Gloster / Incab/ Universal / Polycab / NICCO.

13) Substation equipment

Outdoor equipment.

i) C.T. / P.T. Transdelta / Madhav /A.E

ii) A.B. Switches (G.O.D.) – Kiran/ Pactil / Southern switchgears / Atlas / Universal.

Iii) D.O. fuse unit – Kiran/ Pactil / Southern switchgears / Atlas / Universal.

iv) Lightening arrester- Elpro / Atlas

14) Capacitors

Voltas / Crompton / Usha / Madhav / Malde / Jaivic / Hicco / Khatav junkar

15) Meters- AE/IMP/RISHABH

v) Approval of the drawings

Contractor shall get all the technical drawing and data duly approved from the Chief Engineer/ E.E. (Mech) before execution. It is presumed that the data shall be suitable and in accordance with the technical specification.

In case there are any deviations he should point out such deviations and get approval for the same.

VI) Foundation Arrangements

1) For V.T. pumps

As already specified base frame shall be provided on which sole plate shall be fixed. Blue matching shall be done between the surfaces of the discharge head and the sole plate to the extent of 60%. The base frame and sole plate shall be accurately leveled by using machinists level at all the surface of the sole plate. Only then discharge head shall be mounted on the sole plate.

The components of the pump shall be generally as under

a) Bowl assembly. – This should have flanged bowl / bowls with machined matching faces. All the joints between the bowls, suction bell mouth discharge case, column and assembly shall be flanged.

b) Suction bell mouth and strainer. This shall be of M.S. construction adequately designed to reduce the entrance losses and fitted to the suction nozzle to limit to the velocity. The shape of bell shall be designed to streamline the flow to suction nozzle.

The strainer shall be in stainless steel construction. The net opening area shall not be less than three times the area of the bell mouth.

The thickness of bell mouth shall not be less than 10 mm.

c) Impeller/s: - Impeller/s shall be dynamically balanced so as not to cause any vibration during operation. These shall be semi open type made in one piece and securely fixed on stainless steel pump shaft. The water passages shall be hand finished to have smooth flow during the operation. The balancing by drilling holes/devices reducing hydraulic thrust shall not be provided/accepted.

Wearing rings- These shall be press fitted in the place or locked by pins and shall be renewable type. These shall be provided for both on impeller and in casing. Hardness shall be less by at least 50 BHN than that of impeller.

Pump shaft – The shaft shall be of stainless steel and finish to the close tolerance at the impeller/ bearing fixing places. The shaft shall be designed by considering the critical speed of the shaft, which shall be at least 20% above or below the operation speed. The shaft shall be properly balanced so as not to cause undue vibration. The pump shaft bearings shall be of stainless steel water lubricated. Extra long bearings shall be provided to suction and discharge case. The hardness of the bearing shall be less by 50 BHN than that of the shaft.

d) Column assembly.

Column pipe shall be of mild steel fabricated heavy weight flanged type in length of 1.5 meters or less to facilitate the handling. The total length of column assembly, bowl assembly, Bell mouth and strainer shall not be less than 12 meters. Required matching column assembly portion shall be provided if necessary. The contractor shall check the levels in the well. No extra cost will be paid for any increase in length. The stiffeners shall be provided to all pipe flanges. Full diameter elbow shall be provided in the surface discharge head.

e) **Line shaft** – These shall be solid circular prepared from stainless steel machined and ground thoroughly and coupled with screwed or muff couplings. The shaft sections shall be provided with abrasion resisting wearing surfaces at the location of each guide bearing. Length of each shall not exceed 1.5 meters.

f) **Line shaft bearing.-** These shall be designed suitably for water lubrication/forced water lubrication to have effective lubrication. The composite design of the shaft and bearing shall be such that the entire rotating assembly is brought from stand still to full speed without any vibration and shaft deflection to ensure that first critical speed is within 80% to 120% of full speed.

g) **Shaft Cover tubes.-** These shall be designed and manufactured from seamless M.S. tubes in 1.5m lengths and suitably connected to each other at line shaft bearing sections.

h) **Surface discharge head** – This shall be fabricated from mild steel and shall incorporate mounting flange for motor, stuffing box with renewable gland packing, air vent, with cock connection for pressure gauge etc. This should be designed to support the entire load of pump assembly, water column and motor etc and shall withstand all static dynamic, tortional loads, hydraulic thrust imposed during operation from shut off to stipulated operating conditions and thrust due to change in direction flow without any vibrations. Discharge head with pads will not be accepted. The discharge head shall be installed on sole plate with ISMB frame, which in turn will be fixed on the pump floor suitably.

Necessary drains shall be provided to drain out the leakage water from the glands at bottom of discharge head through G.I. pipes.

Thrust bearing shall be provided in the motor and shall be suitable to take entire thrust of the rotating parts of the pump & motor in all conditions of operation and shall be suitable for rotation up to at least 150% of normal forward speed. Bearing shall be self aligned, roller or ball type preferably grease lubricated and Arrangements for greasing shall be provided.

The pump motor assembly shall also be provided with non-reverse ratchet Arrangements to avoid reverse rotation.

The contractor shall submit the sectional general Arrangements drawings of pump and motor for approval including drawing of coupling Arrangements etc.

Sole plate – Mild steel sole plate shall be provided under the discharge head for precise vertical and horizontal leveling. Thickness of sole plate shall not be less than 35-mm. Contact surface of the sole plate shall be machined for precise leveling and assured

vibration free operation of the pump. Sole plate shall be independent of the base plate and integral to the discharge head.

i) Corner plate and sole frame

ii) Sole frame and sole plate

iii) Sole plate and discharge head

All the joints as above between the machined contact surfaces shall be with bolts/tapped studs.

All contact surfaces shall be blue matched to the extent of 60% of the contact area minimum. The opening in the sole plate, sole frame shall be adequate to pass the bowl assembly, suction bell mouth etc. easily.

Foundation drawings shall also be designed and submitted for approval.

Necessary air release Arrangements shall be provided with air cock and G.I. pipe.

Material of construction

i) Discharge and suction case and bowls –Cast iron as per IS 210 Gr FG200

ii) Surface discharge head, bell mouth and motor stool – Mild steel fabricated

iii) Impeller - Stainless steel CF 8 m

iv) Impeller shaft - High-grade carbon steel/stainless steel AISI410/416.

v) Column pipe - ERW heavy duty with flanges.

vi) Shaft sleeve - Stainless steel

vii) Nuts bolts and washer stainless steel AISI 410.

viii) Wearing rings - CF 8m.

ix) Line Shaft bearing – Cut less rubber / Phosphor Bronze suitable for water lubrication.

x) Line shaft cover tubes – seamless steel.

Testing

All the pumps shall be tested in the presence of Engineer In charge or his representative and third party appointed for inspection. The contractor shall Arrange all test equipments at site for field-testing. The field test shall be carried out in the presence of Engineer in charge or the officer authorized by the department and third party nominated for the purpose.

A) Factory test

a) Review of raw material

b) Hydro Static test of Column pipes, Bowls, Bowl assembly. Discharge head etc. The test pressure shall be 1.5 times the shut off head.

c) Performance test

Performance test shall be carried out at full speed at manufacturers work for

1) Duty point

2) Two points above duty points

3) Two points below duty points

4) Shut off head

The test shall be carried out by using the motor proposed to be provided with the pump.

The test shall comply measurement of head, discharge and power consumption at rated nominal R.P.M. and performance curves drawn and submitted. Test with reduced speed will not be accepted.

d) Strip inspection

One pump after testing shall be offered for strip test randomly selected by inspecting authority. Manufacturer shall submit dimensional drawing for inspection. Following points will be checked

1) Condition of all components, bushes, bearings, wearing rings for undue rubbing wear etc.

2) Hardness of rubber bearing

3) Dynamic balancing of impellers flexible coupling maximum unbalance shall not exceed as per relevant IS.

4) Clearances and tolerances between wearing rings, impeller shaft and bearings, impeller shaft and key, Key and key way.

5) Finish of water passages in impeller and diffuser. Material test certificates of all components shall be submitted for review.

Field Testing

This shall be for discharge, head and power consumption at duty points and general performance at other points. The test shall be generally carried out as per IS 9137.

This test shall be carried out after 3 months regular operation of the pump including continuous operation of the pump for 72 hrs.

The testing shall be carried out by using specially calibrated pressure Gauge, flow meter or volumetric measurement decided by the Engineer in charge.

Calibrated electric measuring wattmeter's, voltmeter and ammeter.

Approved makes – Kirloskar/Jyoti/ Worthington/ Mather & Platt

2) Sluice valve

This shall be C.I. D/F water work quality, heavy duty with non rising spindle, inside screw and shall be fitted with double faced gun metal wedge made in one piece and having two machined facing rings securely fixed into machined recesses in the wedge. The guides and lugs shall be provided to guide the wedge through its full travel and lugs and guide shall be lined with bronze. The bronze lining provided on guides and lugs shall be secured by counter sunk screws or rivets of non-ferrous metal. The clearance between the lugs and the guides shall not exceed 2.5 mm.

All the valves shall be provided with gearbox at the top and below the hand wheel (similar to I.V.I./I.V.C.) to facilitate easy manual operation.

The material of the components shall be as under

i) Body, bonnet cover wedges, stuffing box, gloves and hand wheel - grey C.I. grade FG 200 of IS 210.

ii) Spindle as per IS 6603 stainless steel.

iii) Edge and body hinges–Leaded tin bronze conforming to grade 2 of IS 318.

iv) Nuts and Bolts- As per Is 1363.

v) Wedge nut – High tensile brass confirming to alloy 3 of IS 320.

The valves shall be tested in the manufacturer's works as under

1) Body test - 16 Kg/Cm^2 2) Seat test – 10 Kg /Cm^2

The manufacturers test certificate for the material shall be provided at the time of the testing. Required supports to the valves in C.C. shall be provided.

The dimensional drawing shall be submitted by the contractor prior to manufacture showing all the construction details etc. of valve and gearbox for approval. The valves shall be painted after testing as directed by the Engineer in charge.

Approved makes I.V.C./I.V.I./Kirloskar

3)Non return Valve (Reflux valve) –

This shall be C.I. D/F single / multi –door type free acting, quick opening, giving rapid non-slam closure and with low head loss Characteristic when in open position. The valve shall be generally designed as per IS 5312 part I. The valve shall be suitable for following working pressures and shall be tested at manufacturer's works as under.

Seat 10 Kg/Cm^2

Body 16 Kg/Cm^2

The valves shall be provided with suitable by pass Arrangements with Gunmetal wheel valve/ Sluice valve.

The material of construction shall be as under

i) Body, cover door and door face disc – Grey cast iron confirming to grade FG 2002 of IS 210.

ii) Hinges cast steel as per IS 1030.

iii) Hinge pin, door pins and door suspension pin- stainless steel as per IS 6603.

iv) Bearing bushes, body hinges and door faces- Gun metal conforming to grade 2 of IS 318.

Approved makes IVC/IVI/Kirloskar

4) Kinetic Air valve

Kinetic air valves of diameter 100 mm and above of approved make shall be provided and fixed. These shall be two-orifice type, the small orifice releasing air from the pipe carrying water under normal working condition while large orifice shall admit or release air when the pipe is being emptied or filled. The air valve shall be designed to operate satisfactorily at normal working pressure of 10 Kg/Cm2 Kinetic air valve body shall be tested for 10 Kg/Cm2. Air valve shall be provided with isolating sluice valve 100 mm diameter, which shall generally comply with above except gearbox and provided with hand wheel.

Material of construction

Float Chamber, cowl and cover – C.I. grade FG 200 of IS 210.

Small orifice float – Seasoned timber ball covered with soft rubber

Large orifice float - Seasoned timber ball covered with hard vulcanized rubber.

Orifice guides and mechanism – 12% chromium steel as per IS 1310 or stainless steel to 135970- 1045 – 15

Sealing rings – moulded rubber of suitable quantity

6.1 Pipe work

M.S. pipe work shall be fabricated from M.S. plates confirming to IS 226. The fabrication pipe shall generally confirm to IS 3589 pipe and specials shall be fabricated from 10 mm and 8/6 mm thick plate as per drawing. Layout of valve and pipe work shall be got approved from the department. Dished end shall be provided at the end of the common manifold and thickness of dished end shall not be less than 12 mm.

Air release Arrangements shall be provided after the discharge head by using 50mm diameter G.I./ M.S. pipe and cock. Joints connecting the valves shall be flanged with flange thickness not less than 25mm joint rubber ring for these joints shall not be less than 3 mm.

The pipe work shall be subject to test pressure of 1.5 times the actual working pressure in the presence of the Engineer in charge.

All the pipes and valves shall be painted with the primer red oxide paint after the surface is cleaned and two coat of enamel paint of approved quality and shade to have finished aesthetic appearance. Cost of breaking the holes in walls and remaking the same as it was is included in this item.

6.2 Dismantling joints –

These shall be provided connected to the flange outlet or discharge head of the pump and Non Return valve. The diameter of this joint shall be same as Non Return valve. This shall be fabricated from M.S. plate designed to withstand pressure of 25 kg/cm2. The plate thickness shall not be less than 10 mm. The design of the joint shall ensure that no forces are transmitted to the pump foundation and flanges of dismantling joints are held rigid during

normal working. For dismantling it shall be possible to slide the flanges at one end by at least 25 mm to enable dismantling refitting, General Arrangements drawing shall be got approved before actual fabrication of the joint.

7 ELECTRICAL EQUIPMENTS

I) Electric motors

There shall be vertical, hollow/solid shaft flange mounting type, to operate on 415 volts +/- 10% 3 phase 50 Hz. A.C. supply. The design of motors shall confirm to IS 325. The torque speed and current speed characteristics of motor shall be suitable for pump starting characteristics. The motor shall be designed such that there shall be minimum 10/15% reserve power over the entire head range of pump specified. H.P. of the motor. Starting time and locked rotar with stand time under hot conditions shall have suitable discrimination for proper selection of protection relays. The locked rotar withstand time under hot condition and at 85% rated voltage shall be more by at least 3 seconds than the starting time with driven equipment coupled at 85% rated voltage.

The motor shall be suitable for restricted operation at following conditions.

(a) Accelerating the driven equipment from stand still to full speed within duration of 1 minute or less at 85% of rated voltage.

(b) Operation on load at 75% of rated voltage for five minutes

(c) Two starts at quick succession for cold condition

(d) One hot restart at maximum steady state temperature over ambient temperature 45^0c .

(e) Three starts per hour equally spaced over the duration after attaining thermal equilibrium.

(f) The motor shall be of continuous duty 'S-1' class. The class of insulation of motor shall be 'F' class.

Constructional features

The motor shall be vertical, hollow shaft. The motor shall be statically and dynamically balanced and critical speed shall not be in the range of 80% to 120% of motor speed R.P.M. and direction or rotation of motor shall be same as that of pump.

The motor shall be squirrel cage induction type, with S.P.D.P. construction with degree of protection confirming to IP 24. At least two drain holes shall be provided at the bottom end of the frame.

The motors shall be provided with special designed heavy duty thrust bearing anti friction grease lubricated type to take entire load of pump and motor static and dynamic type. Terminal box shall be designed suitably to accommodate armored aluminum conductor of required rating and shall be manufactured by the motor manufacturer. Suitably designed non-reverse ratchet Arrangements shall be provided to the motor to stop reverse rotation.

(Note – As the V.T. pumps provided are suitable for hollow shaft motor necessary provision of special thrust bearing to take entire thrust a motor pump set shall be made along with non reverse ratchet and clutch type pump motor coupling at top as specified in the pump) as required.

Testing

The motor shall be offered for routine test to the inspecting Authorities and test certificates shall be submitted to the Engineers in charge.

Following document shall be furnished after contract is awarded.

a) General Arrangements drawing
b) Instruction manual for erection and maintenance

c) Test report
d) Torque speed curve

(ii) Auto transformer starter –

Fully automatic A. T. starter motor control panel assembled locally with the contactors of approved makes sheet metal clad enclosure, floor mounting type suitable for operation on 400/440 volts 3 phase 50 cycles A.C. power supply and fitted with

1. Oil immersed Autotransformer with 40%, 50%, 65% and 80% tapings. (Winding of transformer shall be copper only) with withstand capacity for at least six starts per hour.

Transformer will be inspected by third party before dispatch.

2 Air break contractors of suitable rating, as under of AC3 duty class shall be provided.

3. Bimetallic thermal over load relay.

4 Timer on delay OFF

5 Ammeter and voltmeter with C.T.'s and selector switch

6 No volt release

7 Single-phase current sensing relay.

The wiring on the contactors shall invariably be carried out by using solid copper conductors. The appearance and layout in the panel shall be aesthetic and specious to facilitate easy working. The enclosure shall be factory finished specious and elegant looking and provided with ISMC 75 M.S. base channels painted with best quality enamel paint or powder coated. Interlocking shall be provided so that the panel door shall not be opened when panel is on or alternately the panel should trip in case of opening of door. Contractor shall submit dimensional drawing of the starter, details of the offered components wiring diagram of panel etc. Indicating lamps for three phases On OFF and TRIP shall be provided on the front. Special terminal boxes for incoming and outgoing shall be suitably designed and provided to facilitate easy entry of power cables.

The starter panel shall be tested in the manufacturers work for functional requirements H.V. tests etc. by the competent authorities of the department.

Approved makes of Contactors

L&T / Siemens / Bharatiya Cultter Hammer Adrew yele/Crompton.

ii) Relays L&T Crompton A.B.B.E.E., Siemens

iii) Timer – L&T, Siemens.

iv) Ammeter and Voltmeter A.E. IMP RISHABH

v) Auto Transformer approved standards make.

L.T. Panel

General

L.T. panel comprising 415-Volt switch gear and control gears shall be suitably designed for the functions as under

a) Reception of power from Transformer

b) Distribution of power for pump motors, lighting etc.

Panel Construction

The 415-grade switch gears shall be housed in a totally enclosed sheet metal clad dust and vermin proof of cubicle suitable for floor mounting and are of equal height. The panel shall incorporate the following

i) 3 ½ pole 400A Aluminum bus bars in enclosed compartment in horizontal formation C.

ii) Enclosed vertical bus bar serving the motors

iii) No of identical separate compartments for motor feeders, instruments bus bars, C.T., P.T. cable termination as required.

iv) Internal panel barriers in the bus bar Chamber shall be epoxy.

The panel shall be fabricated from 2 mm thick M.S. sheets. Hinged doors shall be provided at the front and rear with car type handles. Mechanical interlocks shall be provided to prevent the opening of front door in ON position or alternately Arrangements shall be made to trip the supply in event on opening or front door. Suitable stopper shall be provided to restrict the opening of the doors to working requirements and to prevent the rubbing of the door and scratching of paint with adjoining panel structure. Cable entries and exits shall be from the bottom only. Indicating and opening devices shall preferably be at uniform levels and shall not be above 1600 mm from the floor.

The panel framework shall have minimum ISMC 75 channel for base. Angle framework shall be 40 x 40 x 5 mm size M.S. angles.

Bus bars

The bus bars shall be aluminum sections to carry 400 A rated current (minimum) continuously. The bus bar shall be covered with shear resistant P.V.C. sleeves with color code and joints shall be epoxy shrouded. The bus bars shall be supported on durable non-hygroscopic supports rigidly fixed to the framework.
Adequate clearance shall be kept between the bus bars as per relevant IS codes.

Panel cabling and terminations

Power cabling shall be done entirely with P.V.C. insulated 1.1kV grade cables of size designed in confirming with relevant I.S. and shall not be less than 2.5Sq.mm. control cables shall be 650 V grade insulated copper cable not less than 1.5 sq. mm. however the cable for current transformer shall be 2.5 sq. mm or above. Cost of power and control cables in the panel shall deem to be included in cost of panel.

The terminal blocks shall be one piece moulded and screwed type. At least one spare terminal block shall be provided in each panel. Control cable shall neatly run over P.V.C. cable trays and shall be terminated in compression type terminal blocks. Identification codes as approved by the engineers shall be used for cable terminations. Ferrules shall be used for multi core cables.

Current transformers

The current transformer's for metering shall be wound/bar type and shall be rated for 21 KA fault level.

Painting

The panel shall be painted as under primer coat – one coat of red oxide. Intermediate Coat – Enamel paint of shade approved Final coat – Enamel paint as above.

Labels and Danger marks

Scheme of labeling shall be as under

a) Each compartment door shall have title label. The component/ control on each compartment shall have function label.

b) Each internal component and fuse shall have identification label with fuse current capacity where applicable.

All external labels shall be clear painted black in English all internal labels with crome plated nuts and bolts. Size of label shall be 50 mm x 25 mm with height of letter 5 mm.

Compartments not interlocked to an insulator shall have an external danger mark as under "DANGER, LIVE TERMINAL" with flash mark and voltages in red letter on white background.

Capacitor

All the pump motors shall be provided with suitable capacitor banks for improving power factor to 0.95 lagging at normal duty conditions. However KVAR selected shall not exceed 90% of the magnetising KVAR of the motor even if corrected P.F. is less than 0.95 lagging but not less than 90% in any case. The capacitor shall be suitable for operation at rated voltage [415 volts +- 10%] and shall be connected in respective power circuit of the motor with isolating switch tube units.

Capacitor bank shall be complete with structure, earth wire, discharge resisters etc. The capacitor shall be low loss mixed dielectric construction of polypropylene and craft paper insulated aluminum foiled type impregnated with non PCB non toxic non hazardous non flammable synthetic di-electroral oil and fitted with internal element fuse conforming to IS 2834/1981 revised and shall be with ISI mark separate panel shall be fabricated for housing these capacitors.

Testing

The capacitor shall be tested for routine test as specified in IS 2834 and test reports shall be furnished.

Contractor shall Arrange thermal stability test on the unit in the presence of the Engineer In charge.

Cables

Power cable used in 415 Volts system shall be 1.1KV grade 3 ½ core as applicable aluminum conductor P.V.C. insulated P.V.C. sheathed flat steel armored type confirming to IS 1534.

Cable shall be of sizes rated to carry full load current at 0.85 P.F. or to withstand short circuit current 20 KA for duration at least to opening of associated breaker whichever is greater but shall not be less than the size specified in subsequent clause.

Approved make for power cables/cables schedule – Tropodour /Finolex/Asian/ Gloster / Incab / universal / poly cab Nico

Cabling methods

Cables shall be laid in ground ducts and on trays in and out of pump house through R.C.C. trenches etc. with clearance not less than 600 mm below the water mains. Every cable shall be neatly run vertically, horizontally or parallels to adjacent wall, beam or column. At both ends of terminations the cable shall be approached from a common direction and are individually terminated in all orderly and symmetrical fashion.

The cables shall be terminated in mechanical glands that shall be suitable to provide adequate support by locking on the armour and additional earth continuity. Suitable compression type copper cable lugs shall be used for cable terminations.

The point of entry, exit of cables from the building shall be sealed from out side with an approved asbestos compound followed by 40 mm thick bituminous compound with sealing.

Cable route markers of approved design shall be installed at following positions

a) Entry and exit points of underground duct/trench

b) Exit from building

At every 5 meters distance of straight run

Any other position to trace the route.

A metallic plastic tag bearings cable reference number indicated in cable schedule at every 4 run to part there of and at both ends shall be provided for case of identification and route tracing. The schedule shall be prepared by the contractor and submitted for approval.

The cable routes shall be such that sharp bench and kinks shall be avoided. The radius at bends for PVC insulated cables shall not be less than twice/thrice the overall diameter of the cable. Laying and termination of 1.1 Kv grade cable shall be as per manufacturers instruction

as per practices specified code electrical manual. The cable under ground shall be laid as per respective IS and practice in force and as directed by the Engineer In charge.

Loop/extra lengths shall be provided in each cable run located suitably. The loop/extra lengths shall be adequate for two straight through joints as and when needed.

Earthing

Effective earthing shall be provided to all electrical equipments and components. This shall be carried out with G.I. pipe electrode. Buried 2500 mm below ground including excavation of pit in all types of strata with charcoal salt and necessary alum etc. Strip, funnel Arrangements for watering and brick masonry chamber with C.I. frame and cover etc complete as per IS3043 and as per E.I. rules amended up to date.

The electric motors, L.T. panel starter, capacity etc shall be provided using double earthing with G.I. strip of size 25 mm x 3 mm with two independent earth pits. The pipe earth electrodes of 40 mm dia 2.5 m depth shall be used.

Earth pits shall be filled with charcoal salt and alum. They shall be provided with non hole frame and cover at top and water connection for watering the pit at intervals.

The earthing shall be carried out as per IS 3040 of 1966 and amended up to date and I.E. act 1948 amended up to date.

Ground bus or section 25 x 3 mm G.I. strip shall run through out the L.T. panel and shall be bolted to the framework.

All equipment shall be provided with two independent earthing connections and connected to earth strip.

Earth G.I. wire 6 S.W.G. shall run along with the cable from L.T. panel of pure water pumps to incoming of panel for ensuring safety and provide independent earthing to cable. This wire should be connected to armor or cable and cable end boxes at starting and end points.

Illumination to the pump house.

Necessary illumination shall be provided in and out at pump house as per specification given below.

External Illumination

i) This shall be as per direction of Engineer in charge.

Internal Illumination

Internal illumination in pump house and attendant room should be done as per direction of Engineer in charge.

Internal wiring shall be carried out with suitable size copper conductors P.V.C. insulated in appropriate size; M.S. conduit wooden block shall be provided wherever required. Separate wooden board tick wood polished shall be provided mountains the switches etc. Four power plug points with separate switches shall be provided.

8. Test Trial and operation

The plant shall be on trial operation for six months after testing during which period all necessary adjustments shall be made while operating over the full load range enabling the plant to be made ready for performance and guarantee test.

The duration of trial operation of the complete equipment shall be at least three months, out of which at least 72 hours shall be of continuous operation with full load or any other duration as may be agreed to between the Engineer in charge and the Contractor. The trial operation shall be considered successful, provided that each item of the equipment can operate continuously at the specified characteristics for the period of trial operation. Minor interruptions not exceeding four hours at a time, caused during the continuous operation shall not affect the total duration of trial operation. However, if in longer, the trial operation shall be prolonged for the period of interruption.

A trial operation report comprising observations and recordings of various parameters to be measured in respect of the above trial operation shall be prepared by the contractor. This report, besides recording details of the various observations during trials run shall also include the dates of start and finish of the trial operations and shall be signed by the representatives of both the parties. The reports shall have sheets, recording all the details of interruptions occurred, adjustments made and any major repairs done during the trial operation. Based on the observations, necessary modifications/ repairs to the plant shall be carried out by the contractor to the full satisfaction of the Engineer In charge to enable the latter to accord permission to carry out performance and guarantee test on the plant. However, minor defects which do not endanger the safe operation of the equipment shall not be considered as reasons for withholding the aforesaid permission.

Commissioning and Operation

After commissioning and testing, there will be six months trial run and thereafter five years for operation and maintenance of the plant.

During trial run and O & M period, the contractor shall depute his personnel full time to operate, maintain and repair the equipment. The personnel so deputed shall maintain log books and other records as directed by the Engineer In charge. During this period the owner's personnel shall continuously work with Contractor's personnel to take full responsibility of operating, maintaining, repairing, etc. of the equipment plant.

Civil works:

Following civil works are required to be carried out for installation transformer pole structure, fencing gates etc.

The general specifications are given below. However the general Arrangements and the layout or the substation shall be as per drawing approved by the statutory authority.

a) **Transformer platforms**- Suitable size of platform shall be provided for the transformer in 1:2:4 cement concrete as shown in the layout. The height of the transformer shall be such that the live terminal of the transformer shall be at a distance of 4m above the ground level of the transformer ground or as stipulated in I.E. rules amended up to date. The concrete work shall be carried out as per regular civil Engineering practice with excellent finished work. Necessary recess shall be provided to accommodate the outgoing cables --- for L.T. side of two transformers.

Two numbers of M.S. channels shall be embedded on the top of the each plinth for resting the wheels of the transformer.

b) Foundations for poles: These shall be provided to each pole which will be used to receive the power supply, mounting the A.B. switches, lightening arresters, D.O. fuses etc. The size of foundation shall 60 mm x 60 mm and 180 cm deep in 1:3:6 cement concrete & 45 cm x 45 cm plinth duly plastered with necessary curing etc. in a neat manner.

Cable Trenches

Necessary cable trenches shall be constructed from each transformer to the pump house.

The trench shall be at least .7m deep and of suitable with depending upon the no of cables to be used through and layer of .2m shall be provided at the bottom on trench and bricks shall be placed on both side of the cable.

Suitably designed markers shall be provided and fixed at every 3-4 meters showing the cable path. The earth in trench shall be filled with crown form at the top.

First aid kit shall be kept in the near by room immediate half to the injured person in case of accident.

9.RISING AND DISTRIBUTION MAINS

Centrifugally cast iron or ductile iron spun pipe shall be used for laying Rising and Distribution Mains as shown in drawing. Centrifugally cast iron spun pipe (LA-Class) conforming to IS 5382-1969 and ductile iron (class K-7/K-9) confirming IS 8329:2000 shall be used requisite number of CI Sluice valves and Scour valves will be provided on the mains. Necessary chambers for valves as per type design shall be constructed. Necessary CI Specials conforming to ISS:- 1538-1969 or DI specials confirming to IS 9523:2000; pig lead conforming to ISS:- 782-1978,yarn conforming to ISS:- 6587-1972 will be supplied and fixed by the contractor and making lead caulked joints or push on joints with rubber gasket as per IS Specification and direction. Thrust blocks will also be provided at places like bends and wherever directed. **The successful tenderer will have to get pipes, pumps, motor, transformers etc inspected by DGSD/SGS/RITS/BIS before dispatch to site at their own cost and will submit inspection report to consignee accordingly**. The materials will be accepted by the consignee after proper verification at the consignee end

The pipes shall be tyton jointed. Rubber gaskets conforming to IS 5382-1969 shall be used for tyton joints.

Laying of CI/DI pipes shall be as per IS 12288:1987. The width of trench at top and bottom, between faces of sheeting shall be such as to provide minimum 30 cms clearance on either side of the pipe for pipe diameters less than 600 mm and 45 cms for pipe diameters 600 mm and above.

Before laying of pipe the bottom of trench shall be trimmed off to present a plain surface and all irregularities shall be leveled. Where large stone or boulders or rock is met in excavation, murum or sand bedding of 10 cms thick shall be provided below pipe. All care should be taken to protect the pipe and the coating.

10.HYDRAULIC TESTING OF LINE

The test of the pipeline in the field shall be carried out after the stretch of suitable length is laid. Testing shall be carried out in the following manner.

The pipeline shall be subjected to hydraulic test in full length or in part as may be found necessary. The pipes shall be subjected to a test pressure of 1.5 times the actual working pressure expected in the pipeline as per hydraulic design in the strip under observation.

There should be drop not more than 0.5kg/cm^2 within a period of two hours after the pressure has been built up by the use of suitable pumps. In case of leak anywhere in the field joints, the same shall be repaired entirely at the cost of the contractor, which shall include cost of excavation repairs etc. The rate of pipe is inclusive of this cost.

The contractor shall provide skilled and unskilled labour free of cost for Departmental check of the work.

SPECIAL NOTE:

I. No pipe shall be laid when; in the opinion of the Engineer-In-Charge trench conditions are unsuitable.

II. Pipes shall be laid in reasonably dry trenches and under no circumstances on slushy murum bedding.

III. The contractor shall use the pipes after checking and testing and he shall be held responsible for replacement of such pipes if already inadvertently fixed or joined.

IV. Before the pipes are lowered and laid in position the contractor shall see that the invert at the support is correct and pipe is brought to uniform grade and level. This should be checked with the help of dumpy level and should be got approved in advance from the Engineer-in-Charge.

V. Temporary benchmarks shall be provided by the contractor at a minimum distance of every 100m without any claim for extra cost. The benchmarks shall be either of stone masonry or mass concrete.

VI. The pipes shall be laid confirming to the profile, line, level, curvature, straightness etc. as per the drawings. No variation, unless previously approved by engineer in charge, will be allowed.

VII. The contractor shall bear the cost for wastage, breakage in pipes and specials. The length of pipe and specials will be paid as per exact length in laid condition, for both fabrication and laying job.

VIII. All temporary supports made to the pipeline during laying and jointing shall be removed before pipeline is filled with water for hydraulic testing.

IX. Flanged caps or plugs, casting of thrust block, the hydraulic test pump with the required piping etc. shall be arranged for testing purpose by the contractor at his own cost.

X. The hydraulic test shall be made in the presence of Engineer-in-Charge.

XI. When any section of a main is provided with concrete thrust blocks or anchorages, the pressure test shall not be made within 28 days of casting of the R.C.C. block.

10. <u>Excavation in average soil, soft and hard murum, concrete boulders etc</u>.

a) General: The trench shall be so dug that the pipe may be laid to the required alignment, at the required grade and depth

b) As per direction of the Engineer in charge. The depth of the trench should be sufficient to have a minimum cover of 100 cms. In cases where this is not feasible a decision in this regard shall be taken as directed by Engineer in charge. The trench shall be excavated only so far in advance of pipe laying as per the orders of the Engineer in charge. The trench shall be so braced and drained that the workmen may work there in safely and there shall be no danger to the nearby structures. If any stems and roots of trees are encountered in the excavation of trenches these will have to be cut and destroyed under the supervision and direction of

Engineer in charge. If water lines, drainage lines, Electric or Telephone cables are encountered in the excavation of trenches, the work of excavation or laying of line etc. will have to be carried out without damaging the lines and cables and under the supervision of the concerned staff. Appropriate clearances shall be kept from the existing utilities as directed by Engineer in charge. Extra claim for dewatering will not be entertained.

b) Barricades, guards and safety provisions: To protect from injury and to avoid damage to property, adequate barricades, construction signs, torches, red lanterns and guards as required shall be placed and maintained during the progress of the work and until it is safe for traffic to use the road ways. All material, pipe equipment and pipes which may serve as obstructions to traffic shall be enclosed by fences or barricades and shall be protected by proper lights when visibility is poor.

c) Maintenance of traffic and closing streets: The work shall be carried in such a manner which will cause the least interruption to traffic, and the road street may be closed in such a manner that it causes the least interruption to the traffic. Where it is necessary for traffic to cross open trenches, suitable bridges shall be provided. Suitable signs indicating that the work is under progress or a street is closed etc. shall be placed and necessary detour signs for the proper maintenance of traffic shall be provided.

d) Structure Protection: Temporary support, adequate protection and maintenance of all underground and surface structure drains, sewers cables and other obstructions encountered in the progress of the work shall be furnished under the direction of Engineer in charge.

Refilling of Trenches.

a) General: The refilling of trenches shall be carried out immediately after the hydraulic test is over. Refilling shall be done for 25 cms above the ground level and then it shall be thoroughly wetted and properly compacted with a mechanical earth rammer so that mud etc. shall not be formed.

i) Clearing up the site: All surplus material and all tools and temporary structures shall be removed from the site as directed by Engineer in charge. All dirt, rubbish and excess earth from the excavation shall be hauled to a dump and the work site left clean to the satisfaction of the Engineer in charge. The item includes bailing out water manually or by dewatering pump sets. The pumped water shall be carefully disposed off in nearby nalla etc. without causing any damage or inconvenience to neighboring existing structures and property holders.

1. Excavation in soft rock, dewatering, refilling etc. as above.

2. Excavation in hard rock by chiseling, refilling etc. as above. Specifications are the same as above except that the excavation will have to be carried out in hard rock. The excavation in hard rock is to be carried out by chiseling or any other method (This includes excavation done by poclain, Splitter or any other mechanical means) to the required width and depth. Other specifications are the same as above. Blasting will not be allowed in the work. Extra claim for dewatering will not be entertained.

11. High yield Tube well

(A) The bore shall be drilled up to a depth, which provides atleast 30m of water bearing formation.

(B) The site of the Tube well will be generally approachable by the tractor from pucca road or katcha road or both in continuation. If any other then the above exists, then it has to be prepared by the contractor.

(C) The sample of strata of every 3m or part as required will be preserved in sample box at site. The box with the sample will be handed over to the authorized representative of the department after the completion of Tube well.

(D) A chart in triplicate giving full details of the strata concerned, the rate of progress of drilling should be submitted to the department after the test of the Tube well is completed to the satisfaction of Engineer in charge.

(E) All equipments and plants, consumable materials required under the contract shall be supplied by the contractor at his own cost.

(F) The housing pipe shall be vertical such that at no stage the pipe is out of plumb line.

(G) The pea gravel used for packing shall be 6 mm to 12 mm size and free from dust etc. and shall screened and washed before use.

(H) The pipe shall be supplied confirming to ISS 6589 / 1976 and ISS 3580 / 1976 for housing pipe, blank pipe and slotted pipe.

(I) The lowering of pipe should be done only after approval of strata by Engineer in charge.

12. CHLORINATOR

Supplying Electronics type Chemical dosing system (Inject cum Booster model) of suitable pressure, dosing discharge capacity & dosing tank capacity of high class H.D.P.E for dosing of sodium hyprochloride solution in water supply main for chlorination purpose including installation of electronic type chemical dosing pump including preparation of base line with necessary suitable pipe and fitting etc. for commissioning of system electrically and the tenderer will have to make Arrangements for supplying fitting fixing of fully automatic control panel Board with programmable system electronic indicator with hotter transistorized voltage regulator for constant supply of voltage and making Arrangements of electric supply including supplying fitting and fixing of necessary cables and M.C.B. and all allied civil work etc. and as per direction of Engineer in charge.

13. ELEVATED SERVICE RESERVOIRS

The structural design shall conform to the following standards specifications and codes of practice of I.S.I.

IS: 456 Code of practice for plain and reinforced concrete (latest edition)

IS: 875 Code of practice for structural safety of building, loading standards (latest edition)

IS: 3370 Part I to IV code of practice for concrete structures for storage of liquids (latest edition)

IS: 1893 Criteria for Earth quake resistant Design of structures (latest edition)

General

Capacity of the container of the tank shall be the volume of the water it can store

between the designed full supply level and the lowest supply level. Free Board is the indication of space provided above full supply level and shall be measured at a vertical distance above F.S.L. up to soffit of beam supporting the roof slabs/Dome. The walls of container shall be designed for free board full condition. The tank foundation and other members of the structure shall also be designed for free board full condition. Parts of the tank in contact with stored water and enclosing water vapor above F.S.L. shall be in concrete M-20 or even in richer grade. The tenderer is advised to verify actual strata and safe bearing capacity before tendering and designing the structure and offer suitable design with full justification. Not with standing anything mentioned above if directed by the Engineer-in-charge the contractor shall carry out actual strata exploration as mentioned in para 0.2 of IS 1892-1979 through a Govt./ Govt. recognized laboratory and adopt bearing capacity so arrived for the design. The factor of safety shall be adopted as per clause 6.1 (a) of IS-6403-1971. If the foundation consists of individual column footing, minimum clear distance between centers of columns shall be equal to twice the width of footing and clear distance between edges of footing shall be not less than width of footing. The foundation should be checked for negative pressure on soil due to combined direct and bending stresses. Negative pressure shall not be allowed on the foundation soil. Classification of soil and characteristics of soil relevant to S.B.C and A.B.P. shall be as per the soil investigation reports of Government institution/Government approved investigations. For the design of foundations of the solid raft type, the 'Plate Theory' shall be adopted. In normal circumstances minimum 100 mm thick plain cement concrete with 100 mm projection around in grade M 20 with coarse aggregate as metal shall be provided as leveling course. Where injurious soils or aggressive water are anticipated the leveling course shall be of grade not weaker than M 20 and if necessary Sulphate resisting or other special cement shall be used and the thickness of the leveling course shall be kept not less than 150 mm. The ground level within the foundation area of the structure shall be consolidated properly with a suitable slope to drain out rainwater outside the foundation Zone. In the vicinity of mines, collieries and blasting sites or areas which may be subjected to blast or shock, the tanks shall be designed for dynamic forces adopted to shock. Column may be assumed as fixed at the top of footing. The minimum thickness of any components of the tank container in the contact of water will be 150 mm.

LOADS

For all RCC and PCC components unit weight of concrete shall be taken as 25000 N/Cum and 24000 N/Cum respectively. Water load and snow load shall be taken as per IS 875-1964 or its latest revision. Live load on gallery all round the Elevated tank shall be considered as 5000 N/Sqm. Seismic forces shall be as per IS 1893-1975 or its latest revision.

DESIGN

Shape of the structure shall be the most economical as directed by Engineer-in-Charge and shall be selected depending upon site conditions. Design shall be based on the worst possible combination of various loads, moments, shears, and resultant stresses in the tank for the following cases.

i) Tank Full

ii) Tank Empty with Earth pressure if any from outside

iii) Uplift pressure if any

Tank full means depth of water inside the container up to full height of the container including free board. Design shall be based on accepted bases and methods of design as well as the provision of IS 3370, IS 456, IS 1343 code of practice for pre-stressed concrete IS 2210. However, methods based on experimental investigation as mentioned in para 18.2 'C' in IS 456 shall not be entertained. Design of members other than those excluded by (i.e. roof, walls, floor etc. of the container) shall be based on consideration of adequate resistance to cracking as well as adequate strength. Calculation of stresses shall be as per para 3.3.2 of IS 3370 (Part II) 1965 or its latest revision.

PERMISSIBLE STRESS IN CONCRETE FOR RESISTING TO CRAKCING

For calculations relating to the resistance of members to cracking the permissible stresses in tension (direct and due to bending) and shear shall conform to the values specified in Table I of IS 3370 (Part II_1965). "The permissible tensile stresses due to bending apply to the face of the member in contact with the liquid." In members less than 225 mm thick and in contact with the liquid on one side, this permissible stress in bending apply also to the face remote from liquid.

For Strength Calculation

For strength calculation the permissible concrete stress shall be in accordance with Para-44 of IS 456-2000 where the calculated shear stress in concrete alone exceeds the permissible value reinforcement acting in conjunction with diagonal compression in the compression in the concrete shall be provided to take the whole of the shear. The maximum reinforcement shall conform to clause.

a) 25.5.1.1.

b) 25.5.1.2 of 456.

PERMISSIBLE STRESSES IN STEEL

For strength calculation (concrete assumed to be cracked) the permissible stresses in reinforcement shall be as per Table 2 of IS 3370 (Part II) 1965 or its latest revision. For

TOR steel, the stress shall be as per IS 1986-1979 cold worked steel high strength deformed bars for concrete reinforcement or its latest revision.

The modular ratio 'm' for difference concrete mix shall be as under:

Grade of concrete Modular ration 'm'

M :20 13

M : 25 11

Modulus of elasticity of concrete (Ec) shall be taken as 5700 √Eck where Ec is characteristic cube strength of concrete in N/Sq.mm. as per clause 5.2.3.1 of IS 456:2000

AGE FACTOR

Age factor for increasing strength shall not be considered for the design.

UNITS

Design should be in Metric units only.

DETAILING

Minimum Reinforcement for Water Retaining Members. The minimum reinforcement in walls, floors, roofs in each of two directions at right angles shall have an area of 0.3% of the concrete section in that direction for sections up to 100 mm thick. For sections of thickness greater than 100 mm and less than 450 mm the minimum reinforcement in each of the two directions shall be linearly reduced from 0.3% for 100 mm thick section to 0.2% for 450 mm thick section. For sections of thickness greater than 450 mm minimum reinforcement in each of directions shall be kept at 0.2%. In concrete sections of thickness 225 mm or more two layers of reinforcing steel shall be placed one over each face of the section to make up the minimum reinforcement specified in this clause. The minimum reinforcement specified above may be decreased by 20% in case of high yield strength deformed bars conforming to IS 1786-1966 or IS 1139-1966.

Covers to Reinforcement

Minimum clear cover to reinforcement shall be 40 mm for durability of the structure. For members of structure in contact with water effective cover shall not be more than 60 mm, for bars subjected to bending stresses. For bars subjected to pure tension the effective cover shall not be more than 75 mm.

Spacing of Reinforcement

Spacing of reinforcement shall be as per Para 25.3 of IS 456 Spacing of lateral ties for column shall satisfy the provision of Para 25.5.3.2 'C' of IS 456-2000. Reinforcing steel which accounts for resisting moments, tension etc. i.e. other than temperature and shrinkage steel, shall comprise of minimum 8 mm dia for ribbed bars and 10 mm dia for mild steel bars. For compressive member the minimum dia of main reinforcement shall not be less than 12-mm dia.

NOTE

In case of dispute regarding interpretation of any of the above clause the decision of the owner or his representative will be final and binding on the designer and contractor. In

case of any clause not included in the above criteria, the decision of the owner or his authorized representative will be final and binding on the designer and contractor.

GENERAL

Soil testing reports of the recognized institute must be submitted by the tenderer before start of the work at own cost. The design must be on the basis of soil testing report. The design shall be in accordance with various relevant I.S. specifications (I.S. 456-2000, I.S. 875-1987, I.S. 3370-1965, I.S.432 part-1, I.S. 1786, I.S. 1139)

The design shall satisfy the stipulations as per I.S. 1893-1984 and I.S. 13920-1995 for seismic forces and I.S. 11682-1985 for RCC staging of overhead water tank.

Plain round M.S. bar grade-I conforming to I.S. 432 part –1 or high yield strength deformed bars I.S. 1786 of 1139 shall be used. Grade II M.S. bars shall not be used.

Entire structure shall be as per latest IS specifications.

19 cm thick cement plaster (1:3) with 5% water proofing compound of approved quality shall be provided over the bottom floor and inside surface of tank wall. 12 mm thick cement plaster (1:4) shall be provided over the exposed surface of columns, beams, bracings, bottom dome and tank wall outside surface etc. 12 mm thick cement plaster (1:6) shall be provided for the inside and outside surface of rooms.

Three coats of exterior painting over a coat of cement primer shall be provided in the water tower. Irrespective of the foundation proposed in the design, one set of bracing be provided at the ground level. The scope of pipe assembly work shall be up to 5 meter beyond the out side face of the wall including the cost of pipes, valves and specials including laying and jointing.

The job includes designing the structure for uplift pressure and dewatering if required during entire execution and disposal of surplus excavated stuff within a lead of 50 meter as directed by the Engineer in charge.

C.I. D/F pipe be as per relevant I.S. standard shall be used for rising, delivery, overflow and washout main of the water tower.

R.C.C roof shall be constructed at the level of first and second bracing under which rooms shall be constructed by 250 mm thick brick masonry walls for key man and operational staff or office accommodation with Toilet including W.C. Septic tank Soak pit and necessary electrification. Sufficient number of doors and windows shall be provided in the rooms.

Provision shall be made for spiral RCC stairs from outside of staging with 25 mm G.I. pipe railing on both sides for going in the tank.

Spacing between two braces should not be more than 3m C/C.

Provision shall be made for cylindrical ventilator fitted with mosquito proof net and two manholes with M.S. frame and cover with locking Arrangements of adequate size both in the roof slab as well as top dome.

Provision shall be made for lightening conductor as per I.E. rules

Provision shall be made for M.S. water level indicator with 450 mm diameter copper ball etc.

Part rate shall be payable for reinforcement concrete and plastering item of all types of water retaining structure till satisfactory hydraulic testing for water tightness test is given and till that work shall be treated as incomplete.

The Design and Drawing of the water Tower/underground service reservoir shall be vetted by NIT, Patna or any other NIT/IIT, for which no payment will be done by BUIDCo. The bidder has to bear the cost.

VALVES

A) Sluice Valve

The valves shall be as per IS and of standard required size

The manufacturers test certificate for the material shall be provided at the time of the testing.

Required supports to the valves in C.C. shall be provided.

The dimensional drawing shall be submitted by the contractor prior to manufacture showing all the construction details etc. of valve for approval. The valves shall be painted after testing as directed by the Engineer in charge.

Kinetic Air Valve

These shall be as per IS and of standard required size. The air valve shall be designed to operate satisfactorily at normal working pressure of 10 kgf/cm2 Kinetic air valve body shall be tested for 10 kg/cm2. Air valve shall be provided with isolating sluice valve, which shall generally comply IS applicable to sluice valve.

C) VALVE CHAMBERS

The valve chambers should be constructed for protection of valves from traffic load to avoid damage by people. The valves should be constructed as per the type design drawings. The construction of the chamber should be in R.C.C and should be able to withstand the superimposed load due to vehicular traffic. The top of the chamber should be covered by RCC pre cast slabs. All the civil work should be as per the general specification mentioned earlier and as per applicable I.S. standards.

SECTION 7
BILL OF QUANTITY

(Rates to be quoted in Financial Bid Sheet attached separately)

BILL OF QUANTITIES

Preamble

1. **The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, Conditions of Contract, Technical Specifications and Drawings.**

2. **The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.**

3. **The rates and prices tendered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all constructional plant, labour supervision, materials, erection, maintenance, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.**

4. **The rates and prices shall be quoted entirely in Indian Currency.**

5. **A rate whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no Items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.**

6. **The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no Items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.**

7. **General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering rates or prices against each item in the Bill of Quantities.**

8. **The method of measurement of completed work for payment shall be in accordance with the specification issued by the department time to time.**

9. **Errors will be corrected by BUIDCo for any arithmetic errors pursuant to Clause 29 of the Instructions to Bidders.**

Financial Bid Sheet

NAME OF WORK-Design and Construction of drinking water supply scheme, of Jamalpur Nagar Parishad under AMRUT and state plan Scheme (Phase II) with six months of Trial run and thereafter operation and maintenance of system for next five years.
(A) Construction of DC/CI Distribution Network (Zone-1 and Zone-4) -73.2006 Km, providing house service connection-6605, SCADA system -2 Nos.- 3046.961 Lakh under Amrut Scheme
(B) Construction of Distribution Network (Zone-2 and Zone-3) -51.6007 Km, providing house service connection-8000, SCADA-2 Nos.-- 2488.35 Lakh

Date of NIT :-	**22.08.2019**
Estimated Cost:-	**5415.311 lakh**
Earnest Money :-	**64.153 lakh**
Time of Completion :-	**18 MONTHS**
Cost of BOQ :-	**Rs. 50000.00 in shape of DD as per NIT** **Rs. 17700.00 (Bid Processing fee for BSEDC) through Online Mode**
NAME OF THE FIRM :-	
ADDRESS OF THE FIRM :-	

SCHEDULE 'A'

S. No.	Items of Work	Quantity		Unit	Rate quoted by Bidder		Amount
					Rate (in Figures)	Rate (In Words)	
	PART -A (AMRUT SCHEME)						
	Works related with Civil , Mechanical and Electrical Portion						
1	Design, planning and preparation of master plan for augumentation of water supply scheme in town including surveying with total station instruments, establish the control point with DGPS in project area, transfer of control points at strategic locations such as tubewell, pumping plant, OHT etc, preparation of design report of distribution network with latest design softwares. submission of all survey data, and design report including all necessarry maps in hardcopy as well as in softcopy in trplicate as per direction of E/I	1.0	job	Each			Rs.0.00
	Total of Item 1	**1.0**	**job**	**Each**	**Rs.0.00**		**Rs.0.00**
2.1	House service connection with 15mm dia GI pipe including water meter with HDPE box including fitting and fixing specials such as ferrul, stop cock, bib cock etc all complete as per direction of E/I.						
2.2	Providing and fixing 15 mm GI pipes complete with GI fittings including trenching and refilling etc. all complete as per direction of E/I	99075	M	PerM			Rs.0.00
2.3	Providing and fixing GI union, Brass ferrule, CP brass bib cock, brass stop cock, making hole in wall if any, domestic water meter with HDPE box, dry die, inferential type, Multi Jet, Magnetically coupled, class B water meter compete with tubular strainer, brass nuts and nipples conforming to IS 779:1994 standard with protection class of IP68 and marked in metric system, along with manufacturer certificate & warranty card including cost of a material and labor.	6605	No.	Each			Rs.0.00
	Total of Item 2	**1.0**	**No.**	**Each**	**Rs.0.00**		**Rs.0.00**
	ZONE-1						
3	Supplying all materials including pipes, specials and valves, labors, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI Class K-7/ DI Class K-9 pressure pipes conforming to IS : 1536/1989 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift including all types of road cutting and restoring the same and providing necessary masonry pillars of required size and shape for crossing the pipes in ditches etc, as required and cost of rubber gasket (conforming to IS: 5382/1969) and making gasket joints and providing necessary Sluice Valve of required size conforming to IS 2906-1980 and IS 780-1980 of IN 1.0 with ISI certification mark and fixing in trenches with a pair of tail pieces, including the cost of sluice valve and tail pieces, making lead caulked joints and flanged joint as per IS Specification, including supplying all jointing materials (pig lead conforming to ISS 782-1978; yarn conforming to ISS 6587-1972 nuts & bolts conforming to ISS 1364-1983) including drilling holes in flanges if required and incidental charges also providing and laying CI specials of required size conforming to IS : 9523 and suitable Air valves with its all accessories etc. whereas required all complete job as per direction of E/I including all taxes, duties and incidental charges providing necessary thrust block where as required, construction of masonry chamber for valves with cost of construction materials and earth work in back filling the trenches after laying of different types and sizes of pipe, specials and valves with earth removed during excavation within initial lead and lift etc. including providing night guard, barrier and red light to safe guard against accident, testing of laid pipes against 60 M water head, disinfection of laid pipe with water containing bleaching powder @0.5gm/l etc. all complete job as per specification and direction of E/I. Rates should be quoted seperattely against outlined in subsections.						

3.1	Supplying all materials including pipes, specials, labors, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI Class K-7/ DI Class K-9 pressure pipes conforming to IS : 1536/1989 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift, filling the trenches after laying of different type and size of pipe and specials, providing thrust block where as required, testing of lead pipe, disinfection etc all complete as per direction of E/I excluding sluice valves and air valves with their chamber, trenchless piping if any and cutting of PCC road and restoring the same.						
	b.Distribution Network						
	(i) 100 mm dia CI class LA (in mtrs.)	21539.8	M	Per M			Rs.0.00
	(ii) 150 mm dia CI class LA (In mtrs.)	7460.7	M	Per M			Rs.0.00
	(iii) 200 mm dia CI class LA (In mtrs.)	3311.3	M	Per M			Rs.0.00
	(iv) 250 mm dia DI class K-7 (In mtrs.)	1608.4	M	Per M			Rs.0.00
	(v) 300 mm dia DI class K-7 (In mtrs.)	953	M	Per M			Rs.0.00
	(iii) 350 mm dia DI class K-7 (In mtrs.)	372.4	M	Per M			Rs.0.00
	(iv) 400 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
	(v) 450 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
	(v) 500 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
3.2	Providing and fixing CI **Sluice valves** (with cap) Complete with bolts, nuts, rubber insertions etc with 120x 120x100mm brick masanory chamber with cement mortar 1:4 (1 Cement:4 coarse sand) for sluice valve, with CI Surface box 100mm top diameter, 160mm bottom diameter and 180mm deep (inside)with chained lid and RCC top slab 1:2:4 mix (1 Cement :2 Coarse sand: 4 graded stone aggregate 20mm nominal size), I/C necessary excavation foundation concrete 1:5:10 (1 Cement:5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 Cement:3 Coarse sand) 12mm thick, finished with a floating coat of neat cement.						
	(i) 100 mm dia	35	No	Each			Rs.0.00
	(ii) 150 mm dia	10	No	Each			Rs.0.00
	(iii) 200 mm dia	6	No	Each			Rs.0.00
	(iv) 250 mm dia	5	No	Each			Rs.0.00
	(v) 300 mm dia	3	No	Each			Rs.0.00
	(vi) 400 mm dia	0	No	Each			Rs.0.00
3.3	Providing and fixing double acting **air valves** of approved quality Complete with bolts, nuts, rubber insertions etc wth masonry chamber 60 x 60 x 75cm inside in brick work in cement mortar 1:4 (1 Cement:4 coarse sand) for sluice valve, with CI Surface box 350x350mm top, 165mm bottom diameter and 180mm deep (inside)with chained lid and RCC top slab 1:2:4 mix (1 Cement :2 Coarse sand: 4 graded stone aggregate 20mm nominal size), I/C necessary excavtion foundation concrete 1:5:10 (1 Cement:5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 Cement:3 Coars sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design.						
	(i) 80 mm dia	23	No	Each			Rs.0.00
	(ii) 100 mm dia	13	No	Each			Rs.0.00
3.4	**Trenchless piping:** Installation of product pipe by Guided Auger method including making of entry and exit pits, all related civil works like excavation, shoring / strutting, etc., shielded excavation through Auger boring process lowering of pipe segments in the jacking pit,laying and jointing of product pipeline through jackingprocess from the jacking pit and restoration of site after project completion as per the instructions of the Engineer-in-Charge all complete except the cost of the pipe (upto 100 meter installation length)	100	M	Per M			Rs.0.00
3.5	Demolishing Cement concrete pavement manualy or by mechanical means including disposal of materials within 50m lead and restoring the same with PCC (1:2:4) including all materials, labour, tools & tackle, carriage of all materials and centering shuttring etc all as per direction of E/I.	2378.45	cum	P/M^3			Rs.0.00
3.6	Providing and fixing spindle **fire hydrant** with 65 mm outlet complete with bolts, nuts & rubber insertion etc all complete as per direction of E/I.	4	No	Each			Rs.0.00
	Total of Item 3	**1.0**	**No.**	**Each**	**Rs.0.00**		**Rs.0.00**
4	Design and building of scada system for water supply scheme including supply and installation of all electromegnetic flow meter ,ultrasonic level measuring device ,hydrastatic level measuring device,necessery software and computer system all complete as per direction of E/I	1	Set.	Set			Rs.0.00

	Total of Item 4	**1.0**	**Set**	**Set**	**Rs.0.00**		**Rs.0.00**
	ZONE-4						
5	Supplying all materials including pipes, specials and valves, labors, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI Class K-7/ DI Class K-9 pressure pipes conforming to IS : 1536/1989 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift including all types of road cutting and restoring the same and providing necessary masonry pillars of required size and shape for crossing the pipes in ditches etc, as required and cost of rubber gasket (conforming to IS: 5382/1969) and making gasket joints and providing necessary Sluice Valve of required size conforming to IS 2906-1980 and IS 780-1980 of IN 1.0 with ISI certification mark and fixing in trenches with a pair of tail pieces, including the cost of sluice valve and tail pieces, making lead caulked joints and flanged joint as per IS Specification, including supplying all jointing materials (pig lead conforming to ISS 782-1978; yarn conforming to ISS 6587-1972 nuts & bolts conforming to ISS 1364-1983) including drilling holes in flanges if required and incidental charges also providing and laying CI specials of required size conforming to IS : 9523 and suitable Air valves with its all accessories etc. whereas required all complete job as per direction of E/I including all taxes, duties and incidental charges providing necessary thrust block where as required, construction of masonry chamber for valves with cost of construction materials and earth work in back filling the trenches after laying of different types and sizes of pipe, specials and valves with earth removed during excavation within initial lead and lift etc. including providing night guard, barrier and red light to safe guard against accident, testing of laid pipes against 60 M water head, disinfection of laid pipe with water containing bleaching powder @0.5gm/l etc. all complete job as per specification and direction of E/I. Rates should be quoted seperattely against outlined in subsections.						
5.1	Supplying all materials including pipes, specials, labors, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI Class K-7/ DI Class K-9 pressure pipes conforming to IS : 1536/1989 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift, filling the trenches after laying of different type and size of pipe and specials, providing thrust block where as required, testing of lead pipe, disinfection etc all complete as per direction of E/I excluding sluice valves and air valves with their chamber, trenchless piping if any and cutting of PCC road and restoring the same.						
	b.Distribution Network						
	(i) 100 mm dia CI class LA (in mtrs.)	16119	M	Per M			Rs.0.00
	(ii) 150 mm dia CI class LA (In mtrs.)	18442	M	Per M			Rs.0.00
	(iii) 200 mm dia CI class LA (In mtrs.)	2145	M	Per M			Rs.0.00
	(iv) 250 mm dia DI class K-7 (In mtrs.)	245	M	Per M			Rs.0.00
	(v) 300 mm dia DI class K-7 (In mtrs.)	904	M	Per M			Rs.0.00
	(iii) 350 mm dia DI class K-7 (In mtrs.)	0	M	Per M			Rs.0.00
	(iv) 400 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
	(v) 450 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
	(v) 500 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
5.2	Providing and fixing CI **Sluice valves** (with cap) Complete with bolts, nuts, rubber insertions etc with 120x 120x100mm brick masanory chamber with cement mortar 1:4 (1 Cement:4 coarse sand) for sluice valve, with CI Surface box 100mm top diameter, 160mm bottom diameter and 180mm deep (inside)with chained lid and RCC top slab 1:2:4 mix (1 Cement :2 Coarse sand: 4 graded stone aggregate 20mm nominal size), I/C necessary excavation foundation concrete 1:5:10 (1 Cement:5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 Cement:3 Coarse sand) 12mm thick, finished with a floating coat of neat cement.						
	(i) 100 mm dia	25	No	Each			Rs.0.00
	(ii) 150 mm dia	30	No	Each			Rs.0.00
	(iii) 200 mm dia	5	No	Each			Rs.0.00
	(iv) 250 mm dia	5	No	Each			Rs.0.00
	(v) 300 mm dia	3	No	Each			Rs.0.00
	(vi) 400 mm dia	0	No	Each			Rs.0.00

5.3	Providing and fixing double acting **air valves** of approved quality Complete with bolts, nuts, rubber insertions etc with masonry chamber 60 x 60 x 75cm inside in brick work in cement mortar 1:4 (1 Cement:4 coarse sand) for sluice valve, with CI Surface box 350x350mm top, 165mm bottom diameter and 180mm deep (inside)with chained lid and RCC top slab 1:2:4 mix (1 Cement :2 Coarse sand: 4 graded stone aggregate 20mm nominal size), I/C necessary excavtion foundation concrete 1:5:10 (1 Cement:5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 Cement:3 Coars sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design.						
	(i) 80 mm dia	23	No	Each			Rs.0.00
	(ii) 100 mm dia	13	No	Each			Rs.0.00
5.4	**Trenchless piping:** Installation of product pipe by Guided Auger method including making of entry and exit pits, all related civil works like excavation, shoring / strutting, etc., shielded excavation through Auger boring process lowering of pipe segments in the jacking pit,laying and jointing of product pipeline through jackingprocess from the jacking pit and restoration of site after project completion as per the instructions of the Engineer-in-Charge all complete except the cost of the pipe (upto 100 meter installation length)	100	M	Per M			Rs.0.00
5.5	Demolishing Cement concrete pavement manualy or by mechanical means including disposal of materials within 50m lead and restoring the same with PCC (1:2:4) including all materials, labour, tools & tackle, carriage of all materials and centering shuttring etc all as per direction of E/I.	2427.4	cum	P/M^3			Rs.0.00
5.6	Providing and fixing spindle **fire hydrant** with 65 mm outlet complete with bolts, nuts & rubber insertion etc all complete as per direction of E/I.	4	No	Each			Rs.0.00
	Total of Item 5	**1.0**	**No.**	**Each**	**Rs.0.00**		**Rs.0.00**
6	Design and building of scada system for water supply scheme including supply and installation of all electromegnetic flow meter ,ultrasonic level measuring device ,hydrastatic level measuring device,necessery software and computer system all complete as per direction of E/I	1	Set.	Set			Rs.0.00
	Total of Item 6	**1.0**	**Set**	**Set**	**Rs.0.00**		**Rs.0.00**
	Total Amount in Figure				**Rs. 0.00**		
	Deployment of manpower, supply of all chemicals, checking of status of supply in fed up area, repairing of leakages, maintaining log book at all pumping stations, submission of daily / weekly / monthly and yearly report of water quality, tested by district laboratories, replacing the damaged parts of any machinery / the machinery as a whole, annual / bi-annual maintenance of all built-up / installed civil/mechanical/electrical structures / units under the scheme , including round-the clock watch & ward **for 60 calendar months** from the date of completion of trial run (excluding energy charges)						
	O & M cost for the first 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	O & M cost for the Second 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	O & M cost for the Third 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	O & M cost for the Fourth 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	O & M cost for the Fifth 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	Total Amount in Figure				**Rs. 0.00**		
	Total Amount in Word						
	PART -B (STATE PLAN)						
	ZONE-2						
	Works related with Civil , Mechanical and Electrical Portion						
7	Design, planning and preparation of master plan for augumentation of water supply scheme in town including surveying with total station instruments, establish the control point with DGPS in project area, transfer of control points at strategic locations such as tubewell, pumping plant, OHT etc, preparation of design report of distribution network with latest design softwares. submission of all survey data, and design report including all necessarry maps in hardcopy as well as in softcopy in trplicate as per direction of E/I	1.0	job	Each			Rs.0.00
	Total of Item 1	**1.0**	**job**	**Each**	**Rs.0.00**		**Rs.0.00**

8	Supplying all materials including pipes, specials and valves, labors, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI Class K-7/ DI Class K-9 pressure pipes conforming to IS : 1536/1989 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift including all types of road cutting and restoring the same and providing necessary masonry pillars of required size and shape for crossing the pipes in ditches etc, as required and cost of rubber gasket (conforming to IS: 5382/1969) and making gasket joints and providing necessary Sluice Valve of required size conforming to IS 2906-1980 and IS 780-1980 of IN 1.0 with ISI certification mark and fixing in trenches with a pair of tail pieces, including the cost of sluice valve and tail pieces, making lead caulked joints and flanged joint as per IS Specification, including supplying all jointing materials (pig lead conforming to ISS 782-1978; yarn conforming to ISS 6587-1972 nuts & bolts conforming to ISS 1364-1983) including drilling holes in flanges if required and incidental charges also providing and laying CI specials of required size conforming to IS : 9523 and suitable Air valves with its all accessories etc. whereas required all complete job as per direction of E/I including all taxes, duties and incidental charges providing necessary thrust block where as required, construction of masonry chamber for valves with cost of construction materials and earth work in back filling the trenches after laying of different types and sizes of pipe, specials and valves with earth removed during excavation within initial lead and lift etc. including providing night guard, barrier and red light to safe guard against accident, testing of laid pipes against 60 M water head, disinfection of laid pipe with water containing bleaching powder @0.5gm/l etc. all complete job as per specification and direction of E/I. Rates should be quoted seperattely against outlined in subsections.						
8.1	Supplying all materials including pipes, specials, labors, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI Class K-7/ DI Class K-9 pressure pipes conforming to IS : 1536/1989 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift, filling the trenches after laying of different type and size of pipe and specials, providing thrust block where as required, testing of lead pipe, disinfection etc all complete as per direction of E/I excluding sluice valves and air valves with their chamber, trenchless piping if any and cutting of PCC road and restoring the same.						
	b.Distribution Network						
	(i) 100 mm dia CI class LA (in mtrs.)	16753.1	M	Per M			Rs.0.00
	(ii) 150 mm dia CI class LA (In mtrs.)	4244.5	M	Per M			Rs.0.00
	(iii) 200 mm dia CI class LA (In mtrs.)	3218.4	M	Per M			Rs.0.00
	(iv) 250 mm dia DI class K-7 (In mtrs.)	1848.5	M	Per M			Rs.0.00
	(v) 300 mm dia DI class K-7 (In mtrs.)	1044.2	M	Per M			Rs.0.00
	(iii) 350 mm dia DI class K-7 (In mtrs.)	0	M	Per M			Rs.0.00
	(iv) 400 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
	(v) 450 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
	(v) 500 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
8.2	Providing and fixing CI **Sluice valves** (with cap) Complete with bolts, nuts, rubber insertions etc with 120x 120x100mm brick masanory chamber with cement mortar 1:4 (1 Cement:4 coarse sand) for sluice valve, with CI Surface box 100mm top diameter, 160mm bottom diameter and 180mm deep (inside)with chained lid and RCC top slab 1:2:4 mix (1 Cement :2 Coarse sand: 4 graded stone aggregate 20mm nominal size), I/C necessary excavation foundation concrete 1:5:10 (1 Cement:5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 Cement:3 Coarse sand) 12mm thick, finished with a floating coat of neat cement.						
	(i) 100 mm dia	35	No	Each			Rs.0.00
	(ii) 150 mm dia	10	No	Each			Rs.0.00
	(iii) 200 mm dia	6	No	Each			Rs.0.00
	(iv) 250 mm dia	5	No	Each			Rs.0.00
	(v) 300 mm dia	3	No	Each			Rs.0.00
	(vi) 400 mm dia	0	No	Each			Rs.0.00
8.3	Providing and fixing double acting **air valves** of approved quality Complete with bolts, nuts, rubber insertions etc with masonry chamber 60 x 60 x 75cm inside in brick work in cement mortar 1:4 (1 Cement:4 coarse sand) for sluice valve, with CI Surface box 350x350mm top, 165mm bottom diameter and 180mm deep (inside)with chained lid and RCC top slab 1:2:4 mix (1 Cement :2 Coarse sand: 4 graded stone aggregate 20mm nominal size), I/C necessary excavtion foundation concrete 1:5:10 (1 Cement:5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 Cement:3 Coars sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design.						
	(i) 80 mm dia	23	No	Each			Rs.0.00

	(ii) 100 mm dia	13	No	Each			Rs.0.00
8.4	**Trenchless piping:** Installation of product pipe by Guided Auger method including making of entry and exit pits, all related civil works like excavation, shoring / strutting, etc., shielded excavation through Auger boring process lowering of pipe segments in the jacking pit,laying and jointing of product pipeline through jackingprocess from the jacking pit and restoration of site after project completion as per the instructions of the Engineer-in-Charge all complete except the cost of the pipe (upto 100 meter installation length)	100	M	Per M			Rs.0.00
8.5	Demolishing Cement concrete pavement manualy or by mechanical means including disposal of materials within 50m lead and restoring the same with PCC (1:2:4) including all materials, labour, tools & tackle, carriage of all materials and centering shuttring etc all as per direction of E/I.	1879.44	cum	P/M^3			Rs.0.00
8.6	Providing and fixing spindle **fire hydrant** with 65 mm outlet complete with bolts, nuts & rubber insertion etc all complete as per direction of E/I.	4	No	Each			Rs.0.00
	Total of Item 8	**1.0**	**No.**	**Each**	**Rs.0.00**		**Rs.0.00**
	ZONE-3						
9	Supplying all materials including pipes, specials and valves, labors, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI Class K-7/ DI Class K-9 pressure pipes conforming to IS : 1536/1989 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift including all types of road cutting and restoring the same and providing necessary masonry pillars of required size and shape for crossing the pipes in ditches etc, as required and cost of rubber gasket (conforming to IS: 5382/1969) and making gasket joints and providing necessary Sluice Valve of required size conforming to IS 2906-1980 and IS 780-1980 of IN 1.0 with ISI certification mark and fixing in trenches with a pair of tail pieces, including the cost of sluice valve and tail pieces, making lead caulked joints and flanged joint as per IS Specification, including supplying all jointing materials (pig lead conforming to ISS 782-1978; yarn conforming to ISS 6587-1972 nuts & bolts conforming to ISS 1364-1983) including drilling holes in flanges if required and incidental charges also providing and laying CI specials of required size conforming to IS : 9523 and suitable Air valves with its all accessories etc. whereas required all complete job as per direction of E/I including all taxes, duties and incidental charges providing necessary thrust block where as required, construction of masonry chamber for valves with cost of construction materials and earth work in back filling the trenches after laying of different types and sizes of pipe, specials and valves with earth removed during excavation within initial lead and lift etc. including providing night guard, barrier and red light to safe guard against accident, testing of laid pipes against 60 M water head, disinfection of laid pipe with water containing bleaching powder @0.5gm/l etc. all complete job as per specification and direction of E/I. Rates should be quoted seperattely against outlined in subsections.						
9.1	Supplying all materials including pipes, specials, labors, tools and tackles etc. for laying of different types and sizes of centrifugally cast iron Class LA/DI Class K-7/ DI Class K-9 pressure pipes conforming to IS : 1536/1989 (Third revision) with amendment no 1 & 2 in standard length in trenches including earth work in excavation in all kind of soil so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift, filling the trenches after laying of different type and size of pipe and specials, providing thrust block where as required, testing of lead pipe, disinfection etc all complete as per direction of E/I excluding sluice valves and air valves with their chamber, trenchless piping if any and cutting of PCC road and restoring the same.						
	b.Distribution Network						
	(i) 100 mm dia CI class LA (in mtrs.)	18267	M	Per M			Rs.0.00
	(ii) 150 mm dia CI class LA (In mtrs.)	2859	M	Per M			Rs.0.00
	(iii) 200 mm dia CI class LA (In mtrs.)	1590	M	Per M			Rs.0.00
	(iv) 250 mm dia DI class K-7 (In mtrs.)	659	M	Per M			Rs.0.00
	(v) 300 mm dia DI class K-7 (In mtrs.)	519	M	Per M			Rs.0.00
	(iii) 350 mm dia DI class K-7 (In mtrs.)	598	M	Per M			Rs.0.00
	(iv) 400 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
	(v) 450 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
	(v) 500 mm dia DI class K-7(In mtrs.)	0	M	Per M			Rs.0.00
9.2	Providing and fixing CI **Sluice valves** (with cap) Complete with bolts, nuts, rubber insertions etc with 120x 120x100mm brick masanory chamber with cement mortar 1:4 (1 Cement:4 coarse sand) for sluice valve, with CI Surface box 100mm top diameter, 160mm bottom diameter and 180mm deep (inside)with chained lid and RCC top slab 1:2:4 mix (1 Cement :2 Coarse sand: 4 graded stone aggregate 20mm nominal size), I/C necessary excavation foundation concrete 1:5:10 (1 Cement:5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 Cement:3 Coarse sand) 12mm thick, finished with a floating coat of neat cement.						
	(i) 100 mm dia	35	No	Each			Rs.0.00
	(ii) 150 mm dia	10	No	Each			Rs.0.00
	(iii) 200 mm dia	5	No	Each			Rs.0.00
	(iv) 250 mm dia	2	No	Each			Rs.0.00
	(v) 300 mm dia	2	No	Each			Rs.0.00

	(vi) 400 mm dia	0	No	Each			Rs.0.00
9.3	Providing and fixing double acting **air valves** of approved quality Complete with bolts, nuts, rubber insertions etc with masonry chamber 60 x 60 x 75cm inside in brick work in cement mortar 1:4 (1 Cement:4 coarse sand) for sluice valve, with CI Surface box 350x350mm top, 165mm bottom diameter and 180mm deep (inside)with chained lid and RCC top slab 1:2:4 mix (1 Cement :2 Coarse sand: 4 graded stone aggregate 20mm nominal size), I/C necessary excavtion foundation concrete 1:5:10 (1 Cement:5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 Cement:3 Coars sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design.						
	(i) 80 mm dia	23	No	Each			Rs.0.00
	(ii) 100 mm dia	13	No	Each			Rs.0.00
9.4	**Trenchless piping:** Installation of product pipe by Guided Auger method including making of entry and exit pits, all related civil works like excavation, shoring / strutting, etc., shielded excavation through Auger boring process lowering of pipe segments in the jacking pit,laying and jointing of product pipeline through jackingprocess from the jacking pit and restoration of site after project completion as per the instructions of the Engineer-in-Charge all complete except the cost of the pipe (upto 100 meter installation length)	100	M	Per M			Rs.0.00
9.5	Demolishing Cement concrete pavement manualy or by mechanical means including disposal of materials within 50m lead and restoring the same with PCC (1:2:4) including all materials, labour, tools & tackle, carriage of all materials and centering shuttring etc all as per direction of E/I.	1607.11	cum	P/M^3			Rs.0.00
9.6	Providing and fixing spindle **fire hydrant** with 65 mm outlet complete with bolts, nuts & rubber insertion etc all complete as per direction of E/I.	4	No	Each			Rs.0.00
	Total of Item 9	**1.0**	**No.**	**Each**	**Rs.0.00**		**Rs.0.00**
10	Design and building of scada system for water supply scheme including supply and installation of all electromegnetic flow meter ,ultrasonic level measuring device ,hydrastatic level measuring device,necessery software and computer system all complete as per direction of E/I	1	Set.	Set			Rs.0.00
	Total of Item 10	**2.0**	**Set**	**Set**	**Rs.0.00**		**Rs.0.00**
11	Providing for repair and replacing as needed for laying and joining CI/ DI as per IS specifications from 100mm dia to 500mm dia sizes for distribution networks ect all complete as per direction of E/ I						
	(i) 100 mm dia	70	No	Each			Rs.0.00
	(ii) 150 mm dia	60	No	Each			Rs.0.00
	(ii) 200 mm dia	40	No	Each			Rs.0.00
	Total of Item 11	**1.0**	**No.**	**Each**	**Rs.0.00**		**Rs.0.00**
12.1	House service connection with 15mm dia GI pipe including water meter with HDPE box including fitting and fixing specials such as ferrul, stop cock, bib cock etc all complete as per direction of E/I.						
12.2	Providing and fixing 15 mm GI pipes complete with GI fittings including trenching and refilling etc. all complete as per direction of E/I	120000	M	PerM			Rs.0.00
12.3	Providing and fixing GI union, Brass ferrule, CP brass bib cock, brass stop cock, making hole in wall if any, domestic water meter with HDPE box, dry die, inferential type, Multi Jet, Magnetically coupled, class B water meter compete with tubular strainer, brass nuts and nipples conforming to IS 779:1994 standard with protection class of IP68 and marked in metric system, along with manufacturer certificate & warranty card including cost of a material and labor.	8000	No.	Each			Rs.0.00
	Total of Item 12	**1.0**	**No.**	**Each**	**Rs.0.00**		**Rs.0.00**
	Total Amount in Figure				**Rs. 0.00**		
	Deployment of manpower, supply of all chemicals, checking of status of supply in fed up area, repairing of leakages, maintaining log book at all pumping stations, submission of daily / weekly / monthly and yearly report of water quality, tested by district laboratories, replacing the damaged parts of any machinery / the machinery as a whole, annual / bi-annual maintenance of all built-up / installed civil/mechanical/electrical structures / units under the scheme , including round-the clock watch & ward **for 60 calendar months** from the date of completion of trial run (excluding energy charges)						
	O & M cost for the first 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	O & M cost for the Second 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	O & M cost for the Third 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	O & M cost for the Fourth 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	O & M cost for the Fifth 12 calendar months	1	job	**Each**	Rs.0.00		Rs.0.00
	Total Amount in Figure				**Rs. 0.00**		

Total Amount in Word	
Grand Total Amount of Project in Figure	**Rs. 0.00**
Grand Total Amount of Project in Word	

SECTION 8

SECURITIES AND OTHER FORMS

(to be filled by Bidder/Employer)

BID SECURITY (BANK GUARANTEE UNCONDITIONAL)

WHEREAS, _____[name of Bidder] (hereinafter called "the Bidder") has submitted his Bid dated _____[date] for the construction of _____[name of Contract hereinafter called "the Bid"].

KNOW ALL PEOPLE by these presents that We _____ _____ [name of Bank] of _____ [name of country] having our registered office at _____(hereinafter called "the Bank") are bound unto BUIDCo. Ltd. (hereinafter called "the Employer") in the sum of _____ _____*for which payment well and truly to be made to the said Employer by the Bank itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____,20____.

THE CONDITIONS of this obligation are:

(1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid;

OR

(2) If the Bidder having been notified to the acceptance of his bid by the Employer during the period of Bid validity :

(a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or

(b) fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders; or

(c) Does not accept the correction of the Bid Price pursuant to Clause 27.

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him as due to him owing to the occurrence of one or any of the three conditions, (specifying the occurred condition or conditions).

This Guarantee will remain in force up to and including the date _____ days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.**

DATE_____ **SIGNATURE** _____

WITNESS _____ **SEAL** _____

_____

[Signature, name and address]

*** The Bidder should insert the amount of the guarantee in words and figures denominated in Indian Rupees. This figure should be the same as shown in Clause 16.1 of the Instructions to Bidders.**

**** 45 days after the end of the validity period of the Bid. Date should be inserted by the Employer before the Bidding documents are issued.**

PERFORMANCE BANK GUARANTEE

To

_____ [name of Employer]

_____ [address of Employer]

_____

WHEREAS _____ [name and address of Contractor] (hereafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____ [name of Contract and brief description of Works] (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee :

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of _____ _____ [amount of guarantee]* _____ (in words), such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between your and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defect Liability Period.

Signature and Seal of the guarantor_____

Name of Bank _____

Address _____

Date _____

***** ***An amount shall be inserted by the Guarantor, representing the percentage the Contract Price specified in the Contract including additional security for unbalanced Bids, if any and denominated in Indian Rupees.***

UNCONDITIONAL BANK GUARANTEE FOR ADVANCE PAYMENT

To

_____ [name of Employer]

_____ [address of Employer]

_____ [name of Contractor]

Gentlemen :

In accordance with the provisions of the Conditions of Contract, sub-clause 51.1 ("Advance payment") of the above-mentioned Contract, _____ _____ [name and address of Contractor] (hereinafter called "the Contractor") shall deposit with _____ [name of Employer] a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of _____ [amount of Guarantee]* _____ [in words].

We, the _____ [bank of financial institution], as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to _____ [name of Employer] on his first demand without whatsoever right of obligation on our part and without his first claim to the Contractor, in the amount not exceeding _____ [amount of guarantee]* _____ [in words].

We further agree that no change or addition to or other modification of the terms of the Contractor or Works to be performed there under or any of the Contract documents which may be made between _____ [name of Employer] and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until _____ [name of Employer] receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and Seal :_____

Name of Bank /Financial Institution_____

Address : _____

Date : _____

***** ***An amount shall be inserted by the Bank or Financial Institution representing the amount of the Advance Payment, and denominated in Indian Rupees.***

INDENTURE FOR SECURED ADVANCES

FORM 31

(for use in case in which the contract is for finished work and the contractor has entered into an agreement for the execution of a certain specified quantity of work in a given time)

This indenture made the _____ day of _____, 20_____ BETWEEN _____ (hereinafter called the contractor which expression shall where the context so admits or implies be deemed to include his executors, administrators and assigns) or the one part and the Employer of the other part.

Whereas by an agreement dated _____ (hereinafter called the said agreement) the contractor has agreed.

AND WHEREAS the contractor has applied to the Employer that he may be allowed advance on the security of materials absolutely belonging to him and brought by him to the site of the works the subject of the said agreement for use in the construction of such of the works as he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges)

AND WHEREAS the Employer has agreed to advance to the Contractor the sum of Rupees_____ on the security of materials the quantities and other particulars of which are detailed in Accounts of Secured Advances attached to the Running Account bill for the said works signed by the Contractor on_____ and the Employer has reserved to himself the option of making any further advance or advances on the security of other materials brought by the Contractor to the site of the said works.

Now THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of the sum of Rupees _____ on or before the execution of these presents paid to the Contractor by the Employer (the receipt where of the Contractor doth hereby acknowledge) and of such further advances (if any) as may be made to him as a for said the Contractor doth hereby covenant and agree with the President and declare as follows :

(1) That the said sum of Rupees _____ so advanced by the Employer to the Contractor as aforesaid and all or any further sum of sums advanced as aforesaid shall be employed by the Contractor in or towards expending the execution of the said works and for no other purpose whatsoever.

(2) That the materials details in the said Account of Secured Advances which have been offered to and accepted by the Employer as security are absolutely the Contractor's own propriety and free from encumbrances of any kind and the contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the Contractor indemnified the Employer against all claims to any materials in respect of which an advance has be made to him as aforesaid.

(3) That the materials detailed in the said account of Secured Advances and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereafter called the said materials) shall be used by the Contractor solely in the Execution of the said works in accordance with the directions of the Engineer.

(4) That the Contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe custody and protection against all risks of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the Engineer or any officer authorized by him. In the event of the said materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the Contractor will forthwith replace the same with other materials of like quality or repair and make good the same required by the Engineer.

(5) That the said materials shall not be any account be removed from the site of the said works except with the written permission of the Engineer or an officer authorized by him on that behalf.

(6) That the advances shall be repayable in full when or before the Contractor receives payment from the Employer of the price payable to him for the said works under the terms and provisions of the said agreement. Provided that if any intermediate payments are made to the Contractor on account of work done than on the occasion of each such payment the Employer will be at liberty to made recovery from the Contractor's bill for such payment by deducting there from the value of the said materials that actually used in the construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.

(7) That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said agreement or of these presents the total amount of the advance or advances that may still be owing of the Employer shall immediately on the happening of such default be repayable by the Contractor to be the Employer together with interest thereon at twelve per cent per annum from the date or respective dates of such advance or advances to the date of repayment and with all costs, charges, damages and expenses incurred by the Employer in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor and the Contractor hereby covenants and agrees with the Employer to reply and pay the same respectively to him accordingly.

(8) That the Contractor hereby charges all the said materials with the repayment to the Employer of the said sum of Rupees _____ _____ and any further sum of sums advanced as aforesaid and all costs, charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the power contained therein if and whenever the covenant for payment and repayment here in before contained shall become enforceable and the money owing shall not be paid in accordance there with the Employer may at by time thereafter adopt all or any of the following courses as he may deem best :

(a) Seize and utilise the said materials or any part thereof in the completion of the said works on behalf of the contractor in accordance with the provisions in that behalf contained in the said agreement debiting the contractor with the actual cost of effecting such completion and the amount due to the contractor with the value of work done as if he has carried it out in accordance with the said agreement and at the rests thereby provided. If the balance is against the contractor, he is to pay same to the Employer on demand.

(b) Remove and sell by public auction the seized materials or any part there of and out of the moneys arising from the sale retain all the sums aforesaid repayable or payable to the Employer under these presents and pay over the surplus (if any) to the Contractor.

(c) Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.

(9) That except in the event of such default on the part of the contractor as aforesaid interest on the said advance shall not be payable.

(10) That in the event of any conflict between the provisions of these present and the said agreement the provisions of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been here-in-before expressly provided for the same shall be referred to the Employer whose decision shall be final and the provision of the Indian Arbitration Act for the time being in force shall apply to any such reference.

Letter of Acceptance

(Letterhead paper of BUIDCo)

_____(Date)

To

_____ (Name and address of the Contractor)

_____

_____

Dear Sirs,

This is to notify you that your Bid dated _____ for execution of the _____ (name of the contract and identification number, as given in the Instructions to Bidders) for the Contract Price of Rupees _____ (_____) (amount in words and figures), as corrected and modified in accordance with the Instructions to Bidders[1] is hereby accepted by our agency.

We accept/ do not accept that _____ be appointed as the Adjudicator[2]. Your are hereby requested to furnish Performance Security, in the form detailed in Para 31.1 of ITB for an amount equivalent to Rs. _____ within 15 days of the receipt of this letter of acceptance valid up to 28 days from the date of expiry of defects Liability Period i.e. up to _____ and sign the contract, failing which action as stated in Para 31.3 of ITB will be taken.

Yours faithfully,

Authorized Signature

Name and title of Signatory

Name of Agency

---

[1] ***Delete "corrected and" or "and modified" if only one of these actions applies. Delete as corrected and modified in accordance with the Instructions to Bidders, if corrections or modifications have not been affected.***

[2] ***To be used only if the Contractor disagrees in his Bid with the Adjudicator proposed by the Employer in the "Instructions to Bidders".***

Issue of Notice to proceed with the work

(Letterhead of BUIDCo)

_____(Date)

To

_____(Name and address of the Contractor)

_____

_____

Dear Sirs,

Pursuant to your furnishing the requisite security as stipulated in ITB Clause 34.1 and signing of the Contract for the construction of _____ _____ _____at a Bid Price of Rs._____.

You are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title of signatory authorized to sign ob behalf of Employer)

Agreement Form

Agreement

This agreement, made the _____ day of _____ between _____(name and address of Employer) [hereinafter called "the (name and address of contractor) hereinafter called "the Contractor" of the other part.]

Whereas BUIDCo is desirous that the Contractor execute

_____

(name and identification number of Contract) (hereinafter called "the Works") and BUIDCo has accepted the Bid by the Contractor for the execution and completion of such works and the remedying of any defects therein, at a cost of Rs. _____

_____

_____

NOW THIS AGREEMENT WITNESSETH as follows :

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read and construed as part of this Agreement.

2. In consideration of the payments to be made by BUIDCo to the Contractor as hereinafter mentioned, the Contractor hereby covenants with BUIDCo to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the contract.

3. BUIDCo hereby covenants to pay the Contractor in consideration of the Execution and completion of the Works and the remedying the defects wherein Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

4. The following documents shall be deemed to form and be ready and construed as part of this Agreement viz.

- **(i) Letter of Acceptance**
- **(ii) Notice to proceed with the works;**
- **(iii) Contractor's Bid**
- **(iv) Condition of Contract : General and Special**
- **(v) Contract Data**
- **(vi) Additional condition**
- **(vii) Drawings**
- **(viii) Bill of Quantities and**
- **(ix) Any other documents listed in the Contract Data as forming part of the Contract.**

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____ was hereunto affixed in the presence of :

Signed, Sealed and Delivered by the said _____ _____

in the presence of :

Binding Signature of Employer _____

Binding Signature of Contractor _____

UNDERTAKING

I, the undersigned do hereby undertake that our firm M/s _____ _____ agree to abide by this bid for a period _____ days for the date fixed for receiving the same and it shall be binding on us and may be accepted at any time before the expiration of that period.

_____

(Signed by an Authorised Officer of the Firm)

_____

Title of Officer

_____

Name of Firm

_____

DATE

SECTION 9
DRAWINGS
(To be Attached)