U.P. JAL NIGAM

CLUSTER OF SIX (06) SINGLE /MULTI VILLAGE BASED PIPED WATER SUPPLY SCHEMES IN DISTT. GHAZIPUR

SLICE	NAME OF SCHEME
1	Babura Single Village Piped Water Supply Scheme, District Ghazipur
2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur
3	Kathut GOV Piped Water Supply Scheme, District Ghazipur
4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur
5	Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur
6	Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur

UNDER

WORLD BANK ASSISTED RURAL WATER SUPPLY & SANITATION PROJECT FOR LOW INCOME STATE (RWSSP-LIS)

Date (08 MAY, 2018)

Reference No. : 265/ RWSSP-UPJN/179

Chief Engineer (Rural)
U.P.Jal Nigam, Lucknow

BIDDING DOCUMENT

Build & Transfer Documents for

Six (06) Single/Multi Village Piped Water Supply Schemes, Distt. Ghazipur

Uttar Pradesh

INDEX

GOVERNMENT OF UTTAR PRADESH

RURAL WATER SUPPLY & SANITATION PROJECT
FOR
LOW INCOME STATES

AGREEMENT NO…….

E-PROCUREMENT BIDDING DOCUMENT

TO
BUILD AND TRANSFER OF
SIX (06) SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, IN DISTRICT GHAZIPUR

DATE : 08-05-2018

INVITATION FOR BIDS (IFB) THROUGH E-PROCUREMENT SYSTEM

1. IMPORTANT NOTE REGARDING BID SECURITY

All prospective bidders are informed that due to non-availability of option for entering package-wise EMD/Bid Security in NIC e-procurement system, the amount of bid security for complete package of 6 SVS/MVS schemes in district Ghazipur, has been given on the portal. This is to be clarified that bids are invited under slice & package procedure. The bidder may submit bid for individual contract (slice) or for a group of contracts (package) contained in the table below and accordingly bidders shall submit bid security for individual contract (slice) or for a group of contracts (package) for which bids are being submitted by bidder. The contract wise bid security is given in the tender document. Thus, the "**Bid Security amount mentioned elsewhere in the portal"** is superseded by the contract–wise Bid Security as given below:

Slice No.	**Name of Work**	**Bid Security (Rs. in Lacs)**	**Cost of Bid Document (Rs.)**	**Period of Completion of build work (months)**
1	2	3	4	5
	Construction of all system components of all works under this bid with 12 Months (Defect Liability Period) after commissioning of scheme for providing water supply in the project area @ 70 lpcd for 16 hours per day under the following water supply schemes:			
1	Babura Single Village Piped Water Supply Scheme, District Ghazipur	2.15	10000+ (12%GST) = **11200 (Eleven Thousand Two Hundred only)**	12 Months
2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur	8.60		
3	Kathut GOV Piped Water Supply Scheme, District Ghazipur	8.20		
4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur	8.30		
5	Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur	2.50		
6	Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur	6.55		
	Total	**36.30**		

IMPORTANT NOTE FOR BIDDERS

1 A. DETAILS OF BID SUBMITTED:

In case, a bidder submits bid for multiple contracts, the bidder shall clearly indicate the name of bid and preference order (if any) as attached in the following table, which shall be taken into account during award of less number of slices due to lack of required technical qualifications. . In any case decision of the Owner in this regard shall be final.

Scheme No. (as per NIT)	Scheme Name	EMD amount (Rs. Lac)	Preference of bid (if bid is for more than one slice (scheme)

***** Bidders are requested to fill the above required details necessarily or the bids may be summarily rejected. If preference is not given by the bidder then it will be decided by the owner.**

1 B. REGARDING WORK EXPERIENCE:

The bidder shall provide details of work experience stating the name of work, period, total cost of work as given in the following table. The bidder shall invariably attach certificates regarding each work from the competent authority.

Sl. No.	Name of Work	Type of Work	Period	Total cost of work

U.P JAL NIGAM
6, RANA PRATAP MARG, LUCKNOW

NIT No. 265/RWSSP-UPJN/ 179 Date : 08-05-2018

e-Tender Notice

The **Chief Engineer (Rural),** UP Jal Nigam, Lucknow on behalf of U.P. Jal Nigam invites bids in electronic tendering system for construction of following 06 Single & Multi Village Water Supply Schemes, in District Ghazipur from date of commissioning. For all or any number of slices contained in the table given below, up to 17:00 Hrs. on 07.06.2018. Pre-bid meeting will be held on 22-05-2018 at 15.00 Hrs. & the technical part of e-bids will be opened on 08.06.2018 at 16:00 Hrs. in the office of Chief Engineer (Rural). The details for submission of e-bids will be available in the tender document on the UP Govt's e-procurement website https://etender.up.nic.in from 09.05.2018 to 07.06.2018. Details of bids are as below:-

Slice No.	Name of Work	Bid Security (Rs. in Lacs)	Cost of Bid Document (Rs.)	Period of Completion of build work
1	2	3	4	5
1	Babura Single Village Piped Water Supply Scheme, District Ghazipur	2.15	10000+ (12%GST) = 11200 (Eleven Thousand Two Hundred only)	12 Months
2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur	8.60		
3	Kathut GOV Piped Water Supply Scheme, District Ghazipur	8.20		
4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur	8.30		
5	Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur	2.50		
6	Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur	6.55		
	Total	36.30		

Only online bids will be accepted, hence the tenderer has to complete necessary action to participate in e-tendering process.

(Prem Shankar Singh)
Chief Engineer (Rural),
U.P. Jal Nigam, Lucknow

Copy:-

1. PS to Managing Director, U.P Jal Nigam for cognizance of Managing Director, U.P. Jal Nigam, Lucknow.
2. Project Director, State Project Management Unit, Rural Development Department, GoUP, 13/1 1st floor Moti Chamber, YMCA Compound Rana Pratap Marg, Lucknow.
3. Chief Engineer (Varanasi), U.P. Jal Nigam.
4. Superintending Engineer, 7th Circle, Varanasi.
5. Executive Engineer, 6th / 3rd Construction Division, Varanasi / Ghazipur, U.P. Jal Nigam
6. Superintending Engineer (Rural), U.P.Jal Nigam, Lucknow, for necessary action.
7. Public Relation Officer, U.P. Jal Nigam, Lucknow, along with six copies of tender notice and CD of the same for immediate vide publicity through News papers, with the request to send the intimation regarding date of first insertion of the tender notice in the News Papers (Lucknow/New Delhi) along with copy of the concerned News Papers at the earliest.
8. Executive Engineer (EDP), with CD of tender notice for posting at U.P. Jal Nigam Website.
9. Notice Board.

Chief Engineer (Rural)

उ0 प्र0 जल निगम

6, राणा प्रताप मार्ग, लखनऊ।

दैनिक समाचार पत्रो के प्रकाशनार्थ

ई0–निविदा सूचना

नि0 सू0 संख्या 265/RWSSP-UPJN/179 दिनांक : 08.05.2018

उ0प्र0 जल निगम की ओर से अधोहस्ताक्षरी द्वारा विश्व बैंक सहायतित ग्रामीण पेयजल एवं स्वच्छता कार्यक्रम के अन्तर्गत जनपद गाजीपुर की निम्नलिखित 06 एकल एवं लघु बहु ग्राम पाईप पेयजल योजना के अन्तर्गत समस्त कार्यो के निर्माण हेतु आनलाइन निविदा https://etender.up.nic.in/nicgep/app के माध्यम से दिनांक 07.06.2018 को अपरान्ह 17:00 बजे तक आमन्त्रित की जाती है। प्री–बिड मिटिंग दिनॉक 22.05.2018 को पूर्वाहन 15.00 बजे एवं निविदाओं की तकनीकी बिड दिनांक 08.06.2018 को अपरान्ह 16:00 बजे मुख्य अभियन्ता (ग्रामीण), उ0प्र0 जल निगम, लखनऊ के कार्यालय में खोली जायेगी। निविदा प्रपत्र दिनांक 09.05.2018 से दिनांक 07.06.2018 के मध्य वेबसाइट https://etender.up.nic.in/nicgep/app से डाउनलोड किये जा सकते है। निविदा के सम्बन्ध में अन्य विवरण निम्नानुसार है :–

स्लाइस सं0	योजना का विवरण	धरोहर धनराशि (लाख रू0)	निविदा प्रपत्र का मूल्य (रू0)	निर्माण कार्य पूर्ण करने की अवधि
1	बबुरा एकल ग्राम पाइप पेयजल योजना जनपद गाजीपुर।	2.15	रू० 10000 + (12% जी.एस.टी.) कुल रू० 11200.00 (रू० ग्यारह हजार दो सौ मात्र)	12 माह
2	देवचन्दीपुर लघु बहु ग्राम पाइप पेयजल योजना जनपद गाजीपुर।	8.60		
3	कठूट लघु बहु ग्राम पाइप पेयजल योजना जनपद गाजीपुर।	8.20		
4	नगवा उर्फ नवापारा लघु बहु ग्राम पाइप पेयजल योजना जनपद गाजीपुर।	8.30		
5	मलसा कलॉ लघु बहु ग्राम पाइप पेयजल योजना जनपद गाजीपुर।	2.50		
6	तिवारीपर लघु बहु ग्राम पाइप पेयजल योजना जनपद गाजीपुर।	6.55		
	योग	36.30		

निविदायें ऑनलाइन ही स्वीकार की जायेंगी, जिसके लिये निविदादाता को ई0–निविदा प्रक्रिया में भाग लेने हेतु आवश्यक कार्यवाही पूर्ण करनी होगी।

(प्रेम शंकर सिंह)
मुख्य अभियन्ता (ग्रामीण)

Office of the Chief Engineer (Rural),

UP Jal Nigam, Lucknow, Uttar Pradesh

E-PROCUREMENT NOTICE/ INVITATIONS FOR BIDS (IFB) FOR SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEMES IN DISTT. GHAZIPUR

NIT No.: 265 / RWSSP-UPJN /179 **Date: 08.05.2018**

1. The Government of India has received credit from the International Development Association towards the cost of **Rural Water Supply and Sanitation Project for Low Income States** and intends to apply a part of the funds to cover eligible payments under the contracts for construction of works as detailed below. Bidding is open to all bidders from eligible source countries as defined in the *Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers - January 2011*. The successful bidder should get itself registered with U.P. Jal Nigam in proper category before signing of the agreement. **Bidders are advised to note the minimum qualification criteria specified in ITB Section 1 of the Instructions to Bidders to qualify for the award of the contract.**

2. The **Chief Engineer (Rural), Lucknow on behalf of U.P Jal Nigam** invites bids in electronic tendering system for the construction of works detailed in the table. The bids are invited under slice & package procedure. A bidder may submit bid for individual contract (slice) or for a group of contracts (package) contained in the table at the end of this e-Procurement Notice/IFB.

   To qualify for a package of contracts made up of more than one slice for which bids are invited in the IFB, the bidder must demonstrate having resources sufficient to meet the aggregate of the qualifying criteria for all the contracts in question.

Date of release of Invitation for Bids through e-procurement: 08.05.2018

3. The bid document is available online and bids are to be submitted online through the e-procurement portal https://etender.up.nic.in/nicgep/app only. Bids or modifications to bids (including discounts) submitted manually will not be accepted. The bidders would be required to register in the website which is free of cost. For submission of the bids, the bidders are required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities.

"Aspiring bidders who have not obtained the User ID and Password for participating in e-procurement may obtain the same by registering in the website: https://etender.up.nic.in/nicgep/app. The requirements to register with the e-procurement portal are available on the website indicated above.

The bidders are required to submit (a) original demand draft towards the cost of bid document (b) original bid security in approved form and (c) original notarized power of attorney as per provisions of ITB Section 2.1 (2), 3.5(1) & 3.7, to the **Office of the Chief Engineer (Rural), U.P. Jal Nigam, Lucknow, UP** on or before the date and time of opening of Part I- Technical Bid, either by registered post or by hand, failing which the bids will be declared non-responsive.

(i) The above documents shall be submitted in one envelope. The bidders shall not write their names or addresses on this envelope.

(ii) The number mentioned on acknowledgement of online submission of the bid by the bidder shall be mentioned on envelope containing the documents as detailed above.

(iii) Bid Security, cost of Bid document & period of completion under different slices is as below :

Slice No.	Name of Work	Bid Security (Rs. in Lacs)	Cost of Bid Document (Rs.)	Period of Completion of build work
1	2	3	4	5
1	Babura Single Village Piped Water Supply Scheme, District Ghazipur	2.15	10000+ (12%GST) = **11200 (Eleven Thousand Two Hundred only)**	12 Months
2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur	8.60		
3	Kathut GOV Piped Water Supply Scheme, District Ghazipur	8.20		
4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur	8.30		
5	Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur	2.50		
6	Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur	6.55		
	Total	**36.30**		

(iv) Cost of Bid document is non-refundable & acceptable only in form of demand draft drawn in favour of **Joint Director, Community Participation Unit, U.P. Jal Nigam, Lucknow, UP.**

(v) Bid Security is acceptable in form of FDR / bank guarantee on specified format drawn in favour of **Joint Director, Community Participation Unit, U.P. Jal Nigam, Lucknow, UP.**

(vi) A bidder can submit bids for any or all of the slices under this bid document.

4. A pre-bid meeting will be held on **22.05.2018 at 15.00 hrs. at the Office of the Chief Engineer (Rural), U.P. Jal Nigam, Lucknow** to clarify the issues and to answer questions on any matter that may be raised at that stage as stated in ITB Section 2.5 of the bidding document.

5. Online bids will be received up to **17.00 hrs.** on **07/06/2018.** Technical Bids will be opened on **08/06/2018 at 16.00 hrs. at the Office of the Chief Engineer (Rural), U.P. Jal Nigam, Lucknow.** The Technical-Financial Bid shall remain unopened in the e-procurement system until the second public Bid opening for the technical-financial part. If the office happens to be closed on the date of opening of the bids as specified, the bids will be opened on the next working day at the same time. The electronic bidding system would not allow any late submission of bids.

6. Other details can be seen in the bidding documents. The Owner shall not be held liable for any delays due to the e-procurement system failure beyond its control. Even though the e-procurement system will attempt to notify the bidders of any bid updates, the Owner shall not be liable for any information not received by the bidder. It is the bidders' responsibility to verify the website for the latest information related to this tender.

(Prem Shankar Singh)
Chief Engineer (Rural),
U.P. Jal Nigam, Lucknow

INSTRUCTION TO BIDDERS

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INSTRUCTIONS TO BIDDERS

SECTION 1 - INTRODUCTION

1.1 Source of Funds

The Borrower **named in the Bid Data Sheet** has received a credit (hereafter called "loan") from the International Development Association (IDA) toward the cost of the Project **named in the Bid Data Sheet**. The Borrower intends to apply a portion of the proceeds of this loan to eligible payments under the contracts for which these Bidding Documents are issued. Payments by the Bank will be made only at the request of the borrower and upon approval of the Bank in accordance with the *Credit Agreement,* and will be subject in all respects to the terms and conditions of that Agreement. Except as the Bank may specifically otherwise agree, no party other than the borrower shall derive any rights from the *Credit Agreement* or have any rights to the credit proceeds.

The loan agreement prohibits a withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by a decision of the United Nations Security Council, taken under Chapter VII of the Charter of the United Nations.

1.2 Eligible Bidders

(1) This Invitation for Bids, issued by the Owner **named in the Bid Data Sheet**, is open to all bidders from the eligible countries as defined under the *Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers - January 2011.* Any materials, equipment, and services to be used in the performance of the Contract shall have their origin in the eligible source countries.

(2) A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:

(a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or

(b) receives or has received any direct or indirect subsidy from another Bidder; or

(c) has the same legal representative as another Bidder; or

(d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Owner regarding this bidding process; or

(e) participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or

(f) any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the bid; or

(g) any of its affiliates has been hired (or is proposed to be hired) by the Owner as Build Engineer or Engineer Incharge[1] for the Contract implementation; or

(h) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 1.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or

(i) has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the procurement process and execution of the contract.

(3) Government-owned enterprises or institutions in the Owner's country may only participate if they are legally and financially autonomous, operate under commercial law, are not a dependent agency of the Borrower or Sub-borrower, and is not bidding for a contract to be awarded by the department or agency of the government which under their applicable laws or regulations is the reporting or supervisory authority of the enterprise or has the ability to exercise influence or control over the enterprise or institution.

(4) Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Bank in accordance with ITB Section 6.8.

1.3 Eligible Plant and Equipment and Services

(1) For the purposes of these Bidding Documents, the words "Plant and "Equipment" and "Services" shall be construed in accordance with the respective definitions given to them in the Contract.

(2) All Plant and Equipment to be supplied and installed and Services carried out under the Contract may have their origin in any country, as defined in *Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers - January 2011*and subject to Instructions to Bidders ("ITB") Section 1.3(3), and all expenditures under the Contract will not contravene such restrictions. At the Owner's request, Bidders may be required to provide evidence of the origin of materials, equipment and services..

(3) In accordance with paragraph 1.8 of Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers - January 2011, Bidders from an eligible country may be excluded if,

(a) as a matter of law or official regulation, the Borrower's country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or services required; or

(b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's country prohibits any import of goods or contracting of works or services from that country or any payments to persons or entities in that country.

[1] Both terms 'Build Engineer' and 'Engineer Incharge' are used in the document to mean Owners' representative to supervise the Operator, in accordance with the Contract Documents.

(4) The list of ineligible countries is set out in the Bid Data Sheet.

(5) The origin of the Plant, Equipment and Services is distinct from the nationality of the Bidder.

1.4 Qualification of the Bidder

(A) General

(1) Qualification will be based on Bidders meeting all the following minimum pass-fail criteria regarding their general build, operation and management experience and particular pipe water supply scheme experience, financial position, personnel capabilities, and other relevant information as demonstrated by the Bidders responses in the Qualification Information Forms that they submit attached to their Bids.

Bidders may submit Bids either as a stand-alone firm or entity; or a joint venture (JV) unless otherwise **specified in the BDS**, provided that they meet the requirements of the Qualification Documents. For the purpose of assessing some Qualification criteria, the qualifications and experience of sub-contractors may be included and the specific provisions in this regard are set out in ITB 1.4 E (2).

(B) Subcontracting

(1) Bidders will be evaluated based on the qualifications of the Bidder; and Nominated sub-contractors and sub-consultants only with respect to the experience evaluation as set out in ITB 1.4 E (2), and only if the sub-contractors and sub-consultants are nominated in the Bid.

For the purposes of ITB 1.4 H, Bidders may nominate personnel of sub-contractors and sub-consultants to fill the key positions **listed in the BDS**.

(2) The Bidder shall provide a detailed list of all nominated sub-contractors and sub-consultants and a record of their experience and qualifications in the applicable Information Forms. The operator under the Contract shall be prohibited from entering into a contract or contracts that will result in the operator exceeding the maximum percentage of subcontracting and sub-consulting permitted by the Owner, as set out in ITB 3.4 (g).

(3) The Owner may require the Bidders to provide more information about sub-contractors and sub-consultants nominated in their Bids. If the Owner determines that any nominated sub-contractor or sub-consultant is ineligible or unsuitable to carry out the assigned task, the Owner may request the Applicant to propose an acceptable substitute.

(4) Bidders will not be permitted to change the sub-contractors and sub-consultants nominated in their Bids without the prior written consent of the Owner. The Owner shall not unreasonably withhold such consent.

(C) Operator's Responsibility

After award of the Contract, the subcontracting of any part of the work, except for those sub-contractors and sub-consultants nominated in the Bid, shall require the prior written consent of the Owner. Notwithstanding such consent, the operator shall remain responsible for the acts, defaults, and neglects of all sub-contractors and sub-consultants during Contract implementation.

(D) General Experience

The Bidder shall provide evidence that,

(a) it has been actively engaged in building, operating, managing and maintaining civil works, including measurement, billing and revenue collection in respect of those facilities, for at least the period **stated in the BDS**; and

(b) it has generated an average annual turnover, in respect of building, operating, managing and maintaining civil works facilities during the period **stated in the BDS**, that is greater than the amount **stated in the BDS**.

The average annual turnover is defined as the total payment received for general and construction work and work related to building, operating, managing and maintaining civil works facilities by the firm or firms comprising the Bidder, divided by the number of years stated in the BDS.

(E) Particular Water Supply Experience

(1) The Bidder shall provide evidence that it has successfully carried out or substantially carried out at least the number and type of water supply **and/or sewerage and/or gas pipe laying projects or** assignments **stated in the BDS** within the period **stated in the BDS**. The projects or assignments may have been executed by the Bidder as prime Contractor, or proportionately as a member of a joint venture, or as a sub-contractor or sub-consultant, with references being submitted to confirm satisfactory performance.

2. For the purpose of demonstrating its experience in accordance with ITB 1.4 D (a), Bidder, including a joint venture partner, may include experience of the sub-contractors and sub-consultants also.

(F) Financial Capabilities

(1) The Bidder shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other means, independent of any contractual advance payment, sufficient to meet the cash flow requirements for the Contract in the event of stoppage, start-up, or other delays in payment, of the minimum estimated amount **stated in the BDS**, net of the Bidders' commitments for other contracts.

2.The Bidder shall also demonstrate, to the satisfaction of the Owner, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

3. The Bidder's audited balance sheets or, if not required by the laws of India, other financial statements acceptable to the Owner, for the last three years shall be submitted and must demonstrate the current soundness of the Bidder's financial position and indicate its prospective long-term profitability. If deemed necessary by the Owner, the Owner shall have the authority to make inquiries with the Bidder's bankers.

(G) Critical Equipment

Each bidder should demonstrate the availability (either owned or leased) of the key and critical equipment for work as **specified in the BDS**.

(H) Personnel Capabilities

The Bidder shall supply general information on the management structure of the firm, and shall make provision for suitably qualified personnel to fill the key positions **listed in the BDS**.

(I) Litigation History and Legal Matters

The Bidder shall provide accurate information on the "Historical Contract Non-Performance Form" about contract non-performance and pending litigation with respect to contracts completed or ongoing under its execution over the last five years. A consistent history of awards against the Bidder or any participant of a joint venture may result in rejection of the Bid.

(J) Right to Waive

The Owner reserves the right to waive minor deviations in the qualification criteria if they do not materially affect the capability of a Bidder to perform the Contract.

1.5 Joint Ventures

(A) Eligibility

If the Bidder comprises a number of firms combining their resources in a joint venture, the legal entity constituting the joint venture and the individual participants in the joint venture shall meet the requirements of ITB 1.2 above.

(B) Qualification Criteria

(1) Each participant in a joint venture shall provide the information set out in ITB 1.5 B (2) and (3) as it applies to the participant's own firm.

For the purpose of satisfying the qualification criteria set out in ITB 1.4 the following data of each participant in the joint venture may be added together to meet qualifying criteria:

- general build, operation, management and maintenance of pipe water supply facilities as stated in ITB Section1.4 D (a);
- average annual turnover as stated in ITB Section 1.4 D (b);
- particular water supply experience as stated in ITB Section 1.4 E; and
- personnel capabilities as stated in ITB 1.4 H.

For the purpose of satisfying the qualification criteria set out in Section 1.4 all the joint venture participant must satisfy the following qualification criteria individually:

- financial soundness as stated in ITB 1.4 F (1) collectively;
- adequate sources to meet financial commitments as set out in Section ITB 1.4 F (2) collectively; and
- legal disclosure as stated in ITB 1.4 I individually.

The Bidder shall include all information in respect of joint venture participants that is required to meet the qualification criteria in Section 1.4, in accordance with ITB 1.5 B, in the Bid.

(c) Lead Participant

One of the joint venture participants who is responsible for performing a key function in contract management or in executing a major component of the proposed Contract shall be nominated as being in charge during the qualification and bidding process periods and, in the event of a successful bid, during Contract execution (the "Lead Participant"). The Lead Participant shall be authorized to incur liabilities and receive instructions for and on behalf of any and all participants of the joint venture. This authorization shall be evidenced by the submission of a power of attorney signed by legally authorized signatories of each of the joint venture participants as part of the Bid.

(d) Participant Limitation and Joint Venture Company

If an Bidder, submits as a joint venture; is selected by the Owner as the successful bidder in the bidding process, Bidder shall incorporate a separate legal entity, comprised of the joint venture participants, prior to signing the Contract.

(e) Joint and Several Liability

All participants of the joint venture shall be legally liable, jointly and severally, during the bidding process and for the execution of the Contract in accordance with the Contract terms, and a statement to this effect shall be included in the authorization required under ITB 1.5 C.

(f) Joint Venture Agreement

A letter of intent to execute a Joint Venture Agreement ("JVA") in the event of a successful bid shall be signed by all participants and submitted with the Bids. Pursuant to ITB 1.5

C to E, the letter of intent shall include, among other things, a description of the objectives of the joint venture, the proposed management structure, the contribution of each participant to the joint venture operations, the commitment of the participants to joint and several liability for performance of the Contract, recourse or sanctions within the joint venture in the event of default or withdrawal of any participant, and arrangements for providing the required indemnities.

1.6 Cost of Bidding

The Bidder shall bear all costs associated with preparation and submission of its bid, and the Owner will in no case be responsible for these costs, regardless of the outcome of bidding process.

SECTION 2 - THE BIDDING DOCUMENTS

2.1 Content of Bidding Documents

(1) The nature of the service area, the services, the site and facility that are to be built, managed, operated and maintained by the Operator, the procedures that are to be followed during the bidding process and the contract terms and technical requirements are prescribed in the Bidding Documents. The Bidding Documents consist of:

(a) Invitation for Bids;

(b) Instructions to Bidders;

(c) Bid Data Sheet;

(d) Annex A to the Bidding Documents – Forms

Bidder's Bid Forms;

Bidder's Price Schedules;

Form of Bid Security;

Form of Performance Security;

Form of Bank Guarantee – Advance Payment;

Format of Curriculum Vitae for Proposed Key Staff; and

Form for Clarification Questions;

Annex B to the Bidding Documents – the contract (the "Draft Contract") consisting of:

(i) Form of Contract;

(ii) General Conditions of the Contract; and

(iii) Appendices to the General Conditions, including the,

(e) Special Conditions of Contract;

Terms and Procedures of Payment Appendix;

Technical Specifications Appendix;

Drawing Appendix;

Subsidiary Tripartite Agreement Appendix;

(f) Addenda to the documents listed in ITB Section 2.1 (1) (a) to (e), if any are issued by the Owner.

(2) The documents listed in ITB Section 2.1 (1) (a), (b), (c), (d), (e) and (f) are collectively the "Bidding Documents". The bidding document is available online on the website https://etender.up.nic.in/nicgep/app The bid document can be downloaded free of cost, however, the bidder is required to submit demand draft towards the cost of the bid document in favour of the name as **specified in BDS.**

Each Bidder shall examine all instructions, terms and conditions, forms, specifications and other information contained in the Bidding Documents. If the Bidder, fails to provide all documentation and information required by the Bidding Documents; or submits a Bid which is not substantially responsive to the terms and conditions of the Bidding Documents, such action is at the Bidder's risk and the Owner may determine that the Bid is non-responsive to the Bidding Documents and may reject it.

2.2 Clarification of Bidding Documents

(1) The electronic bidding system provides for online clarification. A prospective bidder requiring any clarification may notify online to the Owner. Similarly, if a Bidder feels that any important provision in the Bidding Documents, such as those listed in ITB Section 3.3 & 3.4, will be unacceptable, such an issue must be raised during the clarification stage.

(2) All such queries and requests for clarification shall be submitted online no later than the date as **specified in BDS**, using the Form for Clarification Questions contained in Annex A to the Bidding Documents.

(3) The Owner will respond to any request for clarification or modification of the Bidding Documents that it receives on the Form for Clarification Questions provided that such request is received prior to the deadline specified in (2) above. If similar or repeated queries are made by Bidders, the Owner may list those queries as one query and respond to such query only once.

(4) Description of clarification sought and the response of the authority inviting the bid will be uploaded on the website: https://etender.up.nic.in/nicgep/app for information of the public or other bidders without identifying the source of request for clarification.

2.3 Site Visit

(1) Each Bidder is advised to visit and inspect the site of the proposed water supply scheme (the "Site Visit") and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into the Contract. The costs of visiting the site shall be at the Bidder's own expense.

2.4 Data Room and Background Information

(1) Unless otherwise **stated in the Bid Data Sheet**, the Owner will establish a data room (the "Data Room") with a collection of relevant data to be accessible to Bidders or their representatives from the date set out in the timetable **specified in the Bid Data Sheet** until the deadline for submission of Bids (the "Submission Deadline"), in accordance with a schedule established by the Owner.

(2) The Owner may provide prospective Bidders with a separate background information document (the "Background Information Document") if **indicated in the Bid Data Sheet**. The Background Information Document is not a Bidding Document.

2.5 Pre-Bid Meeting

(1) Each prospective Bidder is invited to attend a pre-bid meeting, which will take place at the venue and time **stipulated in the Bid Data Sheet**. While attendance at the pre-bid meeting is not mandatory, Bidders are strongly encouraged to attend.

(2) The purpose of the pre-bid meeting is to provide a technical presentation and to clarify issues and answer questions on any matter that may be raised at the meeting.

(3) Minutes of the pre-bid meeting will be uploaded on the website https://etender.up.nic.in/nicgep/app All responses to questions raised at the pre-bid meeting will be included in the Response to Questions Document.

2.6 Amendment of Bidding Documents

(1) At any time prior to the Submission Deadline, the Owner may, for any reason, whether at its own initiative, or in response to a clarification requested by a prospective Bidder, amend the Bidding Documents by issuing online addendum.

(2) Addenda, if any, will appear on the web page of the website https://etender.up.nic.in/nicgep/app under "Latest Corrigendum" and email notification is also automatically sent to those bidders who have moved this tender to their "My Tenders" area.

(3) In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their Bids, the Owner may, at its discretion, extend the Submission Deadline, in which case, the Owner will notify all prospective Bidders of the extended deadline through addenda as specified in Section 2.6 (2).

2.7 Deleted

2.8 Information Provided by the Owner/Bidders Due Diligence

(1) Each Bidder is solely responsible for conducting its own independent research, due diligence, and any other work or investigations and for seeking any other independent advice necessary for the preparation of Bids, negotiation of agreements, and the subsequent delivery of all services to be provided by the Bidder that has been successful in the bidding process (the "Successful Bidder").

(2) No representation or warranty, express or implied, is made and no responsibility of any kind is accepted by the Owner or its advisors, employees, consultants or agents, for the completeness or accuracy of any information contained in the Bidding Documents or the Response to Questions Document, or provided during the bidding process or during the term of the Contract. All Bidders shall, prior to submitting their Bid, review all requirements with respect to corporate registration and all other requirements that apply to companies that wish to conduct business in the Owner's country. The Bidders are solely responsible for all matters relating to their legal capacity to operate in the jurisdiction to which this bidding process applies.

2.9 Timetable

(1) The estimated timetable, from the issuance of the Bidding Documents to the identification by the Owner of the Successful Bidder and the execution of the Contract, is **set out in the Bid Data Sheet.**

(2) The Owner may, in its sole discretion and without prior notice to the Bidders, amend the estimated timetable **specified in the Bid Data Sheet**. The Owner shall give notice of timetable changes, if any, by addenda as specified in Section 2.6 (2).

PREPARATION OF BIDS

3.1 Language of Bid

The Bid prepared by the Bidder, all correspondence and documents related to the Bid exchanged by the Bidder and the Owner and the bidding process shall be written in the language **specified in the Bid Data Sheet**, provided that any printed literature furnished by the Bidder may be written in another language, as long as such literature is accompanied by a translation of its pertinent passages in the language specified in the Bid Data Sheet, in which case, for purposes of interpretation of the Bid, the translation shall govern.

3.2 Documents Comprising the Bid

(1) Each Bidder shall submit only one Bid in two parts which shall consist of,

(a) Part I - Technical Bid which contains the following:

(i) Technical Bid Submission Form and Qualification Information form required by ITB Section 3.3;

(ii) the Technical and Staffing Information required by ITB Section 3.4;

(iii) the demand draft for the cost of the bid document as specified in ITB Section 2.1 (2);

(iv) the Bid Security required by ITB Section 3.5;

(v) where applicable, the joint venture documents required by ITB Section 3.6; and

(vi) the power of attorney required by ITB Section 3.7.

(b) Part II - Technical-Financial Bid which shall consist of:

(i) Technical-Financial Bid Submission Form and the Price Schedules completed in accordance with ITB Section 3.8 & 3.9.

(c) The documents and details mentioned in ITB Section 3.2 (1) Part I above shall be submitted online on website https://etender.up.nic.in/nicgep/app Details and process of online submission of the tender and relevant documents are given in the website mentioned above. The above are to be submitted in the manner as prescribed below:

The following details shall be entered on line in the prescribed formats:

(i) Bidder's Bid Forms Part I - Technical Bid, as per format given in Annex A.

(ii) Bidder's Bid Forms Part II - Technical-Financial Bid, as per format given in Annex A.

(2) Scanned copies of the following documents shall be uploaded on the website https://etender.up.nic.in/nicgep/app at the appropriate place.

(a) Demand Draft towards the Cost of Bid Document required by ITB Section 2.1 (2);

(b) Bid Security in specified form required by ITB Section 3.5;

(c) Evidence of access to line of credit required by ITB Section 1.4 (F) (1);

(d) Joint Venture Agreement, in case of Joint Venture required by ITB Section 1.5 (F);

(e) Power of Attorney required by ITB Section 3.7;

(f) Any other documents as **specified in the BDS**.

(3) Scanned copies of the Certificates showing details of similar nature of works, work in hand and machineries owned or possessed or hired should be uploaded after converting the same to PDF.

(a) Annual Turnover Certificate from Charted Accountant for last three financial years forms with breakup of civil works and total works for each financial years required by ITB Section 1.4 (F) (3);

(b) Similar nature of works executed required by ITB Section 1.4 (D) & (E);

(c) Critical Equipment/ Machineries owned/brought on hire required by ITB Section 1.4 (G);

(d) Project personnel with adequate experience as required required by ITB Section 1.4 (H).

(4) **Submission of Original Documents:** The bidders are required to submit (a) original demand draft towards the cost of bid document (b) original bid security in approved form and (c) original notarized power of attorney as per provisions of ITB Section 2.1 (2), 3.5(1) & 3.7 to the office **specified in the Bid Data Sheet**, on or before the date and time of the opening of Part I- Technical Bid, either by registered post or by hand, failing which the bids will be declared non-responsive.

3.3 Technical Bid – Bidder's Bid Form and Qualification Information

(1) In the Technical Bid, each Bidder shall provide a completed Technical Bid Submission Form contained in the Bidding Documents.

(2) In the Technical Bid, Bidders shall provide Qualification information as specified in ITB Section 1.4 & 1.5.

3.4 Technical Bid – Technical and Staffing Information

The Technical Bid shall consist of the following sub-parts in the following order:

a) An Executive Summary of the Technical Section;

b) a section entitled "Plant and Equipment and Operator's Equipment" which consists of a list of proposed suppliers of major Plant and Equipment and Operator's Equipment (Build) and Operator's Equipment (Operations), including:

- fixed plant and equipment;
- mobile plant and equipment, including bulldozers, compactors, backhoes and trucks; and
- materials, including geosynthetic components, pipework and principal construction materials.

For all items listed in ITB Section 3.4(b)(ii), the Bidders shall provide either catalogue cuts or detailed information with respect to manufacturer and source, model designation, primary specifications, and year of manufacture, as applicable;

(c) A detailed work plan (the "Operations Work plan") setting out the manner in which the Bidder proposes to carry out the operation of the pipe water supply scheme as set out in the Draft Contract (the "Operations Services") and meet the operating technical standards in accordance with the Technical Standards Appendix to the General Conditions. The Operations Work plan shall be divided into the following sections:

(A) a section entitled "Operations Start-up" which provides an outline contents and overview of the Bidder's proposed plans and programs for operational start-up of the facility; and

(B) a section entitled "Operations Plan" which provides an outline contents and overview of the Bidder's proposed plans and programs for facility operation, including the items **listed in the Bid Data Sheet**;

(d) A detailed description of the Bidder's plans and methodologies to ensure that the requirements of the applicable Environmental Management Plan for the proposed facility and the Site will be implemented and monitored;

(e) A detailed staffing plan (the "Staffing Plan") setting out the Bidder's proposed staffing arrangements for the carrying out of the Build and Operations Services.

(f) For the purpose of ITB Section 3.4(e)(ii)(A) and (iii), "Key Staff" means those individuals that will fill the positions **listed in the Bid Data Sheet**; and

(g) A list of all nominated sub-contractors and sub-consultants and a detailed description of the services to be carried out or the Plant and Equipment to be provided by the nominated sub-contractors and sub-consultants. The Bidder shall not exceed the maximum percentage of subcontracting and sub-consulting set out in GC Section 8.6(1) of the Draft Contract.

3.5 Technical Bid – Bid Security

(1) In the Technical Bid, the Bidder shall furnish, as part of its Bid, a Bid security in the amount **stipulated in the Bid Data Sheet** in the currency of the Owner's country.

(2) The Bid Security shall, at the Bidder's option, be in the form of bank guarantee from a nationalised or scheduled bank or insurance company selected by the Bidder and located in India. The format of any bank guarantee provided by a Bidder shall be in accordance with the form of Bid Security contained in Annex A to the Bidding Documents. The Bidder shall ensure that the Bid Security remains valid for a period of 45 days after the end of the original Bid Validity Period, as defined in ITB Section 3.12(1), and 30 days after any extension subsequently requested by the Owner in accordance with ITB Section 3.12(2).

(3) Any Bid not accompanied by an acceptable Bid Security shall be rejected by the Owner as being non-responsive. The Bid Security of a joint venture must be in the name of all of the participants in the joint venture submitting the Bid.

(4) The Owner will return the Bid Securities of the unsuccessful Bidders as promptly as possible, but not later than 30 days after the expiration of the Bid Validity Period.

(5) The Bid Security of the Successful Bidder will be returned when the Bidder has signed the Form of Contract pursuant to ITB Section 6.4 and has provided the required performance security as set out in the Contract and ITB Section 6.5.

(6) The Bid Security may, in the discretion of the Owner, be forfeited,

(a) if the Bidder withdraws its Bid during the Bid Validity Period; or

(b) in the case of the Successful Bidder, if the Successful Bidder fails within the specified time limit,

(i) to execute the Form of Contract in accordance with ITB Section 6.4; or

(ii) to furnish performance security to Owner in accordance with ITB Section 6.5.

3.6 Technical Bid– Joint Venture Documents and Requirements

(1) Each Joint Venture Bidder shall submit, as part of Technical Bid, a written commitment, in the form of a letter duly executed by an authorized officer of each joint venture participant, which,

(a) Confirms each joint venture participant's commitment to the joint venture and acceptance of the joint venture arrangements described in the Bid in accordance with ITB Section 3.6(3);

(b) Confirms each joint venture participant's willingness to provide a joint and several guarantee to the Owner to underwrite the performance of the joint venture; and

(c) Identifies which joint venture participant,

(i) will assume the leading role on behalf of the other joint venture participants; and

(ii) will have the authority to commit all joint venture participants.

(2) If the Successful Bidder is a Joint Venture Bidder and the Contract is awarded to the Successful Bidder, the Successful Bidder shall incorporate a separate legal entity (the "Joint Venture Company") which shall enter into the Contract with the Owner. At the time of Bid submission, only the intention of the joint venture participants to incorporate a separate legal entity as required by this ITB Section 3.6(2) needs to be demonstrated.

(3) If the Contract is executed between the Owner and a Joint Venture Company, a performance security, in the amount and in the same form and substance as set out in ITB Section

6.5, will be required from the Joint Venture Company. The Joint Venture Company, the shareholders of the Joint Venture Company and the shareholders' parent companies shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms and conditions.

3.7 Technical Bid – Power of Attorney

Each Bidder shall provide, as part of the Technical Bid, a written and duly notarized power of attorney demonstrating the authority of the person or persons signing the Bid which shall bind the Bidder for the full length of the Bid Validity Period.

3.8 Technical-Financial Bid – Bidder's Bid Forms

(i) In the Technical-Financial Bid, each Bidder shall provide a completed Technical-Financial Bid Submission Form contained in the Bidding Documents.

(ii) Each Bidder shall submit completed and properly executed Price Schedules in the forms contained in the Bidding Documents. Bidders shall complete the Price Schedules in full and shall not amend or change the form in any way.

3.9 Technical-Financial Bid –Bidders Prices Schedules

(i) Bids shall be quoted on Item Rate basis for build services. Bidders shall quote their Bid Price for the entire facility and all of the services on a "single responsibility" basis This includes all requirements under the Operator's responsibilities for testing, pre-commissioning and commissioning of the site and facility, the acquisition of all permits, approvals and licences, the building, operation, maintenance and training services, and such other items and services as may be specified in the Bidding Documents, all in accordance with the requirements of the General Conditions of the Contract.

(ii) For the purpose of submitting Bids, Bidders should note that the Bid Price shall include all taxes, duties, levies or charges applicable in India, in accordance with the Contract. However, the bidder may take into consideration any tax / duty exemptions, reductions or privileges that may be available to him in the Owner's country. The owner, at the request, of the Operator shall provide the required certification to avail such benefits. However, if the Operator fails to get the benefit of exemption, the owner shall not be responsible in any manner and shall not make any extra payment to the Operator. The bidder shall furnish along with his bid a declaration to this effect in the Declaration Format provided in Annex A Bid Forms.

(iii) In the Price Schedules, Bidders shall give the required details and a breakdown of their prices as follows:

(a) Build Services shall be quoted separately and shall include a fixed price for all labour, Operator's Equipment (Build), temporary works, consumables and all matters and things of whatsoever nature, including preparation of the Build Documents and carrying out the building responsibilities, where identified in the Bidding Documents, as necessary for the proper execution of the Build Services in accordance with the Contract; and

(b) Operations Services shall be quoted separately and shall include a fixed price for all labour, Operator's Equipment (Operations), consumables and all matters and things of whatever nature, including the preparation and implementation of plans, programs and reports, and carrying out operations and maintenance services of water supply scheme, training,

customer service and financial management services, as necessary for the proper execution of the Operations Services in accordance with the Contract.

(4) Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and shall not be subject to change on any account. A Bid submitted with an adjustable price quotation shall be treated as non-responsive and shall be rejected. Except for discounts provided as modifications to the Bid in accordance with ITB Section 4.4, discounts will not be considered.

(5) Bidders are strongly encouraged to review GC Section 5.6 and the Terms and Procedures of Payment Appendix prior to completing their Price Schedules and submitting their Bid Prices.

3.10 Financial Section – Bid Currencies

Bidders may quote their price in the Indian Rupees Only and all payments shall be made in Indian Rupees.

3.11 Bidding of Alternatives Not to be considered

(1) The Bidders shall base their Bids on the terms and conditions of the Bidding Documents and, without limiting the generality of the foregoing, shall,

(a) submit their prices based on the terms and conditions in the Bidding Documents;

(b) submit their Bids based on the assumption that the final Contract will be the same as the Draft Contract and shall not base their Bids on the premise that they may be able to change the Draft Contract;

(2) No Bidder shall submit a Bid that contains statements that are inconsistent with the Bidding Documents.

(3) A Bidder shall not submit a Bid that proposes an arrangement between the Owner and the Bidder which, in the discretion of the Owner, is different than the arrangement set out in the Bidding Documents (an "Alternative Bid"). If a Bidder submits an Alternative Bid it will not be considered, in any way, by the Owner.

3.12 Period of Validity of Bid

(1) Bids shall remain valid for the period **named in the Bid Data Sheet** after the Submission Deadline or any extension thereof prescribed by the Owner for the receipt of Bids, pursuant to ITB Section 3.12(2) (the "Bid Validity Period"). A Bid valid for a shorter period shall be rejected by the Owner as being non-responsive.

(2) In exceptional circumstances, the Owner may solicit the Bidders' consent to an extension of the Bid Validity Period. If a Bidder accepts to prolong the Bid Validity Period, the Bid Security shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request will not be required nor permitted to modify its Bid, except as provided in ITB Section 4.4.

3.13 Bidding through E-Procurement System

(1) The bidding under this contract is electronic bid submission through website https://etender.up.nic.in/nicgep/app Detailed guidelines for viewing bids and submission of online bids are given on the website. The perspective bidder can submit bids on line.

(2) The completed bid comprising of documents indicated in ITB 3.2, should be uploaded on the website given above through e-procurement along with scanned copies of the cost of bid document, bid security and the requisite certificates as are mentioned in different sections in the bidding document.

SUBMISSION OF BIDS

4.1 Electronic Submission of Bids

(1) The bidder shall submit online two separate files marked as Part I: Technical Bid and Part II: Technical-Financial Bid. Contents of Technical and Technical-Financial bid shall be as specified in ITB 3.2.

(2) All the documents are required to be signed digitally by the bidder.

(3) After electronic online bid submission, the system generates a unique bid identification number which is time stamped. This shall be treated as acknowledgement of bid submission.

4.2 Deadline for Submission of Bids

(1) Bids must be received by the Owner online no later than the time and date **stated in the Bid Data Sheet** as the Submission Deadline.

(2) The Owner may, at its discretion, extend the Submission Deadline by amending the Bidding Documents in accordance with ITB Sections 2.6 and 2.9(2), in which case all rights and obligations of Owner and Bidders will thereafter be subject to the Submission Deadline as extended.

4.3 Late Bids

The electronic bidding system would not allow any late submission of bids after due date and time as per server time, pursuant to ITB Section 4.2.

4.4 Modification and Withdrawal of Bids

(1) Bidders may modify their bids online before the deadline prescribed in ITB Section 4.2.

(2) For bid modification and consequential re-submission, the bidder is not required to withdraw his bid submitted earlier. Modification and consequential re-submission of bids is allowed any number of times. The last modified bid submitted by the bidder within the bid submission time shall be considered as the bid. For this purpose, modification/withdrawal by other means will not be accepted. The bidders may withdraw his bid by uploading their request before the deadline for submission of bids, however, if the bid is withdrawn, the re-submission of the bid is not allowed.

(3) No bid may be modified after the deadline for submission of Bids.

(4) No bid may be withdrawn or modified in the interval between the deadline for submission of bids and the expiration of original period of bid validity specified in ITB Section 3.12 or as extended pursuant to ITB Section 2.6 and 2.9(2) in the e-procurement system. If a bidder does the same through any other medium, then it may result in the forfeiture of the Bid security pursuant to Section 3.5.

BID OPENING AND EVALUATION

5.1 Online Opening of Bids by Owner

(1) The Owner inviting bids or its authorized representatives will open the bids online and this could be viewed by the bidders also online. In the event of the specified date for opening of bids being declared a holiday for the Owner, bids will be opened at appointed time on the next working day.

(2) The Part I - Technical Bid will be opened first.

(3) In all cases, the amount of bid security, cost of bid documents, and validity of the bid shall be scrutinized. Thereafter, the bidders' name and such other details as the Owner may consider appropriate, will be notified as Part I bid opening summary by the authority inviting bids at the on line opening.

(4) The Owner will prepare minutes of the Bid opening, including the information disclosed in accordance with ITB Section 5.1 (3) and upload the same for viewing online.

(5) Evaluation of Part I of bids with respect to bid security, qualification information and other information furnished in Part I of the bid in pursuant to ITB Section 3.2 (1) (a), shall be taken up and completed, and a list will be drawn up of the qualified bidders whose Part II of bids will be eligible for opening.

(6) The result of evaluation of Part I of the Bids shall be made public on e-procurement following which there will be a period of 5 working days during which any bidder may submit complaint which shall be considered for resolution before opening of Part II (Technical-Financial Bid) of the bid. Any complaint shall be dealt with in accordance with complaint handling protocol as available on the e-procurement portal, https://etender.up.nic.in/nicgep/app

(7) The Owner shall inform, the bidders, who have qualified during evaluation of Part I of bids, of the date, time of online opening of Part II of the bid.

(8) The Part II - Technical-Financial Bid of only those bidders will be opened online, who have qualified in Part I of the bid. The bidders' names, the Bid prices, the total amount of each bid, and such other details as the Owner may consider appropriate will be notified online by the Owner at the time of bid opening. Any Bid price, which is not declared and recorded, will not be taken into account in Bid Evaluation.

(9) The Owner shall prepare the minutes of the online opening of Part II of Bids and upload the same for viewing online.

5.2 Clarification of Bids

During Bid evaluation, the Owner may, at its discretion, ask the Bidder for a clarification of its Bid. The request for clarification and the response shall be in writing, and no change in the price or substance of the Bid shall be sought, offered or permitted.

5.3 Preliminary Examination of Bids

(1) The Owner will examine each Bid to determine whether it is complete, whether any computational errors have been made, whether required securities have been furnished, whether the documents have been properly signed, and whether the Bid is generally in order.

(2) Deleted

(3) The Owner may waive any minor informality, nonconformity or irregularity in a Bid that does not constitute a material deviation, and that does not prejudice or affect the relative ranking of any Bidder as a result of the technical and price evaluation pursuant to ITB Sections 5.5 and 5.6.

(4) Prior to the detailed evaluation, the Owner will determine whether each Bid is of acceptable quality, is complete and is substantially responsive to the Bidding Documents. For purposes of this determination, a substantially responsive Bid is one that conforms to all the terms, conditions and specifications of the Bidding Documents without material deviations, objections, conditionality's or reservations. A material deviation, objection, conditionality or reservation is one,

(a) that affects in any substantial way the scope, quality or performance of the contract;

(b) that limits in any substantial way, inconsistent with the Bidding documents, the Owner's rights or the Successful Bidder's obligations under the contract; or

(c) whose rectification would unfairly affect the competitive position of other Bidders who are presenting substantially responsive Bids.

(5) If a Bid is not substantially responsive, it will be rejected by the Owner, and may not subsequently be made responsive by the Bidder by correction of the nonconformity. The Owner's determination of a Bid's responsiveness is to be based on the contents of the Bid itself without recourse to extrinsic evidence.

5.4 Technical Evaluation

(1) The Owner will evaluate and compare only the Bids determined to be substantially responsive pursuant to ITB Sections 5.3.

(2) The Owner will carry out a detailed evaluation of the Technical Sections previously determined to be substantially responsive in order to determine on a **pass/ fail basis** whether the technical aspects are in accordance with the requirements set forth in the Bidding Documents. Bidders acknowledge that, in order to reach such a determination, the Owner will examine and analyse the technical aspects of each Bid on the basis of the information supplied by Bidders, taking into account the completeness, consistency and level of detail.

5.5 Technical-Financial Evaluation

(1) The Owner shall examine each Bidder's Technical-Financial Section to determine whether such Financial Section is complete and substantially responsive to the Bidding Documents.

(2) The Technical-Financial Sections, which are substantially responsive to the Bidding Documents, shall be ranked from lowest to highest based on the Bid Price. For the purposes of comparing the Bidders' Technical-Financial Sections only, the Owner shall calculate the Bid Prices for Operations Services as per the **criteria set out in the Bid Data Sheet**.

5.6 Contacting the Owner

(1) From the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Owner, it must do so in writing.

(2) Any effort by a Bidder to influence the Owner, its advisors, employees, consultants or agents, in the Owner's Bid evaluation, Bid comparison, or Contract award decision may, in the discretion of the Owner, result in rejection of the Bidder's Bid.

SECTION 6 - AWARD OF CONTRACT

6.1 Award Criteria

Subject to ITB Section 6.2, the Owner will award the Contract to the Bidder whose Bid has been determined, by the technical and price evaluation, to be substantially responsive, has received a "pass" in the technical evaluation, and has the lowest evaluated Bid Price.

6.2 Owner's Right to Accept or Reject and Waive Irregularities

(1) The Owner reserves the right to,

(a) accept any Bid;

(b) reject any Bid;

(c) annul the bidding process and reject all Bids;

(d) annul the bidding process and commence a new process; and

(e) waive irregularities, minor informalities, or minor non-conformities which do not constitute material deviations in the submitted Bids from the Bidding Documents,

at any time prior to the award of the Contract without incurring any liability to the affected Bidder or Bidders and without any obligation to inform the affected Bidder or Bidders of the grounds for the Owner's actions.

(2) Nothing in ITB Section 6.2(1) is intended to permit the Owner to refuse to provide reasons for rejection to an unsuccessful Bidder.

6.3 Notification of Award

Prior to the expiration of the Bid Validity Period, the Owner shall notify the Successful Bidder in writing by courier that its Bid has been accepted by the Owner (the "Notification of Award"). The effectiveness of the Contract shall be as of the date of the Owner's signing of the Contract contingent on final approval by the Bank.

6.4 Signing the Form of Contract

(1) At the same time as the Owner sends the Successful Bidder the Notification of Award, the Owner shall send the Successful Bidder,

(a) Form of Contract; and

(b) other Contract Documents.

(2) No later than 30 days after the Successful Bidder's receipt of the Notification Award, the Form of Contract and the other Contract Documents pursuant to ITB Sections 6.3 and 6.4(1), the Successful Bidder shall sign and date the Form of Contract and initial each page of the Contract and return them to the Owner.

(3) The website has provision to display the details of award of contract. The Owner shall publish on the website the result identifying the bid and the following information: (a) name of each bidder who submitted a bid; (b) bid prices as announced online during the bid opening of Part II of the bids; (c) name and evaluated prices of each bid; (d) name of bidders whose bids were rejected during evaluation of either Part I or Part II of the bids and the reasons for their rejection; and (e) name of the winning bidder, the price offered and summary scope of the contract awarded.

6.5 Performance Security

No later than 30 days after the Successful Bidder's receipt of the Notification of Award, the Successful Bidder shall provide the Owner with the performance security and additional security for the unbalanced bids in the amount **given in the Bid Data Sheet** and in the substance and form set out in Annex A or in another form approved by the Owner.

6.6 Failure to Sign the Form of Contract or Provide the Performance Security

If the Successful Bidder fails to comply with the provisions of ITB Sections 6.4(2) or 6.5, this failure shall constitute sufficient grounds for annulment of the award and forfeiture of the Bid Security, and in which event the Owner may make the award to next lowest Bidder or call for new bids.

6.7 Adjudicator

The Owner proposes that the person **named in the Bid Data Sheet** be appointed as Adjudicator under the contract, at an hourly fee **stated in the Bid Data Sheet**. A résumé of the named person is attached to the Bid Data Sheet, as well as a description of the expenses that would be considered reimbursable. If a Bidder does not accept the Adjudicator proposed by the Owner, it should so state in its Bid Form and make a counterproposal of an Adjudicator and an hourly fee. If, on the day the Form of Contract is signed, the Owner and the Operator have not agreed on the appointment of the Adjudicator, the Adjudicator shall be appointed, at the request of either party, by the Appointing Authority specified in the Special Conditions of Contract.

6.8 Corrupt or Fraudulent Practices

It is the Bank's policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the

highest standard of ethics during the procurement and execution of Bank-financed contracts.[2] In pursuance of this policy, the Bank:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;[3];

(ii) "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;[4]

(iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;[5]

(iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;[6]

(v) "obstructive practice" is

(aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 1.16(e) below.

(b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

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[2] In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

[3] For the purpose of this sub-paragraph, "*another party*" refers to a public official acting in relation to the procurement process or contract execution. In this context, "*public official*" includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

[4] For the purpose of this sub-paragraph, "party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.

[5] For the purpose of this sub-paragraph, "parties" refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other's bid prices or other conditions.

[6] For the purpose of this sub-paragraph, "party" refers to a participant in the procurement process or contract execution.

(c) will declare misprocurement and cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

(d) will sanction a firm or individual, at any time, in accordance with the prevailing Bank's sanctions procedures,[7] including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated[8];

(e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank."

[7] A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including, inter alia, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

[8] A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

SECTION 7 - BID DATA SHEET

The following bid-specific data for the facility and services to be procured shall amend or supplement the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in the ITB.

<table>
<tr><th>ITB SECTION REFERENCE</th><th>REQUIRED INFORMATION</th></tr>
<tr><td>ITB 1.1(1)</td><td>Name of the Borrower: Government of India</td></tr>
<tr><td>ITB 1.1(1)</td><td>Name and Brief Description of Project:
Build of all system components of Single/Multi Village piped water supply projects with 12 Months (Defect Liability Period) after commissioning of schemes. For providing supply of water by 16 hrs per day @ 70 lpcd from customers under Rural Water Supply & Sanitation Project in Low Income States (RWSSP-LIS).</td></tr>
<tr><td>ITB 1.1 (3)</td><td>Source of Funds:
The Government of India/ State of Uttar Pradesh and the World Bank.</td></tr>
<tr><td>ITB 1.2</td><td>Name of Owner:
<table>
<tr><th>Sl. No.</th><th>W/S Scheme Name</th><th>Name of Owner</th></tr>
<tr><td>1</td><td>Babura Single Village Piped Water Supply Scheme, District Ghazipur</td><td rowspan="6">Chief Engineer (VARANASI Zone), U.P. Jal Nigam,</td></tr>
<tr><td>2</td><td>Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur</td></tr>
<tr><td>3</td><td>Kathut GOV Piped Water Supply Scheme, District Ghazipur</td></tr>
<tr><td>4</td><td>Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur</td></tr>
<tr><td>5</td><td>Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur</td></tr>
<tr><td>6</td><td>Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur</td></tr>
</table></td></tr>
<tr><td>ITB 1.3 (4)</td><td>Ineligible Countries
Nil</td></tr>
<tr><td>ITB 1.4 (A)</td><td>Bids from Joint ventures are allowed.</td></tr>
<tr><td>ITB 1.4 (B)(1)</td><td><u>The key positions for which the Owner permits Bidders to nominate personnel of nominated sub-contractors and sub-consultants are designated as follows:</u>
<u>1. _____</u>
<u>2. _____</u>
[<u>Note: insert a key position(s) with reference to BDS 1.4 (H) or insert Not Applicable</u>]</td></tr>
<tr><td>ITB 1.4 (D)</td><td><u>General Build, Operations & Maintenance Experienc</u>e</td></tr>
<tr><td>ITB 1.4 (D) (a)</td><td>Time Period: Last Three (3) Financial Years i.e. 2014-15 to 2016-17
The Bidder must have been actively engaged as prime Operator, management Operator, partner in a joint venture, or sub-contractor or sub-consultant, in the execution of a minimum of two contracts of a similar</td></tr>
</table>

<table>
<tr><th>ITB SECTION REFERENCE</th><th>REQUIRED INFORMATION</th></tr>
<tr><td></td><td>civil works nature and complexity comparable to this project within the last three years immediately prior to the submission of the Bid.</td></tr>
<tr><td>ITB 1.4(D)(b)</td><td>Required Annual Turnover:
The average annual turnover is defined as the total of certified payment certificates for works in progress or completed by the firm or firms comprising the Bidder over the previous three financial years divided by three.
• the Bidder should have generated a minimum average annual turnover during the above period greater than the equivalent to amount as specified in the table below:
<table><tr><th>Sl. No.</th><th>W/S Scheme Name</th><th>Minimum Average Annual Turnover (Rs. In Lacs)</th></tr><tr><td>1</td><td>Babura Single Village Piped Water Supply Scheme, District Ghazipur</td><td>106.00</td></tr><tr><td>2</td><td>Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur</td><td>429.00</td></tr><tr><td>3</td><td>Kathut GOV Piped Water Supply Scheme, District Ghazipur</td><td>408.00</td></tr><tr><td>4</td><td>Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur</td><td>414.00</td></tr><tr><td>5</td><td>Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur</td><td>123.00</td></tr><tr><td>6</td><td>Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur</td><td>327.00</td></tr><tr><td></td><td>TOTAL</td><td>1807.00</td></tr></table></td></tr>
<tr><td>ITB 1.4 (E)</td><td><u>Particular Water Supply Experienc</u>e</td></tr>
<tr><td>ITB 1.4 E (1)</td><td><u>Time Period: Last five (5) Financial Years i.e. 2012-13 to till date</u></td></tr>
<tr><td>ITB 1.4 E (2)</td><td><u>Experience in at least one or five similar contract:</u>
The Bidder must have been actively engaged as prime contractor, management Operator, partner in a joint venture, or sub-contractor or sub-consultant [Construction of Tube-well, Water Treatment Plant, Pumping station, Elevated & underground reservoirs, distribution and rising pipe lines of water supply system <u>and/or sewerage and/or gas pipe laying project in the ratio that water supply project experience in no case shall be less than 50% of the total experience under consideration]</u> in the execution of a one or maximum five contracts of a nature and complexity comparable to this project within the last 5 years immediately prior to the submission of the Bid of value not less than the equivalent amount (at 2016-17 price) as given in table below :
<table><tr><th rowspan="2">Sl. No.</th><th rowspan="2">W/S Scheme Name</th><th colspan="5">Similar Nature of work</th></tr><tr><th>in case of one work</th><th>in case of two works</th><th>in case of three works</th><th>in case of four works</th><th>in case of five works</th></tr></table></td></tr>
</table>

ITB SECTION REFERENCE	REQUIRED INFORMATION

	1	Babura Single Village Piped Water Supply Scheme, District Ghazipur	106.00	127.00	137.00	148.00	169.00
	2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur	429.00	515.00	558.00	601.00	687.00
	3	Kathut GOV Piped Water Supply Scheme, District Ghazipur	408.00	489.00	530.00	571.00	652.00
	4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur	414.00	497.00	538.00	580.00	662.00
	5	Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur	123.00	147.00	159.00	172.00	196.00
	6	Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur	327.00	392.00	424.00	457.00	522.00

Financial turnover and cost of completed works of previous years shall be given weightage of 5% per year based on rupee value to bring them to 2016-17 price level.

ITB 1.4 (F) (1) & (2)

Financial Capabilities

- Liquid assets and/or availability of credit facilities of no less than amount as given in the table below: (Credit lines/letter of credit/certificates from Nationalized or Scheduled Banks for meeting the funds requirement etc.)
- Minimum required Cash Flow / Solvency amount shall not less than given in the following table for respective scheme.
- Bidder may submit one document which shall fulfill the collective requirement of liquid assets and cash flow/solvency as shown in table below.

Sl. No.	W/S Scheme Name	Liquid asset (Rs. In Lacs)	Cash Flow / Solvency (Rs. In Lacs)
1	Babura Single Village Piped Water Supply Scheme, District Ghazipur	35.00	24.00
2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur	143.00	95.00
3	Kathut GOV Piped Water Supply Scheme, District Ghazipur	136.00	91.00
4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur	138.00	92.00

<table>
<tr><th>ITB SECTION REFERENCE</th><th>REQUIRED INFORMATION</th></tr>
<tr><td></td><td>
<table>
<tr><td>5</td><td>Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur</td><td>41.00</td><td>27.00</td></tr>
<tr><td>6</td><td>Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur</td><td>109.00</td><td>73.00</td></tr>
<tr><td></td><td>TOTAL</td><td>602.00</td><td>402.00</td></tr>
</table>
</td></tr>
<tr><td>ITB 1.4 (G)</td><td><u>Availability of Critical Equipment</u>
<table>
<tr><th>Sl. No.</th><th>Type of Equipment</th><th>Max Age as on 01/04/18</th><th>No. of Equipment</th></tr>
<tr><td>1</td><td>Vibrator</td><td>5</td><td>1</td></tr>
<tr><td>2</td><td>Concrete Mixer</td><td>5</td><td>1</td></tr>
<tr><td>3</td><td>Rotary Drilling / Reverse Rotary/ DTH Rig Machine</td><td>5</td><td>1</td></tr>
<tr><td>4</td><td>Compressor</td><td>5</td><td>1</td></tr>
<tr><td>5</td><td>Digital Level Instrument</td><td>5</td><td>1</td></tr>
<tr><td>6</td><td>Light vehicles</td><td>3</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>ITB 1.4 (H)</td><td><u>Personnel Capabilities</u>
Suitably qualified personnel to fill the following key positions, with the specified minimum years of experience of similar works in that position:
<table>
<tr><th>Sl. No.</th><th>Key Personnel</th><th>Qualification</th><th>No. of Key Personnel</th></tr>
<tr><td>1</td><td>Project Manager</td><td>Degree Holder In Civil Engineering + 10 Years Exp. in RWSS works including 3 years of O&M experience in managing at least one project costing 50% of the estimated cost of Build and O&M phase.</td><td>1 Part time for Project</td></tr>
<tr><td>2</td><td>Senior Engineer</td><td>Degree Holder In Civil Engineering + 5 Years Exp. in RWSS works</td><td>1 Part time for Project</td></tr>
<tr><td>3</td><td>Site Engineer</td><td>Diploma Holder in Civil Engineering + 5 Years Exp. in RWSS works</td><td>1</td></tr>
</table>
After award of the Contract, any change in key personnel declared by the bidder shall require the prior written consent of the Owner. In such case, the bidder shall offer substitute key personnel within 4 weeks' time, who shall have equivalent or better qualifications and experience than the original candidate.</td></tr>
<tr><td>ITB 2.1 (2)</td><td>The name in favor of which the demand draft towards the cost of bidding document is to be</td></tr>
</table>

ITB SECTION REFERENCE	REQUIRED INFORMATION
	made: Joint Director, Community Participation Unit, U.P. Jal Nigam, Lucknow, UP.
ITB 2.2	Requests for clarification should be received by the Employer no later than **10** ***days prior to deadline for submission of bids. [modify thef no. of days as necessary].***
ITB 2.4	There is no Data Room but Detailed Project Report (DPR) prepared for the scheme can be downloaded from the project website www.uprwssp.org
ITB 2.5	**Venue and time of pre-bid meeting:** Office of the Chief Engineer (Rural), U.P. Jal Nigam, Lucknow, UP Date: 22.05.2018 Time: 15:00 Hrs.
ITB 2.9	**The estimated timetable is:** (a) Issue of Invitation to Bidders (IFB) — Date : 08/05/2018 (b) Period of availability of Bid Document on website https://etender.up.nic.in/nicgep/app — From: 19/05/2018 Time : 10:00 Hrs. To : 07/06/2018 Time : 17:00 Hrs (c) Pre-Bid Meeting — Date : 22/05/2018 Time : 15:00 Hrs (e) Last Day for Bidders to Submit Questions on Bidding Documents — Date : 20/05/2018 (f) Deadline for Online Submission of Bids (Submission Deadline) — Date : 07/06/2018 Time :17:00 Hrs (g) Online Opening of Technical Bids — Date : 08/06/2018 Time :16:00 Hrs
ITB 3.1	**Language of Bid is:** English.
ITB 3.2 (2)(f)	**Scanned copies of the following documents shall also be uploaded on the website** : (a) Demand Draft towards the Cost of Bid Document required by ITB Section 2.1 (2); (b) Bid Security in specified form required by ITB Section 3.5; (c) Evidence of access to line of credit required by ITB Section 1.4 (F) (1); (d) Notarized Joint Venture Agreement, in case of Joint Venture required by ITB Section 1.5 (F); (e) Power of Attorney required by ITB Section 3.7; (f) Any other documents as **specified in the BDS**
ITB 3.2 (4)	For submission of original documents, the Employer's address is: **Office of the Chief Engineer (Rural), U.P. Jal Nigam, Lucknow, UP**

<table>
<tr><th>ITB SECTION REFERENCE</th><th>REQUIRED INFORMATION</th></tr>
<tr><td>ITB 3.4(c)</td><td>The operation Plan shall include:
1. Staffing pattern for monitoring and attending problems of the distribution network, for billing arrangement etc.
2. Duty schedule of O&M.
3. Liaison plan with U.P Jal Nigam & GPWSC.</td></tr>
<tr><td>ITB 3.4(e)(ii)(B)</td><td>Language capabilities for Operator's Personnel
English</td></tr>
<tr><td>ITB 3.4(f)</td><td>List of Key Staff:
1. Project Manager (part time)
2. Deputy Project Manager (part time)
3. Site Engineer</td></tr>
<tr><td>ITB 3.5(1)</td><td>Amount of Bid Security :
<table>
<tr><th>Slice No.</th><th>Name of Work</th><th>Bid Security (Rs. in Lacs)</th></tr>
<tr><td>1</td><td>2</td><td>3</td></tr>
<tr><td>1</td><td>Babura Single Village Piped Water Supply Scheme, District Ghazipur</td><td>2.15</td></tr>
<tr><td>2</td><td>Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur</td><td>8.60</td></tr>
<tr><td>3</td><td>Kathut GOV Piped Water Supply Scheme, District Ghazipur</td><td>8.20</td></tr>
<tr><td>4</td><td>Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur</td><td>8.30</td></tr>
<tr><td>5</td><td>Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur</td><td>2.50</td></tr>
<tr><td>6</td><td>Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur</td><td>6.55</td></tr>
<tr><td></td><td>Total</td><td>36.30</td></tr>
</table></td></tr>
<tr><td>ITB 3.12(1)</td><td>Bid Validity Period:
90 Days</td></tr>
<tr><td>ITB 4.2</td><td>Online Bid Submission Deadline:
Date: 07.06.2018
Time: 17:00 Hrs</td></tr>
<tr><td>ITB 5.1(1)</td><td>Date and time of Online opening of Technical Bids:
Date: 08.06.2018
Time: 16:00 Hrs.</td></tr>
</table>

ITB SECTION REFERENCE	REQUIRED INFORMATION
ITB 5.1 (5)	**Opening of Technical-Financial Bids:** Within 15 working days from the date of opening of the Technical Bids.
ITB 5.5(2)	Technical-Financial Evaluation: 1. The Bidder shall quote: a. a fixed price for build component, and b. deleted. 2. Deleted.
ITB 6.5	**Amount of Performance Security:** Performance Security shall be 10% of the Build price of the contract, and this can be furnished as below: a) 10% at the time of signing of contract, in the form of Bank Guarantee as per prescribed format /FD or National Saving Certificate (NSC)/ Kisan Vikas Patra (KVP) duly pledged in favour of the owner by the authority issuing the Instrument. OR b) in two parts as below : i. 5% of the Build price of the contract, at the time of signing of contract, in form of bank guarantee as per prescribed format, FD or National Saving Certificate (NSC)/ Kisan Vikas Patra (KVP) duly pledged in favour of the owner by the authority issuing the Instrument and ii. 5% of contract value shall be deducted from payments of contractor as hold back towards performance security. c) Deleted.
ITB 6.7	Name of the Adjudicator proposed by the Owner: Er. B. N. Saran, (Retd. Superintending Engineer, U. P. Jal Nigam), Circular Road, Ghazipur. Hourly fee for the Adjudicator: Rs 1000.00 plus reimbursable expenses as on actuals.

Annex A - BIDDER'S BID FORMS INCLUDING QUALIFICATION INFORMATION

Table of Forms:

- **BIDDER'S BID FORMS**
- **FORMS OF SECURITIES**

BIDDER'S BID FORMS

Part I:

- Technical Bid Submission Form
- Qualification Information
- Operations and Maintenance Work Plan

Part II:

- Technical-Financial Bid Submission Form
- Bidders Price Schedules

BIDDER'S BID FORMS: PART I

TECHNICAL BID SUBMISSION FORM

Date: _____
Loan/Credit No: _____
Contract No: _____

To:

The Chief Engineer (Rural),
UP Jal Nigam,
6, Rana Pratap Marg
Lucknow, U.P.

Gentlemen,

Having examined the Bidding Documents, the receipt of which is hereby acknowledged, we, the undersigned, offer to **Build of all system components of Single Village piped water supply projects in** 12 Months with 12 months Defect Liability Period **operation on BOT mode** and perform the work under the above-named Contract in full conformity with the said Bidding Documents for the sum stated in our separate Technical-Financial Bid.

We undertake, if our Bid is accepted, to commence the work and to achieve Completion within the respective times stated in the Bidding Documents.

If our Bid is accepted, we undertake to provide the Performance Security in the form, in the amounts, and within the times specified in the Bidding Documents.

We accept the appointment of _____ as the Adjudicator.

(OR)

We do not accept the appointment of _____ as the Adjudicator and propose instead that _____ be appointed as Adjudicator whose daily fees and biographical data are attached.

This Bid and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Bid you receive.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

We also undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and address of agent	Amount	Purpose of Commission or gratuity
_____	_____	_____
_____	_____	_____
_____	_____	_____

(if none, state "none")

We hereby confirm that this Bid complies with the Eligibility, Bid Validity and Bid Security required by the Bidding documents.

(n) If awarded the contract, the person named below shall act as Contractor's Representative: _____

Yours faithfully,

Authorized Signature:

Name & Title of Signatory : _____

Name of Bidder : _____

Address : _____

QUALITICATION INFORMATION

1. General Information [ref. ITB Section 1.4 (A)]

All individual firms and each participant in a joint venture applying for qualification are required to complete the information in this form. Nationality information should be provided for all owners or Bidders that are partnerships or individually owned firms.

If the Bidder proposes to use nominated sub-contractors or sub-consultants, the following information should also be supplied for the sub-contractor(s) and sub-consultant(s).

1.	Name of firm	
2.	Head office address	
3.	Telephone	Contact
4.	Fax	Telex
5.	Place of incorporation / registration	Year of incorporation / registration

Nationality of owners[1]		
	Name	Nationality
1.		
2.		
3.		
4.		
5.		

1. To be completed by all owners of partnerships or individually owned firms.

2. **General Build, Operation and Maintenance Experience Information [ref. ITB Section 1.4 (D) (a)]**

Name of Bidder or participant of a joint venture

All individual firms and all participants of a joint venture are requested to complete the information in this form with regard to their experience in building, operating, managing and maintaining civil works facilities.

Description of Contract	
Name of Joint Venture Participant Responsible	
Name of Place	
Country	
Population served	
Contract Role (joint venture participant, sub-contractor, sub-consultant, lead, etc.) and percentage share in the total contract	
Nature, role and extent of participation (describe fully)	
Date of contract commencement	
Date of contract termination	
Contract value	
Individual for reference	
Address, Telephone, Fax for reference	

2(A). General Turnover Information [ref. ITB Section 1.4 (D) (b)]

Name of Bidder or participant of a joint venture

All individual firms and all participants of a joint venture are requested to complete the information in this form with regard to their experience in building, operating, managing and maintaining civil works facilities. The information supplied should be the annual turnover of the Bidder (or each member of a joint venture) in terms of the amounts billed to clients for each year for work in progress or completed. The annual periods should be calendar years, with partial accounting for the year up to the date of submission of Bids.

Use a separate sheet for each participant of a joint venture.

Bidders should enclose client's certificates with their Bid as they will be taken into account in the evaluation of qualifications.

Annual turnover data (civil works facilities only)	
Year	Turnover (amounts billed to clients)
[Year]	
[Year]	
[Year]	
[Year]	
[Year]	

2 (B). Joint Venture Summary

Names of all participants of a joint venture
1. Lead Participant
2. Participant
3. Participant

Total value of annual turnover relating to building, operating, managing and maintaining civil works facilities at the end of the period reported:

Annual turnover data (civil works facilities only)						
Participant	Information Form 2(A) page no.	*[Year]*	*[Year]*	*[Year]*	*[Year]*	*[Year]*
1. Lead Participant						
2. Participant						
3. Participant						
Totals						

Bidder shall append to Form 2B:

(a) A document confirming the percentage shareholding of each joint venture participant in the company to be established; and

(b) A description of the role and responsibility of each joint venture participant. (Bidders shall make the precise role of each joint venture participant clear in this description).

Bidders are reminded to submit the appropriate powers of attorney as required by ITB Section 1.5 (C) and to provide all other information required in the powers of attorney (see ITB Section 1.5, in particular Sections C, E and F).

3 (A). Construction of a Water Supply Scheme [ref. ITB Section 1.4 (E)]

Name of Bidder or participant of a joint venture

Description of Contract	
Name of Joint Venture Participant Responsible	
Name of City/Urban area	
Country	
Population served	
Contract Role (joint venture participant, sub-contractor, sub-consultant, lead, etc.) and percentage share in the total contract	
Nature, role and extent of participation (describe fully)	
Date of contract commencement	
Date of contract termination	
Contract value (INR)	
Individual for reference	
Address, Telephone, Fax for reference	

Provide a complete description of the services provided under this contract demonstrating that the definition of a water supply scheme in ITB Section 1.4 (E) has been met.

3 (B). Operation and Maintenance of a Water Supply Scheme [ref. ITB Section 1.4 (E)]

Name of Bidder or participant of a joint venture

Description of Measurement and Billing and Revenue Collection Systems	
Name of Joint Venture Participant Responsible	
Name of Place	
Country	
Population served	
Contract Role (joint venture participant, sub-contractor, sub consultant, lead, etc.) and percentage share in the total contract	
Nature, role and extent of participation (describe fully)	
Date of contract commencement	
Date of contract termination	
Contract value	
Individual for reference	
Address, Telephone, Fax for reference	

Provide a complete description of the services provided under this contract demonstrating that the definition of a water supply scheme in ITB Section 1.4 (E) has been met.

3**(C). Contract Value Information [ref. ITB Section 1.4 (E)]**

Name of Bidder or participant of a joint venture

All individual firms and all participants of a joint venture are requested to complete the information in this form with regard to their experience in building, operating, managing and maintaining water supply schemes.

Use a separate sheet for each participant of a joint venture.

Bidders should enclose client's certificates with their Bid as they will be taken into account in the evaluation of qualifications.

Contract Value data (Water Supply Schemes only)	
Year	Value (amounts billed to clients)
[Year]	
[Year]	
[Year]	
[Year]	
[Year]	

4. Financial Capabilities [ref. ITB Section 1.4 (F)]

Name of Bidder or participant of a joint venture

Bidders, including each partner of a joint venture, shall provide financial information to demonstrate that they meet the requirements stated in the ITB. Each participant of a joint venture shall complete this form. If necessary, separate sheets shall be used to provide complete banker information. A copy of the audited balance sheets shall be attached.

Banker	Name of banker	
	Address of banker	
	Telephone	Contact name and title
	Fax	Telex

Summarize actual assets and liabilities for the previous five calendar years. Based upon known commitments, summarize projected assets and liabilities for the next two calendar years, unless the withholding of such information by stock market listed public companies can be substantiated by the Bidder.

Financial information	Actual: Previous five years					Projected: Next two years	
	[Year]	*[Year]*	*[Year]*	*[Year]*	*[Year]*	*[Year]*	*[Year]*
1. Total assets							
2. Current assets							
3. Total liabilities							
4. Current liabilities							
5. Profits before taxes							
6. Profits after taxes							

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject Contract or contracts as indicated in ITB 1.4 (F).

Source of Financing	Amount
1.	
2.	
3.	
4.	

Attach audited financial statements—including, as a minimum, profit and loss account, balance sheet, and explanatory notes—for the period stated in ITB 1.4 (F) (for the individual Bidder or each participant of a joint venture).

If audits are not required by the laws of Applicants' countries of origin, partnerships and firms owned by individuals may submit their balance sheets certified by a registered accountant, and supported by copies of tax returns.

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

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 ……. [funded by the World Bank] 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 the above contract.

__ Sd. __

Name of Bank

Senior Bank Manager

Address of the Bank

5. Personnel Capabilities [ref. ITB Section 1.4 (H)]

Name of Bidder or participant of a joint venture

For specific positions noted below, Bidders must provide the names of a candidate qualified to meet the specified requirements stated for each position. The data on their experience should be supplied on separate sheets using one Form 5 (A) for each candidate.

Bidder may propose alternative management and implementation arrangements requiring different key personnel, whose experience records should be provided.

1.	Title of position*
	Name of candidate
2.	Title of position*
	Name of candidate
3.	Title of position*
	Name of candidate
4.	Title of position*
	Name of candidate
5.	Title of position*
	Name of candidate
6.	Title of position*
	Name of candidate
7.	Title of position*
	Name of candidate

**As listed in Bid Data Sheet 1.4 (H)*

5 (A). Candidate Summary [ref. ITB Section 1.4 (H)]

Name of Bidder or participant of a joint venture

Position		Candidate
Candidate Information	Name of Candidate	Date of Birth
	Professional qualifications	
Present Employment	Name of Owner	
	Address of Owner	
	Telephone	Contact (manager/personnel officer)
	Fax	Telex
	Job title of candidate	Years with present Owner

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/Position/Relevant technical and management experience

HISTORICAL CONTRACT NON-PERFORMANCE [ref. ITB Section 1.4 (I)]

[The following table shall be filled in for the Bidder and for each partner of a Joint Venture]

Bidder's Legal Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Party Legal Name: *[insert full name]*
Contract No. and title: *[insert Contract number and title]*
Page *[insert page number]* of *[insert total number] pages*

Non-Performing Contracts in accordance with ITB Section 1.4 (I)			
☐ Contract non-performance did not occur during the [number] years specified in ITB Section 1.4 (I) ☐ Contract(s) not performed during the [number] years specified in ITB Section 1.4 (I)			
Year	**Non performed portion of contract**	**Contract Identification**	**Total Contract Amount (current value)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/number, and any other identification]* Name of Owner: *[insert full name]* Address of Owner: *[insert street/city/country]* Reason(s) for non performance: *[indicate main reason(s)]*	*[insert amount]*
Pending Litigation, in accordance with ITB Section 1.4 (I)			
☐ No pending litigation in accordance with ITB Section 1.4 (I) ☐ Pending litigation in accordance with ITB Section 1.4 (I)			
Year of dispute	**Amount in dispute (Rupees)**	**Contract Identification**	**Total Contract Amount (Rupees)**

[insert year]	*[insert amount]*	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Owner: *[insert full name]* Address of Owner: *[insert street/city/country]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Employer" or "Contractor"]* Status of dispute: *[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]*	*[insert amount]*

Form for Equipment

The bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in ITB BDS 1.4 (G). The Bidder shall provide all the information requested below.

S. No.	Item of Equipment	Description	Make	Capacity	Age (years)	Condition	No. available and present location	Owned	Leased	Purchased

OPERATIONS AND MAINTENANCE WORK PLAN [ref. ITB Section 3.4 (c)]

deleted

KEY PERSONNEL INFORMATION [ref. ITB Section 3.4 (e)]

[In the present section bidders shall provide a detailed staffing plan (the "Staffing Plan") setting out the Bidder's proposed staffing arrangements for the carrying out of the Build and Operations Services.

The Staffing Plan shall be divided into the following sections:

(i) two sub-sections, (one for the Build Work and one for the Operations & Maintenance) each entitled the "Staffing Chart" and each consisting of a chart setting out a list of all proposed Bidder's Personnel positions, the role of each position, the duration of existence of the position, and the location of the staff person filling the position during the periods of assignment to carry out the Build Work and Operations & Maintenance;

(ii) a section entitled "Summary of Personnel Qualifications" which consists of a summary table setting out,

(A) for the Key Personnel positions, the names of the Bidder's employees who will occupy the Key Staff positions; and

(B) all proposed positions for the Bidder's Personnel and the qualifications, years of experience and areas of expertise, including a clear indication of the expertise that the staff will provide consistent with the requirements set out in the Operations and Maintenance Specifications; and

(iii) a section entitled, "Curriculum Vitae" which contains the signed curriculum vitae for each of the Key Personnel, in the format set out below.]

FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED KEY PERSONNEL

Proposed Position: _____

Name of Firm: _____

Name of Personnel: _____

Profession: _____

Date of Birth: _____

Years with Firm/Entity: _____ Nationality: _____

Membership in Professional Societies: _____

_____

Detailed Tasks Assigned: _____

_____

Key Qualifications:

[*Give an outline of staff member's experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use about half a page.*]

_____

Education:

[*Summarize college/university and other specialized education of staff member, giving names of schools, dates attended, and degrees obtained. Use about one quarter of a page.*]

_____

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me.

_____ Date: _____
[Signature of staff member and authorized representative of the firm] *Day/Month/Year*

Full name of staff member: _____
Full name of authorized representative: _____

BIDDER'S BID FORM: PART II

TECHNICAL-FINANCIAL BID SUBMISSION FORM

Description of the Works: **Build of all system components of Single / Multi Village piped water supply projects in 12 month with 12 Months Defect Liability Period operation on BOT mode**

To : **The Chief Engineer (Rural),**
Address : **UP Jal Nigam, 6 Rana Pratap Marg, Lucknow, U.P.**

GENTLEMEN,

Having examined the bidding documents including addendum, we offer to execute the Works described above in accordance with the Conditions of Contract, Specifications, Drawings and Bill of Quantities accompanying this Bid for the Contract Price for

Slice No.	Name of Work	Tick appropriate box
1	2	3
1	Babura Single Village Piped Water Supply Scheme, District Ghazipur	
2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur	
3	Kathut GOV Piped Water Supply Scheme, District Ghazipur	
4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur	
5	Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur	
6	Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur	

Part A: Build Price[9] Rs_____ *[in figures] (_____) [in letters]*,

Part B - deleted

The advance Payment required is: Rupees _____.

This Bid and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Bid you receive.

We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:[10]

Name of Recipient	Address	Reason	Amount

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.
We also undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

[9] In case of multiple lots, insert total price of each lot, and the total price of all lots (sum of all lots). If any discounts are offered insert the discounts offered and the methodology for their application to determine the net price after application of discounts.
[10] If none has been paid or is to be paid, indicate "none".

We hereby confirm that this Bid complies with the Eligibility, Bid Validity and Bid Security required by the Bidding documents.

Yours faithfully,

Authorized Signature:

Name & Title of Signatory: _____
Name of Bidder : _____
Address :_____

BIDDER'S PRICE SCHEDULES

PREAMBLE TO THE PRICE SCHEDULES

1.0 General

1.1 The Price Schedules are divided into separate Schedules as follows:

Schedule 1 Price Schedule

Schedule 2 Breakdowns of Prices

The Breakdown of Prices is FOR INFORMATION ONLY.

1.2 The Price Schedules do not give a full description of the Plant and Equipment, Operator's Equipment (Operations) and Operator's Equipment (Build) to be supplied and the Services to be performed under each item. Bidders are deemed to have read the Draft Contract, including the Technical Specifications Appendix consisting of the Build Appendix, Operations Services Appendix and Technical Standards Appendix, and other sections of the Bidding Documents to ascertain the full scope of the requirements of the Contract included in each item prior to filling in the prices. The entered prices are deemed to include the full scope as aforesaid, including overheads and profit.

1.3 If Bidders are unclear or uncertain as to the scope of any item, they shall seek clarification in accordance with the Instructions to Bidders in the Bidding Documents prior to submitting their Bid.

2.0 Pricing

2.1 As specified in the Bid Data Sheet, prices shall be fixed and firm for the duration of the Contract, except as adjusted in accordance with the Contract.

2.2 The Bid Price shall be quoted in the manner indicated and in the currency specified in the Instructions to Bidders in the Bidding Documents. For each item, Bidders shall complete each appropriate column in the respective Schedules, giving the price breakdown as indicated in the Schedules. Prices given in the Schedules against each item shall be for the scope covered by that item as detailed in the Draft Contract or elsewhere in the Bidding Documents.

2.3 The Owner will make payments to the Operator in the Indian currency indicated under each respective item.

2.4 When requested by the Owner for the purposes of making payments or part payments, valuing changes or evaluating claims, or for such other purposes as the Owner may reasonably require, the Operator shall provide the Owner with a breakdown of any composite or lump sum items included in the Schedules.

3.0 Adjustments to Price

3.1 The rules relating to adjustments to the Bid Price, if any, are set out in the Price Adjustment Appendix to the Draft Contract.

Schedule 1. Price Schedule – General Summary

Part A: Build Price Rs_____ *[in figures] (_____) [in letters],*

Build Price Construction of all system components

1. Price for Build Services as defined in the Draft Contract.

Schedule 2.

(1) Total Price for Build Services will be taken from Appendix 3C Indicative Item Description.

(2) Operations & Maintenance Services as specified in below table. - deleted

FORM OF BID SECURITY (BANK GUARANTEE)

WHEREAS, ... (*name of Bidder including names of all Joint Venture Participants*) (hereinafter called "the Bidder") has submitted its Bid (hereinafter called the "Bid") dated (*date*) for the performance of (*name of Contract*).

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 ..... (hereinafter called "the Owner") in the sum of .....for which payment well and truly to be made to the said Owner, the Bank binds itself, its successors, and assigns by these presents.

[The Bidder should insert the amount of the guarantee in words and in figures. This figure should be the same amount as set out in ITB Section 3.5(1) and the Bid Data Sheet. The details related to the Bid Security are set out in the same ITB Section 3.5.]

The CONDITIONS of this obligation are:

(1) if the Bidder withdraws its Bid during the Bid Validity Period; or

(2) if the Bidder, having been notified of the acceptance of its Bid by the Owner during the period of Bid validity,

(a) fails to sign the Form of Contract in accordance with and when required by ITB Section 6.4; or

(b) fails to provide the performance security to the Owner in accordance with and when required by ITB Section 6.5.

We undertake to pay to the Owner up to the above amount upon receipt of its first written demand, without the Owner having to substantiate its demand, provided that in its demand the Owner will note that the amount claimed by it is due to it owing to the occurrence of one or more of the conditions set out above, specifying the occurred condition or conditions.

This Guarantee will remain in full force up to and including 45 days after the expiry of the Bid Validity Period and it may be extended by the Owner in accordance with the Bidding Documents, 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 or the extended date.

SEALED with the Common Seal of the said

Bank this ..... day of ....., *[Year]*.

_____ _____

WITNESS
(signature, name and address)

SIGNATURE OF THE BANK
SEAL

Name: _____
Position: _____

FORM OF PERFORMANCE SECURITY

_____ *[Bank's Name, and Address of Issuing Branch or Office]*

Beneficiary: __ *[Name and Address of Owner]*

Date: _

PERFORMANCE GUARANTEE NO.: ____

We have been informed that _____ *[name of Operator]* (hereinafter called "the Operator") has entered into Contract No. _____ *[reference number of the contract]* dated _____ with you, concerning a contract to build and operate a water supply scheme in *[Name of Location]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Operator, we _____ *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ *[amount in figures]* (_____) *[amount in words]*, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contract is in breach of its obligations under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire no later than the earlier of:

(a) six months after the End Date, as defined in the Contract; or

(b) six months after the date of termination of the Contract pursuant to its terms.

Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458 except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

Yours truly,

[Name of Bank]

_____

Authorised Signature

FORM OF BANK GUARANTEE – ADVANCE PAYMENT

[Name of Contract]

To: *[Name and address of Owner]*

Dear Ladies and/or Gentlemen,

We refer to the Contract Agreement ("the Contract") signed on *[date]* between you and *[name of Operator]* ("the Operator") concerning the Services set out in the Contract to Build and Operate a Water Supply Scheme.

Whereas, in accordance with the terms of the Contract, the Owner agreed to pay or cause to be paid to the Operator an advance payment in the amount of *[number]* percent (____%) of the Contract Price for the Build Period due to the Operator, namely a payment of: *[amount of foreign currency in words], [amount in figures],* and *[amount of local currency in words], [amount in figures]*.

By this letter we, the undersigned, *[name of Bank]*, a Bank (or company) organised under the laws of *[country of Bank]* and having its registered/principal office at *[address of Bank]*, do hereby jointly and severally with the Operator irrevocably guarantee repayment of the amounts upon the first demand of the Owner without cavil or argument in the event that the Operator fails to commence or fulfil its obligations under the terms of the Contract, and in the event of such failure, refuses to repay all or part (as the case may be) of the advance payment to the Owner.

Provided always that the Bank's obligation shall be limited to an amount equal to the outstanding balance of the advance payment, taking into account such amounts that have been repaid by the Operator from time to time in accordance with the terms of payment of the Contract as evidenced by appropriate shipping documents or payments certificates.

This Guarantee shall remain in full force from the date upon which the advance payment is received by the Operator until the date upon which the Operator has fully repaid the amount is advanced to the Owner in accordance with the terms of the Contract. At the time at which the outstanding amount is nil, this Guarantee shall become null and void, whether the original is returned to us or not.

Any claims to be made under this Guarantee must be received by the Bank during its period of validity.

Yours truly,

[Name of the Bank]

Authorized Signature

Form for Clarification Questions

Bidder's Name: _____

Bidder's Address: _____

Date Submitted: _____

Item No.	Section Reference	Page No.	Section or Article No.	Question/Query/Clarification/Comment
1.				
2.				
3.				
4.				
5.				
6.				

(Name of the Project)

(Declaration regarding tax/duty exemption for materials/
Construction equipment bought for the work)

(Bidder's Name and Address)

To: ……
(Name of the Owner)

Dear Sir:

Re: *[Name of Work]* …… -
Certificate for Import/Procurement of Goods/Construction Equipment
Government Order/Circular Number under which tax/duty exemption is being sought: …

1. We confirm that we are solely responsible for obtaining tax/duty waivers which we have considered in our bid and in case of failure to receive such waivers for reasons whatsoever, the Owner will not compensate us.
2. We are furnishing below the information required by the Owner for issue of the necessary certificates in terms of the Government of India's relevant Notifications.
3. The goods/construction equipment for which certificates are required are as under:

Items *(modify the list suitably for each specific work)**	Make/ Brand Name	Capacity [where applicable]	Quantity	Value	State whether it will be procured locally or imported [if so from which country]	Remarks regarding justification for the quantity and their usage in works
Goods						
[a]						
[b]						
Construction Equipment						
[a]						
[b]						
[c]						
[d]						

4. We agree that no modification to the above list is permitted after bids are opened.
5. We agree that the certificate will be issued only to the extent considered reasonable by the Owner for the work, based on the Bill of Quantities and the construction programme and methodology as furnished by us along with the bid.
6. We confirm that the above goods will be exclusively used for the construction of the above work and construction equipment will not be sold or otherwise disposed of in any manner for a period of five years from the date of acquisition.

Date: _____
Place: _____

(Signature) _____
(Printed Name) _____
(Designation) _____
(Common Seal) _____

This certificate will be issued within 60 days of signing of contract and no subsequent changes will be permitted.
**** Modify the above to suit the requirements given in Government of India's Notification as current of date of bidding.***

Notification of Award (Clause 6.3)

Notification of Award

LETTER OF ACCEPTANCE

[letterhead paper of the Employer]

[*Description of Contract of Contract*]

[date]

To: *[name and address of the Contractor]*

This is to notify you that your Bid dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Bidders, is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 30 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Form*s* included in Annex A, Contract Forms in Annex B of the Bidding Documents.

Authorized Signature: _____
Name and Title of Signatory: _____
Name of Agency: _____

Annex B

to the Bidding Documents

The Draft Contract

(i) Form of Contract

(ii) General Conditions of the Contract

(iii) Appendices to the General Conditions

CHIEF ENGINEER, VARANASI ZONE,
U.P. JAL NIGAM, VARANASI DISTRICT

FORM OF CONTRACT
FOR A CONTRACT
TO

BUILD, OPERATE & MAINTAIN AND TRANSFER

SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, DISTRICT GHAZIPUR

[DATE]

FORM OF CONTRACT

THIS CONTRACT is made and entered into this ____ day of _____, *[Year]*

B E T W E E N

[Name of Owner], a corporation incorporated under the laws of *[Country of Owner]* and having its principal place of business at *[Address of Owner]*

(hereafter the "Owner")

– and –

[Name of Operator Company goes here] incorporated under the laws of *[place of incorporation]* with its principal place of business at *[Address of the Operator]*

(hereafter the "Operator")

– and –

[Name of the Operator's Parent Company or any other entities the Owner may be required to be parties to the Contract]

WHEREAS:

1. The Owner has the jurisdiction to enter into the Contract, as defined in Section 1.1 below, pursuant to the Applicable Law;

2. The Owner has received all requisite approvals necessary and has conformed with all requisite laws in accordance with the Applicable Law to permit the Owner to enter into the Contract;

3. The Owner desires to engage the Operator to *[construct and operate a new rural pipe water supply scheme and ensure the effectiveness and viability of the rural pipe water supply scheme]*;

4. The Operator has represented to the Owner that it has the skills and ability to build, manage, operate, and maintain the rural pipe water supply scheme in an economical and effective manner with *[reduced cost and increased profitability]* and agrees to do so upon and subject to the terms and conditions of the Contract Documents;

5. The Operator responded to the Bidding Documents dated [ ] organized by the Government of [ ] and was selected as the recommended Operator to fulfil the Build and Operating Services set out in the Technical Standards Appendix;

6. The Operator has the corporate capacity and authority to enter into the Contract; and

7. The Operator's parent company *[or shareholders of a joint venture company]* has guaranteed the Contract as provided in the Contract;

NOW THEREFORE, in consideration of the mutual covenants and Agreements hereinafter set forth, the Owner and the Operator agree as follows:

ARTICLE 1 - CONTRACT DOCUMENTS

1.1 Contract Documents

This Contract to Build and Operate a Rural pipe water supply scheme between the Owner and the Operator (the "Contract") consists of the following documents (collectively, the "Contract Documents"), and each of the following shall be read and construed as an integral part of the Contract:

Form of Contract;

Special Conditions of Contract (Appendix 1 to the General Conditions of Contract)

General Conditions of Contract; and

Remaining appendices to the General Conditions of Contract.

1.2 Order of Precedence

In the event of any ambiguity or conflict between the Contract Documents listed in Section 1.1 of this Form of Contract, the order of precedence shall be the order in which the Contract Documents are listed in Section 1.1 of this Form of Contract.

Notwithstanding Section 1.2(1) of this Form of Contract and any other term or condition in the Contract Documents, if any statement or provision in Appendix 1 – Operator's Bid of the General Conditions of Contract, is not consistent with or conflicts with any other term or condition in the remainder of the Contract Documents, the remainder of the Contract Documents shall govern.

1.3 Definitions

Capitalized words and phrases used herein shall have the same meanings as are ascribed to them in the General Conditions of Contract and Appendices to the General Conditions of Contract.

ARTICLE 2 - OPERATOR'S COMPENSATION AND TERMS OF PAYMENT

2.1 Operator's Compensation

The Owner hereby agrees to pay to the Operator the Contract Price, in consideration of the performance by the Operator of its obligations hereunder, and the Contract Price is: *[Insert amount in words and figures. Note that the Build Price (for Build Services) will be for a total amount while the Operations & Maintenance Payments (for Operations & Maintenance Services) will be an amount for each month the Operator operates the New Facility]*, as specified in the Bidder's Price Schedules or such other sums as may be determined in accordance with the terms and conditions of the Contract.

2.2 Terms of Payment

The terms and procedures of payment by which the Owner will compensate the Operator are set out in the General Conditions of the Contract.

ARTICLE 3 - EFFECTIVE DATE AND STARTING DATES

3.1 Effective Date and Starting Date

The Effective Date, the Build Starting Date and Operations & Maintenance Starting Date for the Contract shall be determined in accordance with the General Conditions of the Contract.

IN WITNESS WHEREOF the Owner and the Operator have caused this Form of Contract to be duly executed by their duly authorized representatives.

EXECUTED as of the date first written above.

[OWNER]

By: _____

Name: _____

Title: _____

Witness: _____

[THE OPERATOR]

By: _____

Name: _____

Title: _____

Witness: _____

[PARENT(S) OF THE OPERATOR]

By: _____

Name: _____

Title: _____

Witness: _____

General Conditions

GENERAL CONDITIONS
FOR A CONTRACT
TO

BUILD, OPERATE & MAINTAIN AND TRANSFER
SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, DISTT. GHAZIPUR

TABLE OF CONTENTS

GENERAL CONDITIONS OF CONTRACT

A. CONTRACT AND INTERPRETATION

ARTICLE 1- CONTRACT AND INTERPRETATION

1.1 Definitions

Unless the context otherwise requires, the following terms wherever used in this Contract have the following meanings:

"**Adjudicator**" means the person that is named in the SCC;

"**Applicable Law**" means the laws and any other instruments having the force of law in the Country specified in the SCC, as they may be issued and in force from time to time, including any decree of the President or government of the Country;

"**Appointing Authority**" is the authority specified in the SCC;

"**Authorities**" means the Owner and the Country as specified in the SCC;

"**Background Information Document**" means the Background Information Document provided to the Operator by the Owner during the bidding process that preceded this Contract;

"**Bank**" means the World Bank;

"**Bidding Documents**" means the documents issued by the Owner in respect of the bidding process for the selection of an operator to build and operate the New Facility and to perform the Services;

"Bulk Water Supply System" covers Water Supply System excluding the Intra-Village System;

"**Capital Investment Program**" means the capital investment program of the Owner, if any, referred to in OSA Section 10.2(2);

"**Change**" is defined in GC Section 10.1.1(1);

"**Change Order**" is defined in GC Section 10.1.2(4);

"**Completion**" means that the New Facility and all Build Services have been completed operationally and structurally and put in a tight and clean condition in accordance with the Technical Standards Appendix, and the Operator is entitled to have a Completion Certificate issued in respect of the New Facility, or part thereof, in accordance with BSA Section 6.2;

"**Completion Certificate**" means a certificate issued by the Build Engineer in accordance with BSA Section 6.2;

"**Contingency Fund**" means the fund established pursuant to OSA Section 10.1.2(1);

"**Contract**" means the agreement between the Owner and the Operator which consists of the Contract Documents consisting of Build Phase and Operations & Maintenance Phase;

"**Contract Documents**" means the Form of Contract, General Conditions, and all appendices to the General Conditions as set out in GC Section 1.2;

"**Contract Price**" is defined in Section 2.1 of the Form of Contract;

"**Contract Records**" is defined in GC Section 1.8.1(1);

"**Contract Term**" means the term of the Contract, including any renewals approved by the Owner, commencing on the Effective Date and continuing to, and including, the End Date;

"**Costs**" means all expenditures reasonably incurred, or to be incurred, by the Operator including overhead but excluding profit;

"**Country**" means the country specified in the SCC;

"**Country of Origin**" means the countries and territories eligible under the rules of the World Bank as defined under the *Guidelines: Procurement under IBRD Loans and IDA Credits* as amended;

"**CSCU**" is defined in GC Section 7.3.2(1) and particularly in the SCC in terms of this contract;

"**CSCU Director**" is defined in GC Section 7.3.2(2);

"**Customers**" means all entities (including individuals) within the Water Service Area to which the Operator provides water supply services, including those customers in existence as of the Operations Starting Date and persons who become customers after the Operations Starting Date;
"**Data Room**" means the data room which may be established by the Owner in the bidding process as set out in the Bidding Documents;
"**BSA Section**" means Build Services Appendix Section;
"**Defect Liability Period**" means the period of validity of the warranties given by the Operator during which the Operator is responsible for defects with respect to the New Facility, or the relevant part thereof, as set out in GC Section 9.1(2);
"**Build Documents**" means the plans, works specifications, designs, models, electronic models and other documents and materials relating to the design and construction of the Site and New Facility as may be set out or contemplated in the Build Services Appendix and approved by the Owner or Owner Representative or BUILD ENGINEER, or agreed to by the Parties from time to time during the Contract Term;
"**Build Engineer**" means the Owners Engineer or any consultant retained by the Owner to supervise the Operator, in accordance with the Contract Documents, in carrying out the Build Services; for Operations and Maintenance Services the District Project Management Unit (DPMU) shall be the **Build Engineer;**
"**Build Period**" is defined in GC Section 2.2(a);
"**Build Services**" means the build services to be performed by the Operator as contemplated by the General Conditions and the Build Services Appendix;
"**Build Starting Date**" is defined in GC Section 2.1.3(1);
"**Effective Date**" means the date on which this Contract comes into force and effect pursuant to GC Section 2.1.1;
"**End Date**" is defined in GC Section 2.1.2;
"**Existing Equipment and Materials**" is defined in GC Section 9.3.2(1);
"**Existing Facility**" means the operational water supply facility on the Site as it exists on the Build Starting Date;
"**Extension Date**" is defined in GC Section 2.4.3;**"First Period"** means the period starting from Operations Starting Date and ending with completion of one year from Operations Starting Date;
"**Force Majeure**" is defined in GC Section 9.8(1);
"**GC Section**" means General Conditions Section;
"Generally Accepted Accounting Principles" means the Generally Accepted Accounting Principles prescribed by the Institute of Chartered Accountants of India;

"GPWSC" means the Water and Sanitation Committee of the individual Gram Panchayat under the Water Supply Area;

"Independent Construction Quality Surveillance Consultant (ICQSC)"means a consultant appointed by the State Project Management Unit/State Govt. for independent quality checks for the construction works/ materials during build period on sample basis.
"Intra-Village System" covers the distribution piped network from bulk supply point of the GP connected to reservoirs up to and including the meters installed at the individual Customers in the GPs covered in the Water Supply Area;
"**IDA**" means the International Development Agency;
"**including**" means including without limitation and "**includes**" means includes without limitation, unless expressly stated otherwise;
"**Liquidated Damages – Delay**" is defined in GC Section 2.3.6(2);
"**Manager**" is defined in GC Section 8.2(3);
"**Monthly Operations Payment**" is defined in Section 1.4 of the Terms and Procedures of Payment Appendix;

"MVWSC" means the Multiple Village Water and Sanitation Committee established for the Water Supply Area;
"**New Facility**" means the water supply scheme built by the Operator pursuant to this Contract;
"**New Operations Period**" is defined in GC Section 2.2(b);
"**Operations Starting Date**" is defined in GC Section 2.1.3(2);
"**Operational Acceptance**" means the acceptance by the Owner of the New Facility, or part thereof, in accordance with BSA Section 7.3;
"**Operations and Maintenance Services**" means the Operations and Maintenance Services to be performed by the Operator as contemplated by the General Conditions and the Operations and Maintenance Services Appendix;
"Operations and Maintenance Service Appendix" means the clauses and provisions contained in the Contract that relate to Operation and Maintenance Services of the Water Supply System during the duration of the Contract;

"Operations Escrow-Account" means the Account to be operated by Owner where all tariffs received from customers in Water Supply Areas shall be deposited by the GPWSCs;

"**Operator**" means the water supply contractor and operator retained by the Owner to carry out the Services and is the Party named as the Operator in the Form of Contract;
"**Operator's Equipment (Build)**" means all machinery, apparatus, vehicles and other equipment required for the execution and completion of the Build Services and the remedying of any defects, but does not include material, machinery, apparatus and other equipment forming part of the Plant and Equipment of the New Facility;
"**Operator's Equipment (Operations)**" means all things of any kind whatsoever, including the equipment, materials, supplies, vehicles and consumables required to operate, maintain and repair the Site and New Facility;
"**Operator's Personnel**" is defined in GC Section 8.3(1);
"**Operator's Representative**" is defined in GC Section 8.1.2(1);
"**OMSA Section**" means Operations and Maintenance Services Appendix Section;
"**Owner**" means the Party named as Owner in the Form of Contract;
"**Owner's Representative**" is defined in GC Section 8.1.1(1);
"**Parent**" means the parent company of the Operator, if any;
"**Party**" means the Owner or the Operator, as the case may be, and "Parties" means both of them;
[Note: If a Parent signs the Contract, the Parent will be included in the definition of "Parties".]
"**Performance Incentive Compensation**" is defined in Performance Incentive Compensation Appendix;
"**Performance Security**" is defined in GC Section 5.4.1(1);
"**Plant and Equipment**" means the permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided and intended to permanently form or forming part of the New Facility;
"**Services**" means the Build Services and the Operations and Maintenance Services to be performed by the Operator as set out in the General Conditions and the Appendices to the General Conditions;
"**Shareholder**" means any of the shareholders of the joint venture company if the Operator is a joint venture company;
"**Site**" means the physical area as set out in the DPR Appendix identified for the location of the New Facility;
"**Site Information**" is defined in GC Section 3.5(1);
"**Subcontract**" means any contract, whether written or verbal, entered into by the Operator and a Subcontractor for the performance of any part of the Services;
"**Subcontractor**" means any person or entity to which the Operator subcontracts or subconsults any part of the Services in accordance with the provisions of GC Section 8.6, including any person or entity

engaged for the supply of any Plant and Equipment, Operator's Equipment (Build) or Operator's Equipment (Operations) or for the provision of any Services;
"**Submission Deadline**" means the date for the submission of bids, as stated or awarded by the Bidding Documents;
"**Subsequent Operator**" means the operator that is to assume the provision of the Services upon termination or completion of the Contract and may include one of the Authorities;
"Second Period" means the period starting from the day after completion of First Period and ending with completion of five years from Operations Starting Date;

"Subsidiary Agreements" means a tripartite agreement to be entered into between the Operator, MVS-WSC and PHED which shall govern the inter-se responsibilities of each part with respect to bulk water supply and another agreement between Operator, MVS-WSC, respective GP-WSC and PHED which shall govern the inter-se responsibilities for each party with respect to intra-village water supply distribution, revenue collection and payment;

"**Second Period"** means the period starting from the day after completion of First Period and ending with completion of five years from Operations Starting Date;

"**Taxes**" is defined in GC Section 5.6;
"**Technical Standards**" is defined in the Technical Standards Appendix;
"**Tests on Completion**" means those tests set out in Attachment 1 to the Technical Standards Appendix as conducted pursuant to BSA Section 6.2(1);
"**Third Party**" means any person or entity other than the Parties;
"**Time for Completion**" is defined in GC Section 2.3.2;
"**Time Schedule**" is defined in GC Section 2.3.3(1);
"**Transition Assistance**" is defined in GC Section 2.4.2;
"**TSA Section**" means Technical Standards Appendix Section;
"**Unforeseeable**" means not reasonably foreseeable on the Submission Deadline by an experienced operator that conducted or should have conducted the inspections and examinations or who knew or should have known the information described in GC Section 3.5; and
"**War Risks**" is defined in GC Section 9.9(1).
"Water Supply Area" means such area as mentioned in the First Schedule of this Operations and Maintenance Services Appendix**;**

"Water Supply System" means the piped water system in the Water Supply Area, including but not limited to, the raw water intake, treatment plant and appurtenants, rising mains, transmission system, reservoirs, and up to and including the meters installed at the individual Customers in the GPs covered in the Water Supply Area.

1.2 Contract Documents

Subject to the Form of Contract provisions, all documents forming part of the Contract, and all parts thereof, are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole. The following appendices which are incorporated by reference into the Contract shall be referred to as follows:

Appendix 1: Special Conditions of Contract Appendix
Appendix 2: Terms and Procedures of Payment Appendix
Appendix 3: Technical Specifications Appendix
Appendix 3A: Build Services Appendix
Appendix 3B: Operations & Maintenance Services Appendix
Appendix 3C: Bill of Quantities (BOQ) Appendix

Appendix 4: Detailed Project Report (DPR) Appendix
Appendix 5: Contract Price Adjustment Appendix
Appendix 6: Subsidiary Tripartite Agreement Appendix
Appendix 7: Operator's Price Schedule Appendix

1.3 Interpretation

1.3.1 Language

(1) All Contract Documents, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be written in the language specified in the SCC and the Contract shall be construed and interpreted in accordance with that language.

(2) If any of the Contract Documents, correspondence or communications are prepared in any language other than the governing language under GC Section 1.3.1(1), the translation of such documents, correspondence or communications into the governing language shall prevail in matters of interpretation.

1.3.2 Singular or Plural

The singular shall include the plural and the plural shall include the singular except where the context otherwise requires.

1.3.3 Headings

The headings in the Contract Documents are included for ease of reference and shall neither constitute a part of the Contract nor affect its interpretation.

1.3.4 Persons

Words importing persons or entities shall include firms, corporations and government entities.

1.3.5 Incoterms

Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of the Parties thereunder shall be prescribed by *Incoterms*. *Incoterms* means international rules for interpreting trade terms published by the International Chamber of Commerce (latest edition), 38 Cours Albert 1er, 75008 Paris, France.

1.3.6 Entire Agreement

This Contract constitutes the entire agreement between the Owner and the Operator with respect to the subject matter of the Contract and supersedes all communications, negotiations and agreements, whether written or oral, made by the Parties with respect thereto made prior to the date of the Contract.

1.3.7 Amendment

No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract and is signed by a duly authorized representative of each Party to the Contract.

1.3.8 Number of Days

Except as expressly stated to the contrary elsewhere herein, in computing the number of days for the purposes of the Contract all days shall be counted, including Saturdays, Sundays and legal holidays in the Country, provided, however, that if the final day of any period shall fall on a Saturday, Sunday, or legal holiday in the Country, then the final day shall be deemed to be the next day which is not a Saturday, Sunday or legal holiday in the Country.

1.3.9 Independent Contractor

(1) The Operator shall be an independent contractor in its performance of the Contract. The Contract does not create any agency, partnership, joint venture or other joint relationship between the Owner and the Operator or its Shareholders.

(2) Subject to the provisions of the Contract, the Operator shall be solely responsible for the manner in which the Contract is performed. All employees, agents, representatives or Subcontractors engaged by the Operator in connection with the performance of the Contract shall be under the complete control of the Operator and shall not be deemed to be employees of the Owner, and nothing contained in the Contract, or in any Subcontract awarded by the Operator, shall be construed to create any contractual relationship or legal obligation between the Operator's employees, agents, representatives or Subcontractors and the Owner.

1.3.10 Joint Venture

(1) If the Operator consists of a joint venture of more than one partner, all the Partners hereby authorize the representative named in the SCC to act on their behalf in exercising all the Partner's and Operator's rights and obligations toward the Owner under this Contract, including the receiving of approvals, consents, orders, certificates, instructions and payments from the Owner, amendment of the Contract and in all other matters under the Contract, including the settlement of disputes.

(2) If the Operator is a joint venture of two or more Partners, each Partner of the joint venture, shall be jointly and severally bound to the Owner for the fulfilment of the provisions of the Contract by the Operator.

(3) The composition, control or constitution of the Operator shall be in accordance with the Operator's Bid and shall not be altered without the prior consent of the Owner.

1.3.11 Non-waiver

(1) Subject to GC Section 1.3.11(2), no relaxation, waiver, forbearance, delay or indulgence by either Party in enforcing any of the terms and conditions of the Contract or the granting of time by either Party to the other shall prejudice, affect or restrict the rights of that Party under the Contract, nor shall any waiver by either Party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

(2) To be a valid waiver, any waiver of a Party's rights, powers or remedies under the Contract shall,

a. be in writing;
b. be dated and signed by the Owner's or Operator's Representative, whichever is granting such waiver; and
c. specify the right, power or remedy being waived and the extent to which it is being waived.

1.3.12 Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

1.3.13 Country of Origin

"Origin" means the place where the materials, equipment and other supplies for the New Facility are mined, grown, produced or manufactured, and from which the services are provided.

1.3.14 Survival of Obligations

Upon the termination or expiration of the Contract pursuant to the Contract, all rights and obligations of the Parties hereunder shall cease, except those noted in the SCC.

1.4 Notice

(1) All notices to be given under the Contract shall be in writing and shall be sent by personal delivery, courier or facsimile to the address for notice of the relevant Party as set out in the SCC and the following provisions apply:

a. Any notice sent by facsimile shall be confirmed by the sender no later than two days after dispatch by a notice sent by courier;

b. Any notice sent by courier shall be deemed to have been delivered 10 days after dispatch. In proving the fact of dispatch, it shall be sufficient to show that the envelope containing such notice was properly addressed, with proper payment for the courier, and conveyed to the courier service for transmission; and

c. Any notice delivered personally or sent by facsimile shall be deemed to have been delivered on the date of dispatch.

(1) A Party may change its address for notice pursuant to this Contract by giving the other Party notice of change in accordance with this GC Section 1.4.

(2) The Operator's address for the purpose of giving notice pursuant to this GC Section 1.4 shall be in the Country named in the SCC.

(3) Notices shall be deemed to include any approvals, consents, instructions, orders, certificates and similar communications to be given under the Contract.

1.5 Governing Law

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.

Salient features of major labour and other laws that are applicable to construction industry in India are given as Annexure 2 to these General Conditions of Contract.

1.6 Settlement of Disputes

1.6.1 Adjudicator

(1) If any dispute of any kind whatsoever arises between the Owner and the Operator in connection with or arising out of the Contract including,

a. any question regarding the existece, validity or termination of the Contract; and

b. any matter related to the performance of the Services,

the Parties shall seek to resolve any such dispute or difference by mutual consultation. If the Parties fail to resolve such a dispute or difference by mutual consultation, the dispute shall be referred in writing, by either the Operator or the Owner, to the Adjudicator with a copy to the other Party or Parties.

(2) GC Section 1.6.1(1) shall apply,

a. during the execution of the Services and after the completion of the Services; and

b. before and after the termination, abandonment or breach of the Contract.

(3) The Adjudicator shall give its decision in writing to both Parties no later than 30 days after the referral of a dispute. If the Adjudicator has rendered its decision within the 30 day time limit, and no notice of intention to commence arbitration has been given by either the Owner or the Operator prior to the expiration of 60 days after the reference of the dispute to the Adjudicator, the Adjudicator's decision shall become final and binding upon the Owner and the Operator. Any decision that has become final and binding shall be implemented by the Parties forthwith.

(4) The Adjudicator shall be paid a fee at the rate specified in the SCC plus reasonable expenditures incurred in the execution of its duties as Adjudicator, and these costs shall be divided equally between the Owner and the Operator.

(5) If the Adjudicator resigns or dies, or the Owner and the Operator agree that the Adjudicator is not fulfilling its functions in accordance with the provisions of the Contract, a new Adjudicator shall be jointly appointed by the Owner and the Operator. If the Owner and the Operator cannot agree on a new Adjudicator within 30 days after the resignation, death or removal of the existing Adjudicator, the new Adjudicator shall be appointed at the request of either Party by the Appointing Authority specified in the SCC.

1.6.2 Arbitration

(1) If either the Owner or the Operator is dissatisfied with the Adjudicator's decision, or if the Adjudicator fails to give a decision within 30 days after a dispute being referred to it, then either the Owner or the Operator may, within 60 days after such reference, give notice to the other Party, with a copy for information to the Adjudicator, of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

(2) Any dispute in respect of which a notice of intention to commence arbitration has been given, in accordance with GC Section 1.6.2(1), shall be finally settled by arbitration.

(3) Arbitration proceedings shall be conducted in accordance with the rules of procedure designated in the SCC.

1.6.3 Obligations during Arbitration

Notwithstanding any reference to the Adjudicator or arbitration herein,

a. the Parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
b. the Owner shall pay the Operator any monies due to the Operator.

1.7 Assignment

(1) The Operator shall not assign to any Third Party the Contract, or any part thereof, or any right, benefit, obligation, or interest therein or thereunder without the prior consent of the Owner, which consent may not be unreasonably withheld.

(2) The Operator may assign, absolutely or by way of charge, any monies due and payable to it or that may become due and payable to it under the Contract.

(3) To be a valid assignment which has been approved by the Owner pursuant to GC Section 1.7(1), the assignment must,

a. be in writing;
b. be dated and signed by the Owner's Representative; and
c. state the specific details of the assignment.

1.8 Contract Records, Accounting and Auditing

1.8.1 Contract Records

(1) Except as provided in GC Section 6.1, all data, information, documentation, account, plans, programs, reports, surveys and guidelines of any kind whatsoever (the "Contract Records") prepared by the Operator in performing the Services shall become and remain the property of the Owner and the Operator shall deliver all Contract Records and a detailed inventory of those Contract Records to the Owner no later than the date of termination or expiration of the Contract, except in respect of such Contract Records that are required to be delivered at an earlier date.

(2) The Contract Records shall include,

a. information of any kind whatsoever related to the finances, revenues or expenditures of the Owner's operations;
b. all files, documents, plans, drawings, specifications, notes, minutes of meetings and minutes of conversations;
c. all the plans, programs, reports, surveys and guidelines prepared by the Operator in carrying out the Operations and Maintenance Services;
d. the accounts of the water supply operations at the New Facility;
e. all manuals, reports, condition surveys, safety records, audit records, inventories, laboratory test results, procurement records, customer information, financial information, financial statements, invoices, accounting records, subcontracts and personnel records; and
f. the Build Documents,

whether stored in hard copy or electronically.

(2) The Operator shall provide the Owner with unrestricted access to the Contract Records during the term of the Contract, including the right to make and retain copies.

(3) The Operator may retain a copy of the Contract Records but shall not use them for purposes unrelated to this Contract without the prior approval of the Owner. This GC Section 1.8.1(4) does not in any way relieve the Operator of its obligation of confidentiality pursuant to GC Section 6.2.

(4) Except as provided in GC Section 6.1, the Operator acknowledges that the Owner, as owner of the Contract Records, may deal with the Contract Records in any way it determines, including making the Contract Records publicly available and making them available to prospective bidders who may be involved in the process to select a Subsequent Operator.

1.8.2 Accounting

The Operator shall keep accurate and systematic accounts in respect of the Services and the Contract in accordance with internationally accepted accounting principles.

1.8.3 Auditing the Operator's Own Accounts and the Contract Records

(1) The Owner may, in its sole discretion, audit,

a. the Operator's own accounts, financial information, financial statements and technical information at any reasonable time and with 24 hours notice to the Operator; and

b. the Contract Records and Build Documents at any reasonable time and without notice to the Operator, in respect of any matters related to the Contract.

(2) The Owner may complete the audit or audits itself or may retain an independent auditor, at the Owner's expense, to complete the audit or audits.

1.8.4 Operator's Audited Accounts

The Operator shall submit to the Owner, no later than 90 days after the end of the Operator's fiscal year, the annual audited accounts of its own finances for each of the Operator's fiscal years that occur during the Contract Term.

1.8.5 Bank Audit

The Bank may, in its sole discretion, inspect or audit the Operator's accounts, financial information, financial statements and technical information in respect of any matters related to the Contract at any reasonable time and without notice to the Operator and may have the audit carried out by auditors appointed by the Bank.

1.9 Operator's Claims during the Build Period

(1) If the Operator considers itself to be entitled to any extension of the Time for Completion or any additional payment, under any section related to the Build Services of these General Conditions, the Operator shall give notice to the BUILD ENGINEER, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and no later than 30 days, after the Operator became aware, or should have become aware, of the event or circumstance.

(2) If the Operator fails to give notice of a claim within such period of 30 days, the Time for Completion shall not be extended, the Operator shall not be entitled to additional payment, and the Owner shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this GC Section 1.9 shall apply.

(3) The Operator shall also submit any other notices related to the Build Services which are required by the Contract, and supporting particulars for the claim, that are relevant to such event or circumstance.

(4) The Operator shall keep such contemporary records as may be necessary to substantiate any claim related to the Build Services, either on the Site or at another location acceptable to the BUILD ENGINEER. Without admitting the Owner's liability, the BUILD ENGINEER may, after receiving any notice under this GC Section 1.9, monitor the record-keeping or instruct the Operator to keep further contemporary records. The Operator shall permit the BUILD ENGINEER to inspect all these records, and shall, if instructed, submit copies to the BUILD ENGINEER.

(5) No later than 42 days after the Operator became aware, or should have become aware, of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Operator and approved by the BUILD ENGINEER, the Operator shall send to the BUILD ENGINEER a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect,

a. this fully detailed claim shall be considered as interim;
b. the Operator shall send further interim claims at monthly intervals, giving the accumulated delay or amount claimed, and such further particulars as the BUILD ENGINEER may reasonable require; and
c. the Operator shall send a final claim no later than 30 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Operator and approved by the BUILD ENGINEER.

(6) No later than 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the BUILD ENGINEER and approved by the Operator, the BUILD ENGINEER shall respond with approval, or with disapproval and detailed comments. The BUILD ENGINEER may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within such time.

(7) Each invoice sent by the Operator shall include such amounts for any claim as have been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Operator shall only be entitled to payment for such part of the claim as it has been able to substantiate.

(8) The Operator shall proceed in accordance with GC Section 7.2.6 to request,

a. an extension, if any, of the Time for Completion before or after its expiry in accordance with GC Section 2.3.4; or
b. an additional payment, if any, to which the Operator believes it is entitled under the Contract.

(9) The requirements of this GC Section 1.9 are in addition to those of any other provision which may apply to a claim. If the Operator fails to comply with this or another provision in relation to any claim, any extension of or additional payment shall take account of the extent, if any, to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under GC Section 1.9(2).

(10) This GC Section 1.9 shall apply only in respect of the Build Services.

1.10 Corrupt and Fraudulent Practices

(1) The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Annexure 1 to the GCC.

(2) The Owner requires the Operator to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the bidding process or execution of the Contract. The information shall be disclosed as and when such payments are made or agreed to, and compliance with the disclosure requirement shall be furnished, while submitting each monthly statement for payments; such disclosure must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

B. SUBJECT MATTER OF THE CONTRACT

ARTICLE 2 - CONTRACT TERM, TIMING AND COMPLETION

2.1 General

2.1.1 Effectiveness of Contract

The Form of Contract shall be signed by the Operator, and all partners, if the Operator is a joint venture, prior to its signing by the Owner. The Contract shall come into force and effect on the date the Form of Contract is signed by the Owner (the "Effective Date"), contingent on final approval by the Bank.

2.1.2 Expiration of Contract

This Contract shall terminate on either,

a. the specified number of months after the Operations Starting Date named in the SCC;

b. the Extension Date pursuant to GC Section 2.4.3; or

c. the date of Contract termination pursuant to GC Section 11.2,

(the "End Date"), whichever is applicable.

2.1.3 Commencement of Services

(1) Unless otherwise stated in the SCC, the Build Starting Date shall be no later than 30 days after the Effective Date and the Owner shall give the Operator at least seven days prior notice of the Build Starting Date.

(2) The "Operations Starting Date" shall be the day after the date of issue of the Operational Acceptance Certificate.

2.2 Build Period and New Operations Period

The Contract Term shall be divided into two periods as follows:

a. the period commencing on the Effective Date and ending on the day immediately prior to the Operations Starting Date (the "Build Period"); and

b. the period commencing on the New Operations Starting Date and ending on the End Date (the "Operations Period").

2.3 Build Period – Commencement, Delays and Suspension

2.3.1 Commencement of the Build Services

The Operator shall commence the Build Services no later than the Build Starting Date, and shall then proceed with the Build Services with due expedition and without delay.

2.3.2 Time for Completion

The Operator shall complete the whole of the Build Services in accordance with the time for completion set out in the SCC ("Time for Completion") for the Build Services including,

a. successfully completing the Tests on Commissioning; and

b. completing all of the Build Services such that the completed New Facility can be used as a fully operational New Facility in accordance with the Contract.

2.3.3 Build Time Schedule

(1) The Operator shall submit a detailed time programme (the "Time Schedule") to the BUILD ENGINEER no later than 30 days after the Build Starting Date. The Operator shall also submit a revised Time Schedule whenever the previous Time Schedule is inconsistent with actual progress or with the Operator's obligations. Each Time Schedule shall include a description of,

a. the order in which the Operator intends to carry out the Build Services, including the anticipated timing of each stage of Build Documents, procurement, manufacture, inspection, delivery to the Site, construction, erection, testing and commissioning;

b. the periods for review and any other submissions, approvals and consents specified in the Contract;

c. the sequence and timing of inspections and tests specified in the Contract;

d. the scheduled Time for Completion, the planned Time for Completion and the planned Operations Starting Date;

e. all major events and activities in the production of Build Documents; and

f. all major phases and milestones of the Build Services.

(2) The BUILD ENGINEER shall review each Time Schedule and provide comments to the Operator as to whether the Time Schedule complies with the Contract. If the BUILD ENGINEER fails to provide such comments prior to the expiration of 21 days after receiving a Time Schedule, the Operator shall proceed in accordance with the Time Schedule, subject to its other obligations under the Contract. The Operator shall be entitled to rely upon the Time Schedule when planning its activities.

(3) The Operator shall promptly give notice to the BUILD ENGINEER of specific probable future events or circumstances which may adversely affect the Build Services or delay the execution of the Build Services. The BUILD ENGINEER may require the Operator to submit an estimate of the anticipated effect of the future event or circumstances, or a proposal under GC Section 10.1.3.

(4) If, at any time, the BUILD ENGINEER gives notice to the Operator that a Time Schedule fails, to the extent stated, to comply with the Contract or to be consistent with actual progress and the Operator's stated intentions, the Operator shall submit a revised Time Schedule to the BUILD ENGINEER in accordance with this GC Section 2.3.3.

2.3.4 Extension of the Time for Completion

(1) The Time for Completion shall be extended if the Operator is delayed or impeded in the performance of the Build Services by reason of any of the following:

a. a Change, unless the Parties have already agreed to an adjustment to the Time for Completion as part of the applicable Change;

b. an occurrence of Force Majeure as provided in GC Section 9.8, Unforeseeable physical conditions as provided for in GC Section 9.7, or loss or damage as a result of the occurrences set out in GC Section 9.4(2);

c. any suspension order given by the Owner pursuant to GC Section 11.1.1;

d. any change in the Applicable Law in accordance with GC Section 9.10;

e. any default or breach of the Contract by the Owner or any activity, act or omission of any other contractors employed by the Owner; or

f. any other matter specifically mentioned in the Contract,

by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the actual delay or impediment sustained by the Operator.

(2) The Operator shall submit, to the BUILD ENGINEER, any notice of a claim for an extension of the Time for Completion in accordance with GC Section 10.1.3.

(3) The Operator shall, at all times, use reasonable efforts to minimize any delay in the performance of its obligations under the Contract.

2.3.5 Rate of Progress

(1) If, at any time, the Operator's progress in respect of the Build Services,

a. is too slow to complete the Build Services in accordance with the Time for Completion; or

b. has fallen, or will fall, behind the current Time Schedule

other than as a result of a cause listed in GC Section 2.3.4, then the BUILD ENGINEER may instruct the Operator to submit a revised Time Schedule and supporting report describing the revised methods which the Operator proposes to adopt in order to expedite progress and complete the Build Services.

(2) Unless the BUILD ENGINEER notifies otherwise, the Operator shall adopt the revised methods referred to in GC Section 2.3.5(2), which may require increases in,

a. the working hours or in the numbers of Operator's Personnel, or both; or

b. Plant and Equipment,

at the risk and cost of the Operator. If these revised methods cause the Owner to incur additional costs, the Operator shall, subject to GC Section 1.9, pay these costs to the Owner, in addition to delay damages, if any, under GC Section 2.3.6.

2.3.6 Delay of Completion – Liquidated Damages - Delay

(1) The Operator guarantees that it shall attain Completion of the New Facility in accordance with the Time for Completion specified in the SCC and GC Section 2.3.2 or in accordance with an extension of the Time for Completion granted to the Operator in accordance with GC Section 2.3.4.

(2) If the Operator fails to attain Completion of the New Facility within the Time for Completion, or any extension thereof in accordance with GC Section 2.3.4, the Operator shall pay to the Owner liquidated damages in the amount specified in the SCC ("Liquidated Damages - Delay"). The aggregate amount of Liquidated Damages - Delay shall in no event exceed the amount specified as "Maximum" in the SCC. The Owner may terminate the Contract pursuant to GC Section 11.2.3 if the Operator reaches the "Maximum" level for Liquidated Damages – Delay.

(3) The payment or payments by the Operator of Liquidated Damages – Delay shall completely satisfy the Operator's obligation to attain Completion of the New Facility within the Time for Completion or any extension thereof pursuant to GC Section 2.3.4.

(4) The payment or payments by the Operator of Liquidated Damages – Delay shall not in any way relieve the Operator of its obligations to complete the New Facility or any other obligations and liabilities of the Operator under the Contract.

(5) If the Operator attains Completion of the New Facility before the Time for Completion or any extension thereof pursuant to GC Section 2.3.4, and if the Owner intends to pay a bonus to the Operator for early completion, the amount of the bonus is as set out in the SCC. The aggregate amount of such bonus shall in no event succeed the amount specified as "Maximum" in the SCC.

2.3.7 Build Period – Special Operations Requirements - Deleted

2.4 New Operations Period

2.4.1 Commencement of the Operations - Services

The Operator shall commence the Operations and Maintenance Services no later than the Operations Starting Date and shall then proceed with the Operations and Maintenance Services with due exception and without delay.

2.4.2 Services After the End Date

The Operator, upon written request by the Owner no later than 60 days prior to the End Date, shall provide assistance to the Owner, at no cost to the Owner, during a transitional period of up to 60 days after the End Date (the "Transition Assistance"). The purpose of the Transition Assistance is to ensure a smooth transition between the Operator and a Subsequent Operator of the New Facility. The Transition Assistance shall be related to only transition services and shall not be the full range of Services as set out in the Operations and Maintenance Services Appendix.

2.4.3 Extension of the Contract

If both Parties agree, this Contract may be extended for a period of up to 5 years after the End Date. The Owner shall notify the Operator no later than 6 months prior to the End Date if it wishes to enter into negotiations in order to extend the duration of the Contract. The date on which the Contract is to expire as a result of an extension shall be the Extension Date.

ARTICLE 3 - OBLIGATIONS OF THE OPERATOR

3.1 General – Services, Standards of Performance and Upfront Contribution

The Operator shall,

a. perform the Build Services set out in the Build Services Appendix;

b. perform the Operations and Maintenance Services set out in the Operations and Maintenance Services Appendix; and

c. perform the Services in accordance with the Technical Standards set out in the Technical Standards Appendix.

all with due care and diligence in accordance with the Contract.

3.2 Law Governing Services

The Operator shall comply with the Applicable Law and shall ensure that the Operator's Personnel and Subcontractors comply with the Applicable Law. The Operator shall indemnify and hold harmless the Owner from and against any and all liabilities, damages, claims, fines, penalties and expenses of whatever nature arising or resulting from violation of the Applicable Law by the Operator, the Operator's Personnel the Subcontractors and the Subcontractors' personnel.

3.3 Conflict of Interest

(1) The compensation of the Operator pursuant to GC Article 5 shall constitute the Operator's sole compensation in connection with this Contract and, except as provided in GC Article 5, the Operator shall not accept for its own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or in the discharge of its obligations hereunder, and the Operator shall use its best efforts to ensure that the Operator's Personnel, Subcontractors, and the Subcontractors' employees and agents, similarly shall not receive any such additional remuneration.

(2) The Operator, Subcontractors and any entity affiliated with the Operator or the Subcontractors, shall be disqualified, during the Contract Term from providing goods, works or services, other than the Services, with respect to,

a. the goods, works and services purchased from the Contingency Fund; and

b. the Capital Investment Program.

(3) The Operator, Operator's Personnel, Subcontractors and the employees and affiliates of the Subcontractors shall not engage, either directly or indirectly, in any business or professional activities which would conflict with the activities assigned to them under this Contract.

(4) The Operator and its Shareholders shall not participate in any discussions or work and shall not provide any services or advice to the Owner related to,

a. except with respect to their responsibilities as set out in the Operations and Maintenance Services Appendix, institutional restructuring or re-organization of the Owner or a utility or department of the Owner;

b. the development or review of bidding documents to retain any Subsequent Operator; or

c. the preparations for the procurement process to retain any Subsequent Operator.

(4) Failure of the Operator or the Shareholders to comply with this GC Section 3.3, may constitute a breach of this Contract, and may result in its Termination.

3.4 Plant and Equipment, Operator's Equipment (Build) and Operations Equipment (Operations)

(1) Any Plant and Equipment, Operator's Equipment (Build) and Operator's Equipment (Operations) that will be incorporated in or be required for the Site and New Facility or the Operation Services shall have their origin as specified under GC Section 1.1 ("Country of Origin").

(2) The Operator shall prepare a list of all Operator's Equipment (Build) and Operator's Equipment (Operations) (the "Operator's Equipment Lists"). The Operator shall update the Operator's Equipment Lists on an annual basis and shall provide the updated Operator's Equipment Lists to the Owner no later than 30 days after the end of each of the Operator's fiscal years during the Contract Term.

3.5 Site Information and Investigation

(1) The Operator acknowledges that the Owner made available to the Operator, during the bidding process, either directly or by placing the data in the Data Room and Background Information Document, all available data on hydrological and sub-surface conditions of the Site, and studies on environmental impact that had been obtained by or on behalf of the Owner from investigations in anticipation of the Build and Operations and Maintenance Services (the "Site Information"). The Operator shall be responsible for interpreting all data about the Site that is provided to it by the Owner.

(2) The Operator shall be deemed to have inspected and examined the Site, its surroundings, the Site Information and other available information, and to have satisfied itself before entering into the Contract, as to,

a. the form and nature of the Site, including the sub-surface conditions;

b. the applicable hydrological, hydrogeological and climatic conditions;

c. the extent and nature of the work, Plant and Equipment, Operator's Equipment (Build) and Operator's Equipment (Operations) necessary for the execution and completion of the Services, and the remedying of any defects; and

d. the Operator's requirements for access to the Site, accommodation, personnel, power, transport, water and other services.

(3) The Operator shall be deemed to have obtained all necessary information as to risks, contingencies and all other circumstances that may influence or affect the performance of its obligations under the Contract.

(4) To the extent the Operator did not make any of the interpretations, investigations or examinations, or did not satisfy itself, or did not obtain such information as called for in this GC Section 3.5, the Operator represents and warrants that it is willing to assume and does hereby assume responsibility for any and all loss and damage from any cause whatsoever which the Operator's interpretations, investigations, examinations and obtaining of information may have avoided and agrees to indemnify the Owner from all risk thereof and from conditions arising or developing in the course of performing the Services which may make the performance of the Services more onerous and more expensive to fulfil or perform than was contemplated on the Effective Date. Notwithstanding anything in the Contract to the contrary, the Operator acknowledges and declares that in entering into the Contract it did not and does not rely upon any information or report provided by or on behalf of the Owner or its agents, representatives or employees.

3.6 Access to the Site and New Facility

(1) The Operator shall, during both the Build Period and the New Operations Period, provide free and open access to the Site, the Existing Facility and the New Facility at the Owner's request. The Owner shall make reasonable efforts to provide reasonable notice to the Operator prior to the Owner's access but such notice is not mandatory. The Owner's representative on the Site, the Existing Facility or at the New Facility shall observe all safety and health regulations and reasonable instructions of the Operator.

(2) The Operator shall give all reasonable access to any other contractors employed by the Owner on or near the Site to carry out their work.

(3) If the Operator makes available to other contractors any roads or ways the maintenance for which the Operator is responsible, permits the use by such other contractors of the Operator's Equipment (Build) and Operator's Equipment (Operations), or provides any other service of whatsoever nature for such other contractors, the Owner shall fully compensate the Operator for any loss or damage caused or occasioned by such other contractors in respect of any such use or service, and shall pay to the Operator reasonable remuneration for the use of such equipment or the provision of such services.

(4) The Operator shall also arrange to perform its work so as to minimize, to the extent possible, interference with the work of other contractors. The BUILD ENGINEER or CSCU Director, as applicable, shall determine the resolution of any difference or conflict that may arise between the Operator and other contractors and the workers of the Owner in regard to their work.

(5) The Operator shall notify the BUILD ENGINEER or CSCU Director, as applicable, promptly of any defects in the other contractors' work that come to its notice, and that could affect the performance of the Services by the Operator. The BUILD ENGINEER or CSCU Director, as applicable, shall determine the corrective measures, if any, required to rectify the situation after inspection of the Site, the Existing Facility and the New Facility. Decisions made by the BUILD ENGINEER or CSCU Director, as applicable, shall be binding on the Operator.

ARTICLE 4 - OBLIGATIONS OF THE OWNER

4.1 Owner's Assistance to the Operator

The Owner shall use reasonable efforts to,

a. provide the Operator, Subcontractors and Operator's Personnel with work permits and such other documents as shall be necessary to enable the Operator, Subcontractors or Operator's Personnel to perform the Services;

b. arrange for Operator's Personnel and, if appropriate, their eligible dependants to obtain promptly all necessary entry and exit visas, residence permits, exchange permits and any other documents required for their stay in the Country;

c. facilitate the prompt clearance through customs of any property required for the Services and of the personal effects of the Operator's Personnel and their eligible dependants; and

d. issue to officials, agents and representatives of the Owner all such instructions as may be necessary or appropriate for the prompt and effective implementation of the Services.

4.2 Access to the Site and New Facility

The Owner shall be responsible for acquiring and providing legal and physical possession of the Site and access thereto and for providing possession and access to all other areas reasonably required for the proper execution of the Contract including all requisite rights of way. The Owner shall provide the Operator, free of charge, full possession of the Site, the Existing Facility and the New Facility during the term of the Contract and within the period specified in SCC.

4.3 Reviews and Approvals of Submissions

(1) Except as otherwise provided in the Contract, if the Operator submits a plan, report or other documentation to the Owner in writing, and the Owner, or the BUILD ENGINEER or CSCU Director, is required to approve that submission, the BUILD ENGINEER or CSCU Director, as applicable, shall review and either approve or provide written comment on the Operator's submission no later than 14 days after the day of submission by the Operator to the BUILD ENGINEER or CSCU Director.

(2) If the BUILD ENGINEER or CSCU Director, as applicable, fails to approve or refuses to approve the Operator's submission in accordance with GC Section 4.3(1), the Operator shall notify the Owner in writing that it has not received a response to its submission.

(3) If the BUILD ENGINEER or CSCU Director, as applicable, fails to respond to the Operator's written notification pursuant to GC Section 4.3(2) within 14 days after the receipt by the BUILD ENGINEER or CSCU Director, as applicable, of the Operator's written notification, the Operator's submission shall be deemed to be approved.

C. PAYMENT

ARTICLE 5 - CONTRACT PRICE AND PAYMENT

5.1 Contract Price

(1) The Contract Price shall be as specified in the Form of Contract.

(2) Unless indicated otherwise in the SCC, the Contract Price shall be,

a. firm priced Bill of Quantities of the Build Services; and

b. firm monthly unit rate in respect of the Operations and Maintenance Services,

not subject to any alteration, except in the event of a Change to the Build Services in accordance with GC Section 10.1 or a change to the Operations and Maintenance Services in accordance with GC Section 10.2 or as otherwise provided in the Contract Price Adjustment Appendix.

(3) Subject to GC Section 9.7, the Operator shall be deemed to have satisfied itself as to the correctness and sufficiency of the Contract Price, which shall, except as otherwise provided for in the Contract, cover all its obligations under the Contract, including all costs and expenses for the building of the New Facility and the operation of the New Facility and the Existing Facility.

5.2 Terms of Payment

(1) The Contract Price shall be paid as specified in the corresponding Terms and Procedures of Payment Appendix to the Contract Agreement. The procedures to be followed in making application for and processing payments shall be those outlined in the same Appendix.

(2) No payment made by the Owner herein shall be deemed to constitute acceptance by the Owner of the New Facility or any part thereof.

(3) In the event that the Owner fails to make any payment by its respective due date or within the period set forth in the Contract, the Owner shall pay to the Operator interest on the amount of such delayed payment at the rate shown in the SCC and as specified in the SCC for the period of delay until payment has been made in full, whether before or after judgment or arbitrage award.

(4) The currency in which payments are made to the Operator under this Contract shall be specified in the SCC, subject to the general principle that payments will be made in the currency or currencies in which the Contract Price has been stated in the Operator's Bid.

(5) All payments shall be made in the currency or currencies specified in the corresponding Terms and Procedures of Payment Appendix pursuant to GC Section 5.2(3).

5.3 Performance Incentive Compensation

If the Owner intends to pay the Operator performance incentive compensation, the Owner will pay such compensation at the end of the Operations Period, if specified in SCC.

5.4 Liquidated Damages - Operations

The Operator shall pay the Owner liquidated damages for failure to meet Technical Standards as set out in the SCC.

5.5 Securities

5.5.1 Performance Security

(1) The Operator and, if applicable, its Parent and Shareholders shall each provide a security for the Operator's proper performance of the Contract to the Owner no later than the date specified in the Bidding Documents (the "Performance Security").

(2) The Performance Security shall be,

a. in the amount specified in the SCC;

b. denominated in the currency or currencies of the Contract, or in a freely convertible currency acceptable to the Owner; and

c. shall be in the form specified in the Bidding Documents or in another form approved by the Owner.

(3) The Performance Security is a bank guarantee and shall be issued by either,

a. a bank located in the Country, having branch in Uttar Pradesh and payable at GHAZIPUR; or

b. a foreign bank through a correspondent bank or located in the Country, having branch in Uttar Pradesh and payable at GHAZIPUR.

(4) The Performance Security shall be valid until 180 days after the End Date, or any extension to the End Date.

(5) The Owner shall return the Performance Security no later than 14 days after its expiration.

(6) The cost of complying with this GC Section 5.5.1 shall be borne by the Operator.

5.5.2 Advance Payment Security

(1) The Operator shall provide a security in an amount equal to the advance payment calculated in accordance with the Terms and Procedures of Payment Appendix and in the same currency or currencies.

(2) The advance payment security shall be in the form provided in the Bidding Documents or in another form approved by the Owner. The amount of the advance payment security may be progressively reduced as provided for in the Terms and Procedures of Payment Appendix. The advance payment security shall returned to the Operator immediately after its expiration.

5.6 Taxes and Duties

(1) Except as otherwise specifically provided in the Contract, the Operator shall bear and pay all taxes, duties, levies and charges (the "Taxes") assessed on the Operator, its Subcontractors or their employees by all municipal, state or national government authorities in connection with the Services in and outside of the Country. The Employer will perform such duties in regard to the deduction of such taxes at source [TDS] as per applicable law.

(2) If any tax exemptions, reductions, allowances or privileges may be available to the Operator in the Country, the Owner shall use reasonable efforts to enable the Operator to benefit from any such tax savings to the maximum allowable extent. The contractor will be solely responsible for ascertaining and obtaining tax/duty exemption benefits available in India to the contracts financed under World Bank loan/credits. The Employer will not compensate the contractor in case of failure to receive such benefits. The Employer will give only necessary certificates in terms of the Government of India's relevant notifications as per information given in Declaration Form.

(3) For the purpose of the Contract, it is agreed that the Contract Price specified in the Form of Contract is based on the Taxes prevailing 30 days prior to the Submission Deadline in the Country. The Owner shall adjust the Contract Price if taxes, duties, and other levies are changed between the deadline for the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price. If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, a tax exemption, reduction, allowance of privilege applies or is granted or any change in interpretation or application of any Tax occurs in the course of the performance of Contract, which was or will be assessed on the Operator, Subcontractors or their employees in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction therefrom, as the case may be, in accordance with GC Section 9.10.

However, these adjustments would be restricted to direct transactions between the Owner and the Contractor and not on procurement of raw materials, intermediary components etc. by the Contractor. Further, no adjustment of the Contract Price shall be made on account of variation in deemed export benefits.

D. INTELLECTUAL PROPERTY

ARTICLE 6 - COPYRIGHT –BUILD DOCUMENTS

6.1 Copyright – Build Documents

(1) As between the Parties, the Operator shall retain the copyright and other intellectual property rights in the Build Documents made by or on behalf of the Operator.

(2) The Operator shall be deemed, by signing the Contract, to give the Owner a non-terminable, transferable, non-exclusive, royalty-free license to copy, use and communicate the Build Documents, including making and using modifications of them. This license shall,

a. apply throughout the actual or intended working life, whichever is longer, of the relevant parts of the Site, Existing Facility or New Facility;
b. entitle any person in proper possession of the relevant part of the Site, Existing Facility or New Facility to copy, use and communicate the Build Documents for the purposes of completing, managing, operating, maintaining, altering, adjusting, repairing and demolishing the Existing Facility or the New Facility;
c. in the case of Build Documents which are in the form of computer programs and other software, permit their use on any computer on the Site, Existing Facility or at the New Facility and other places as envisaged by the Contract, including replacements of any computers supplied by the Operator; and
d. entitle the Owner to make the Build Documents available for inspection by a prospective bidder who may be involved in the process to select a Subsequent Operator.

(3) The Owner shall not, without the Operator's consent, use, copy or communicate the Build Documents to a Third Party by, or on behalf of, the Owner for purposes other than those permitted under GC Section 6.1(2).

6.2 Confidentiality

(1) The Operator shall keep confidential and shall not, without the written consent of the Owner, divulge to any Third Party any documents, data or other information arising directly or indirectly from the performance of Services under the Contract, whether such information has been furnished prior to, during or following termination of the Contract. Notwithstanding this GC Section 6.2(1), the Operator may furnish to its Subcontractors such documents, data and other information to the extent required for the Subcontractors to perform their work under the Contract, in which event the Operator shall obtain from such Subcontractors an undertaking of confidentiality similar to that imposed on the Operator under this GC Section 6.2(1).

(2) The Operator shall not use such documents, data and other information received from the Owner for any purpose other than the Services as are required for the performance of the Contract. The Operator shall not publish, permit to be published, or disclose any particulars of the Services, Site, Existing Facility or New Facility in any trade or technical paper or advertising materials without the prior written consent of the Owner.

(3) The obligations of the Operator under GC Sections 6.2(1) and 6.2(2), shall not apply to that information which,

a. now or hereafter enters the public domain through no fault of the Operator;
b. can be proven to have been possessed by the Operator at the time of disclosure and which was not previously obtained, directly or indirectly, from the Owner; or
c. otherwise lawfully becomes available to the Operator from a Third Party that has no obligation of confidentiality.

E. EXECUTION OF THE SERVICES

ARTICLE 7 - CONTRACT ADMINISTRATION AND SUPERVISION DURING THE DESIGN-BUILD AND NEW OPERATIONS PERIODS

7.1 General

The Parties acknowledge that two separate approaches to contract administration and supervision will be in place during the Contract Term as follows:

a. from the Effective Date until the Operations Starting Date, the Build Supervision approach will be put in place by the Owner; and

b. from the Operations Starting Date until the End Date, the Operations Supervision approach will be put in place by the Owner.

7.2 Build Supervision

7.2.1 Supervision During the Build Period

GC Section 7.2 shall apply only during the Build Period.

7.2.2 BUILD ENGINEER's Duties and Authority (Build Period)

(1) The Owner shall appoint the BUILD ENGINEER who shall be responsible for day to day contract management and supervision during the Build Period. The BUILD ENGINEER's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.

(2) The BUILD ENGINEER shall have no authority to amend the Contract.

(3) Except as specifically provided otherwise in the Contract, the BUILD ENGINEER may exercise the authority attributable to the BUILD ENGINEER as specified in or necessarily to be implied from the Contract. The Owner undertakes not to impose further constraints on the BUILD ENGINEER's authority, except as agreed with the Operator.

(4) If the BUILD ENGINEER is obligated to obtain the approval of the Owner before exercising a specific authority, these restrictions shall be shall be set out in the SCC. If the BUILD ENGINEER exercises a specified authority for which the Owner's approval is required then, for the purposes of the Contract, the Owner shall be deemed to have given approval.

(5) Except as otherwise stated in the Contract,

a. if the BUILD ENGINEER carries out duties or exercises authority, specified in or implied by the Contract, the BUILD ENGINEER shall be deemed to act for the Owner;
b. the BUILD ENGINEER has no authority to relieve any Party of any duties, obligations or responsibilities under the Contract; and
c. any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test or similar act by the BUILD ENGINEER, including absence of disapproval, shall not relieve the Operator from any responsibility it has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances.

7.2.3 Delegation by the BUILD ENGINEER

(1) The BUILD ENGINEER may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, or independent inspectors appointed to inspect or test items of Plant or Equipment. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. Unless otherwise agreed by both Parties, the BUILD ENGINEER shall not delegate the authority to determine any matter in accordance with GC Section 7.2.6.

(2) Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in GC Section 1.3.1.

(3) Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorized to issue instructions to the Operator to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the BUILD ENGINEER. However,

a. any failure to disapprove any work or Plant and Equipment shall not constitute approval, and shall therefore not prejudice the right of the BUILD ENGINEER to reject the work or the Plant and Equipment; and

b. if the Operator questions any determination or instruction of an assistant, the Operator may refer the matter to the BUILD ENGINEER, who shall promptly confirm, reverse or vary the determination or instruction.

7.2.4 Instructions of the BUILD ENGINEER

(1) The BUILD ENGINEER may issue to the Operator, at any time during the Build Period, instructions which may be necessary for the execution of the Build Services and the remedying of any defects, all in accordance with the Contract. The Operator shall only take instructions from the BUILD ENGINEER, or from an assistant to whom the appropriate authority has been delegated under GC Section 7.2.3. If an instruction constitutes a Change, GC Section 10.1 shall apply.

(2) The Operator shall comply with the instructions given by the BUILD ENGINEER or delegated assistant, on any matter related to the Contract. These instructions shall be given in writing.

7.2.5 Replacement of the BUILD ENGINEER

If the Owner intends to replace the BUILD ENGINEER, the Owner shall, not less than 42 days before the intended date of replacement, give notice to the Operator of the name, address and relevant experience of the intended replacement BUILD ENGINEER. The Owner shall not replace the BUILD ENGINEER with a person against whom the Operator raises reasonable objection by notice to the Owner, with supporting particulars.

7.2.6 Determinations by the BUILD ENGINEER

(1) Whenever the Contract provides that the BUILD ENGINEER shall proceed in accordance with this GC Section 7.2.6 to agree or determine any matter, the BUILD ENGINEER shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the BUILD ENGINEER shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

(2) The BUILD ENGINEER shall give notice to the Parties of each agreement or determination, with supporting particulars. Each Party shall give effect to each agreement or determination unless and until revised under GC Section 1.9.

7.3 Operations Supervision

7.3.1 Supervision During the New Operations Period

This GC Section 7.3 shall apply only during the New Operations Period and the period of time immediately after the End Date solely for the purpose of resolving transition issues and any outstanding issues arising during the New Operations Period.

7.3.2 Operations - CSCU's Duties and Authority

(1) The Owner shall appoint a Contract Supervision and Coordination Unit (the "CSCU") which shall carry out the duties assigned to it in the Contract. The CSCU's staff shall include suitably qualified professionals who are competent to carry out these duties.

(2) The Owner shall appoint a CSCU Director (the "CSCU Director") who shall be primarily responsible for the activities of the CSCU.

(3) The CSCU shall have no authority to amend the Contract.

(4) The CSCU may exercise the authority attributable to the CSCU as specified in or necessarily to be implied from the Contract. The Owner undertakes not to impose further constraints on the CSCU's authority, except as agreed with the Operator.

(5) If the CSCU is required to obtain the approval of the Owner before exercising a specified authority, the requirements shall be stated in the SCC. If the CSCU exercises a specified authority for which the Owner's approval is required, then for the purposes of the Contract the Owner shall be deemed to have given approval.

(6) Except as otherwise stated in these General Conditions,

a. whenever carrying out duties or exercising authority, specified in or implied by the Contract, the CSCU shall be deemed to act for the Owner;

b. the CSCU has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract; and

c. any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the CSCU, including absence of disapproval shall not relieve the Operator from any responsibility it has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances.

7.3.3 Operations - Delegation by the CSCU

(1) The CSCU Director may from time to time assign duties and delegate authority to CSCU assistants, and may also revoke such assignment or delegation. Unless otherwise specified by the CSCU in writing, all instructions, approvals, certificates, consents, notices, requests or similar acts of the CSCU shall be issued by the CSCU Director. The CSCU Director shall not delegate the authority to determine any matter in accordance with GC Section 7.3.6.

(2) Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in the SCC.

(3) Each assistant, to whom duties have been assigned or authority has been delegated shall only be authorised to issue instructions to the Operator to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the CSCU. However,

a. any failure to disapprove any work shall not constitute approval, and shall therefore not prejudice the right of the CSCU Director to reject the work; and

b. if the Operator questions any determination or instruction of an assistant, the Operator may refer the matter to the CSCU Director, who shall promptly confirm, reverse or vary the determination or instruction.

7.3.4 Instructions of the CSCU

(1) The CSCU, through the CSCU Director, may issue to the Operator, at any time, instructions which may be necessary for the execution of the Operations and Maintenance Services and the remedying of any defects, all in accordance with the Contract. The Operator shall only take instructions from the CSCU, or from an assistant to whom the appropriate authority has been delegated under GC Section 7.3.3.

(2) The Operator shall comply with the instructions given by the CSCU Director, or delegated assistant, on any matter related to the Contract. These instructions shall be given in writing.

7.3.5 Change in the CSCU

The Owner may, in its sole discretion, change the members of the CSCU. If the Owner intends to change the CSCU Director, it shall give the Operator 30 days prior notice of the change.

7.3.6 Determinations by the CSCU

(1) Whenever these General Conditions provide that the CSCU shall proceed in accordance with this GC Section 7.3.6 to agree or determine any matter, the CSCU Director shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the CSCU Director shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

(2) The CSCU shall give notice to both Parties of each agreement or determination, with supporting particulars.

ARTICLE 8 - REPRESENTATIVES, STAFF AND SUBCONTRACTING

8.1 Representatives

8.1.1 Owner's Representative

(1) The Owner's representative (the "Owner's Representative") shall be as follows:

a. during the Build Period, the Owner's Representative shall be the BUILD ENGINEER; and
b. during the New Operations Period, the Owner's Representative shall be the CSCU Director.

(2) The Owner shall name its representative,

a. no later than 14 days after the Effective Date for the BUILD ENGINEER; and
b. no later than 14 days after the Completion of the New Facility for the CSCU Director.

(3) The Owner may change its representative from time to time and shall give notice of the change without delay. The Owner shall not change its representative at a time and in such a manner as to impede the progress of either the Build Services or the Operations and Maintenance Services.

(4) The Owner's Representative shall represent and act for the Owner at all times during the performance of the Contract. All notices, instructions, orders, certificates, approvals and all other communications under the Contract by the Owner shall be given by the BUILD ENGINEER or the CSCU Director, as applicable, except as herein otherwise provided.

(5) All notices, instructions, information and other communications given by the Operator to the Owner under the Contract shall be given to the BUILD ENGINEER or CSCU Director, as applicable, except as herein otherwise provided.

8.1.2 Operator's Representative

(1) If the Operator's representative is not named in the SCC, the Operator shall name its representative (the "Operator's Representative") no later than 14 days after the Effective Date and shall request the Owner to approve the proposed Operator's Representative. If the Owner makes no objection to the proposed Operator's Representative, the Operator's Representative shall be deemed to have been approved.

(2) If the Owner objects to the proposed Operator's Representative before the expiration of 14 days after the proposal, the Operator shall propose a replacement no later than 14 days after receiving the Owner's objection and reasons for the objection and GC Section 8.1.2(1) shall apply to the proposed replacement.

(3) The Operator's Representative shall represent and act for the Operator at all times during the performance of the Contract. All notices, instructions, orders, certificates, approvals and all other communications under the Contract by the Operator shall be given by the Operator's Representative, except as herein otherwise provided.

(4) All notices, instructions, information, and other communications given by the Owner to the Operator under the Contract shall be given to the Operator's Representative as established pursuant to this GC Section 8.1.2.

(5) The Operator shall not revoke the appointment of the Operator's Representative without the Owner's prior written consent, which shall not be unreasonably withheld. If the Owner consents thereto, the Operator shall appoint some other person as the Operator's Representative, pursuant to the procedure set out in this GC Section 8.1.2.

(6) The Operator's Representative may, subject to the approval of the Owner, which shall not be unreasonably withheld, at any time delegate to any person any of the powers, functions and authorities vested in him or her. Any such delegation may be revoked at any time. Any such delegation or revocation shall be subject to a prior notice signed by the Operator's Representative, and shall specify the powers, functions and authorities thereby delegated or revoked. No such delegation or revocation shall take effect unless and until a copy thereof has been delivered to the Owner and the BUILD ENGINEER or CSCU Director, as applicable.

(7) Any act or exercise by any person of powers, functions and authorities so delegated to him or her in accordance with GC Section 8.1.2(6) shall be deemed to be an act or exercise by the Operator's Representative.

8.2 Operator's Superintendence

(1) Throughout the term of the Contract, the Operator shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the Services.

(2) Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications as set out in the SCC and of the operations to be carried out, including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents, for the satisfactory and safe execution of the Services.

(3) The Operator's Representative shall appoint a suitable person as construction or operations manager as applicable (the "Manager"). The Manager shall supervise all work done at the Site, Existing Facility and New Facility by the Operator and shall be present at the Site, Existing Facility or New Facility through normal working hours except when on leave, sick or absence connected with the proper performance of the Contract. Whenever the Manager is absent from the Site, Existing Facility or New Facility, a suitable person shall be appointed to act as his or her deputy.

8.3 Operator's Personnel

(1) The Operator shall provide and employ on the Site for the performance of the Services such skilled, semi-skilled and unskilled labour as is necessary for the proper and timely execution of the Contract (the "Operator's Personnel"). The Operator is encouraged to use local labour that has the necessary skills. The Operator shall provide all expertise needed to carry out the Services including the expertise listed in the Operator's Expertise Appendix.

(2) Unless otherwise provided in the Contract, the Operator shall be responsible for the recruitment, employment, transportation, accommodation and catering of all labour, local or expatriate, required for the execution of the Contract and for all payments in connection therewith.

(3) The Operator shall be responsible for obtaining all necessary permits and visas from the appropriate authorities for the entry of all labour and personnel to be employed on the Site into the Country.

(4) The Operator shall at its own expense provide the means of repatriation to all of its and its Subcontractor's personnel employed on the Contract at the Site to their various home countries. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Operator defaults in providing such means of transportation and temporary maintenance, the Owner may provide the same to such personnel and recover the cost of doing so from the Operator.

(5) The Operator shall at all times during the progress of the Contract use its best endeavours to prevent any unlawful, riotous or disorderly conduct or behaviour by or amongst its employees and the labour of its Subcontractors.

(6) The Operator shall, in all dealings with its labour and the labour of its Subcontractors currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labour.

8.4 Replacement of Operator's Personnel

The BUILD ENGINEER or the CSCU Director, as applicable, may require the Operator to remove and replace any member of the Operator's Personnel who,

a. persists in any misconduct or lack of care;
b. carries out duties incompetently or negligently;
c. fails to comply with any provision of the Contract; or
d. persists in any conduct which gives the Owner reasonable cause to be dissatisfied with him or her.

8.5 Existing Staff

If the Operator is obliged to retain staff employed by the Owner as stated in the SCC, it shall do so in accordance with the Existing Staff Appendix.

8.6 Subcontractors

(1) The Operator shall not enter into any contract or contracts that will result in the Operator exceeding the maximum percentage of subcontracting permitted by the Owner in respect of the Build Services and the Operations and Maintenance Services, as set out in the Bidding Documents.

(2) Except with respect to the Subcontractors named in the Operator's Bid, the Operator shall not enter into a contract with any Subcontractor without the prior consent of the Owner.

(3) The Operator shall be responsible for the observance by Subcontractors of the terms and conditions of the Contract and shall ensure that all relevant terms of the Contract are included in the Operator's contracts with Subcontractors.

(4) Subcontracting by the Operator shall not relieve the Operator of any of its obligations under the Contract and the Operator shall be responsible for the acts, omissions and defaults of all Subcontractors, and the Subcontractors, employees, agents and sub-subcontractors, as fully as if they were acts, omissions or defaults of the Operator or the Operator's Personnel.

F. LIABILITY AND RISK DISTRIBUTION

ARTICLE 9 - LIABILITY AND RISK DISTRIBUTION

9.1 Defect Liability

(1) The Operator warrants that the Site and New Facility or any part thereof shall be free from defects in the engineering, materials and workmanship of the Plant and Equipment supplied and of the work executed, except where it is established, by an Adjudicator or Arbitrator as the case may be, that the defect is attributable to design or specifications as supplied by the Owner and such defect could not have been identified by the Operator, before or during execution of works, by employing reasonable scrutiny of such design or specifications.

(2) The Defect Liability Period shall be 12 months after the date of Completion of the New Facility or 12 months from the date of Operational Acceptance of the New Facility, whichever first occurs, unless specified otherwise in the SCC.

(3) If during the Defect Liability Period any defect should be found in the engineering, materials and workmanship of the Site, New Facility or Plant and Equipment supplied or of the work executed by the Operator, the Operator shall promptly, in consultation and agreement with the Owner regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good, as the Operator shall, at its discretion, determine, such defect as well as any damage to the New Facility caused by such defect. The Operator shall not be responsible for the repair, replacement or making good of any defect or of any damage to the New Facility arising out of or resulting from normal wear and tear.

(4) The Operator's obligations under this GC Section 9.1 shall not apply to,

a. any designs, specifications or other data designed, supplied or specified by or on behalf of the Owner; and

b. any other materials supplied or any other work executed by or on behalf of the Owner, except for the work executed by the Owner under GC Section 9.1(10).

(5) The Owner shall give the Operator a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Owner shall give all reasonable opportunity for the Operator to inspect any such defect.

(6) The Owner shall give the Operator all necessary access to the New Facility and the Site to enable the Operator to perform its obligations under this GC Section 9.1.

(7) The Operator may, with the consent of the Owner, remove from the Site any Plant and Equipment, Operator's Equipment (Build) and Operator's Equipment (Operations) or any part of the New Facility that are defective if the nature of the defect, or any damage to the New Facility caused by the defect, is such that repairs cannot be expeditiously carried out at the Site.

(8) If the repair, replacement or making good is of such a character that it may affect the efficiency of the New Facility or any part thereof, the Owner may give to the Operator a notice requiring that tests of the defective part of the New Facility shall be made by the Operator immediately upon completion of such remedial work, whereupon the Operator shall carry out such tests.

(9) If such part fails the tests, the Operator shall carry out further repair, replacement or making good, as the case may be, until that part of the New Facility passes such tests. The tests shall be agreed upon by the Owner and the Operator.

(10) If the Operator fails to commence the work necessary to remedy such defect or any damage to the New Facility caused by such defect within a reasonable time, which shall in no event be considered to be less than 15 days, the Owner may, following notice to the Operator, proceed to do such work, and the reasonable costs incurred by the Owner in connection therewith shall be paid to the Owner by the Operator or may be deducted by the Owner from any monies due the Operator or claimed under the Performance Security.

(11) If the New Facility or any part thereof cannot be used by reason of such defect or making good of such defect, the Defect Liability Period of the New Facility or such part, as the case may be, shall be extended by a period equal to the period during which the New Facility or such part cannot be used by the Owner because of any of the aforesaid reasons.

(12) Except as provided in GC Sections 9.1 and 9.5, the Operator shall be under no liability whatsoever and howsoever arising, and whether under the Contract or at law, in respect of defects in the New Facility or any part thereof, the Plant and Equipment, engineering or work executed that appear after Completion of the Site, the New Facility or any part thereof, except where such defects are the result of the gross negligence, fraud, criminal or wilful action of the Operator.

(13) The Operator shall also provide an extended warranty for any such component of the New Facility and during the period of time as may be specified in the SCC. Such obligation shall be in addition to the Defect Liability Period specified under GC Section 9.1(2).

9.2 Limitation of Liability

Except in cases of criminal negligence or wilful misconduct,

a. the Operator shall not be liable to the Owner in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits of interest costs, provided that this exclusion shall not apply to any obligation of the Operator to pay liquidated damages to the Owner; and

b. the aggregate liability of the Operator to the Owner, whether under the Contract, in tort or otherwise, shall not exceed the aggregate of the total Contract Price (including the Monthly Operations Payment times the original estimate of months during the New Operations Period) and the total available Performance Incentive Compensation, provided that this limitation shall not apply to any obligation of the Operator to indemnify the Owner with respect to patent infringement.

9.3 Transfer of Ownership and Existing Equipment and Materials

9.3.1 Transfer of Ownership

(1) Ownership of the Plant and Equipment, including spare parts, to be imported into the Country shall be transferred to the Owner upon delivery at the Site.

(2) Ownership of the Plant and Equipment procured in the Country shall be transferred to the Owner when the Plant and Equipment are brought on to the Site.

(3) Ownership of any Plant and Equipment in excess of the requirements of the New Facility shall revert to the Operator upon Completion of the New Facility or such earlier time if the Owner and the Operator agree that the Plant and Equipment in question are no longer required for the New Facility.

(4) Subject to GC Section 9.3.1(5), ownership of the Operator's Equipment (Build) and Operator's Equipment (Operations), including spare parts, shall remain with the Operator or its Subcontractors.

(5) The Owner may, in its sole discretion, purchase as of the End Date any of the Operator's Equipment (Operations), including spare parts, at the fair market value of such Operator's Equipment (Operations) as determined by an independent valuator and the Operator shall transfer ownership and possession of such Operator's Equipment (Operations) to the Owner as of the End Date.

(6) Notwithstanding the transfer of ownership of the Plant and Equipment, the responsibility for care and custody of the Plant and Equipment, Operator's Equipment (Build) and Operator's Equipment (Operations), together with the risk of loss or damage thereto, shall remain with the Operator pursuant to GC Section 9.4 until the End Date.

9.3.2 Existing Equipment and Materials

(1) The Owner shall transfer the care, control and responsibility for all existing equipment, materials, supplies and consumables, if any, used to operate and maintain the Existing Facility (the "Existing Equipment and Materials") to the Operator on the Build Starting Date at no cost to the Operator.

(2) The Operator shall, no later than 15 days after the Build Starting Date prepare a list of the Existing Equipment and Materials and submit it to the Owner for its review and approval. The Operator shall update the list of Existing Equipment and Materials annually and submit it to the Owner for its review and approval.

(3) The Operator shall return all Existing Equipment and Materials on the list, as updated, to the Owner on the End Date in the same condition as they were transferred to the Operator, except for reasonable wear and tear and at no cost to the Owner.

9.4 Care of the Site and New Facility

(1) Except as provided in GC Sections 9.9 and 9.4(2), the Operator shall be responsible for the care and custody of the Site, Existing Facility and New Facility or any part thereof until the End Date and shall make good at its own cost any loss or damage that may occur to the Site, Existing Facility or New Facility from any cause whatsoever during such period. The Operator shall also be responsible for any loss or damage to the Site, Existing Facility or New Facility caused by the Operator or its Subcontractors in the course of any work carried out, pursuant to GC Section 9.1.

(2) If any loss or damage occurs to the Site, Existing Facility or New Facility or any part thereof by reason of,

a. insofar as they relate to the Country, nuclear reaction, nuclear radiation, radioactive contamination, pressure wave caused by aircraft or other aerial objects, or any other occurrences that an experienced contractor or operator could not reasonably foresee, or if reasonably foreseeable could not reasonably make provision for or insure against, insofar as such risks are not normally insurable on the insurance market and are mentioned in the general exclusions of the policy of insurance, including War Risks, taken out under GC Section 9.6;

b. any use or occupation by the Owner or any Third Party, other than a Subcontractor, authorized by the Owner of any part of the Site, Existing Facility or New Facility; or

c. any use of or reliance upon any design, data or specification provided or designated by or on behalf of the Owner, or any such matter for which the Operator has disclaimed responsibility herein,

the Owner shall pay to the Operator all sums payable in respect of the Site, Existing Facility or New Facility executed, notwithstanding that the same be lost, destroyed or damaged. If the Owner requests the Operator in writing to make good any loss or damage to the Existing Facility or New Facility thereby

occasioned, the Operator shall make good the same at the cost of the Owner in accordance with GC Section 10.1. If the Owner does not request the Operator in writing to make good any loss or damage to the New Facility thereby occasioned, the Owner shall either request a change in accordance with GC Section 10.1, excluding the performance of that part of the New Facility thereby lost, destroyed or damaged, or, where the loss or damage affects a substantial part of the New Facility, the Owner shall terminate the Contract pursuant to GC Section 11.2.1.

(3) The Operator shall be liable for any loss of or damage to any Operator's Equipment (Build), Operator's Equipment (Operations) or any other property of the Operator used or intended to be used for purposes of the Site, Existing Facility or the New Facility, except where such loss or damage arises by reason of any of the matters specified in GC Sections 9.4(2)(b) and 9.9.

(4) With respect to any loss or damage caused to the New Facility or any part thereof, the Operator's Equipment (Build) or the Operator's Equipment (Operations) by reason of any of the matters specified in GC Section 9.9(1), the provisions of GC Section 9.9(3) shall apply.

9.5 Indemnification

(1) Subject to GC Section 9.5(5), the Operator shall indemnify and hold harmless the Owner and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property, arising in connection with the Operator's performance of the Services and by reason of the negligence of the Operator or its Subcontractors, or their employees, officers or agents, except any injury, death or property damage caused by the negligence of the Owner, its contractors, employees, officers or agents.

(2) If any proceedings are brought or any claim is made against the Owner that might subject the Operator to liability under GC Section 9.5(1), the Owner shall promptly give the Operator a notice thereof and the Operator may at its own expense and in the Owner's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

(3) If the Operator fails to notify the Owner prior to the expiration of 30 days after receipt of a notice given pursuant to GC Section 9.5(2) that it intends to conduct any such proceedings or claim, then the Owner shall be free to conduct the same on its own behalf. Unless the Operator has so failed to notify the Owner within the 30 day period, the Owner shall make no admission that may be prejudicial to the defense of any such proceedings or claim.

(4) The Owner shall, at the Operator's request, provide all available assistance to the Operator in conducting such proceedings or claim, and shall be reimbursed by the Operator for all reasonable expenses incurred in so doing.

(5) The Owner shall indemnify and hold harmless the Operator and its employees, officers and Subcontractors from any liability for loss of or damage to property of the Owner that is caused by fire, explosion or any other perils, in excess of the amount recoverable from insurances procured under GC Section 9.6, provided that such fire, explosion or other perils were not caused by any act or omission of the Operator.

(6) The Party entitled to the benefit of an indemnity under this GC Section 9.5 shall take all reasonable measures to mitigate any loss or damage which has occurred. If the Party fails to take such measures, the other Party's liabilities shall be correspondingly reduced.

9.6 Insurance

(1) To the extent specified in the SCC, the Operator shall, at its own expense, take out and maintain in effect or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified in the SCC. The identity of the insurers and the form of the policies shall be subject to the prior approval of the Owner who shall not unreasonably withhold such approval. The Operator shall submit appropriate certificates of insurance demonstrating that the Operator has met its obligations pursuant to this GC Section 9.6 to the Owner no later than the Effective Date.

a. Cargo Insurance During Transport :Covering loss or damage, occurring while in transit from the Operator's or Subcontractor's works or stores until arrival at the Site, to the Plant and Equipment, Operator's Equipment (Build) and Operator's Equipment (Operations), including spare parts therefor;

b. Installation All Risks Insurance: Covering physical loss or damage to the New Facility at the Site occurring prior to the Completion of the New Facility, with an extended maintenance coverage for the Operator's liability in respect of any loss or damage occurring during the Defect Liability Period while the Operator is on the Site for the purpose of performing its obligations during the Defect Liability Period;

c. Third Party Liability Insurance: Covering bodily injury or death suffered by Third Parties, including the Owner's personnel, and loss of or damage to property occurring in connection with the Services;

d. Professional Liability Insurance: Covering loss or damage by reason of professional negligence in the construction and operation of the Site and New Facility;

e. Automobile Liability Insurance: Covering use of all vehicles used by the Operator or its Subcontractors, whether or not owned by them, in connection with the Services and execution of the Contract;

f. Workers' Compensation: In accordance with the requirements of the Applicable Law;

g. Employer's Liability: In accordance with the requirements of the Applicable Law; and

h. Other Insurance: Such other insurance as may be set out in the SCC.

(2) The Owner shall be named as co-insured under all insurance policies taken out by the Operator pursuant to GC Section 9.6(1), except for the Third Party Liability, Workers' Compensation and Employer's Liability Insurances, and the Operator's Subcontractors shall be named as co-insureds under all insurance policies taken out by the Operator pursuant to GC Section 9.6(1), except for the Cargo Insurance During Transport, Workers' Compensation and Employer's Liability Insurances. All insurers' rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies.

(3) The Operator shall deliver to the Owner certificates of insurance, or copies of the insurance policies, as evidence that the required policies are in full force and effect. The certificates shall provide that no less than 21 days notice shall be given to the Owner by insurers prior to cancellation or material modification of a policy.

(4) The Operator shall ensure that, where applicable, the Subcontractors take out and maintain in effect adequate insurance policies for their employees and vehicles and for work executed by them under the Contract, unless such Subcontractors are covered by the policies taken out by the Operator.

(5) If the Operator fails to take out or maintain in effect the insurances referred to in GC Section 9.6(1), the Owner may take out and maintain in effect any such insurances and may from time to time deduct from any amount due the Operator under the Contract any premium that the Owner shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Operator.

(6) Unless otherwise provided in the Contract, the Operator shall prepare and conduct all and any claims made under the policies effected by it pursuant to this GC Section 9.6, and all monies payable by any insurers shall be paid to the Operator. The Owner shall give to the Operator all such reasonable assistance as may be required by the Operator. With respect to insurance claims in which the Owner's interest is involved, the Operator shall not give any release or make any compromise with the insurer without the prior consent of the Owner.

(7) When each insurance premium has been paid, the Operator shall submit a copy of receipts to the Owner and shall notify the Owner's Representative that it has done so.

(8) The Operator shall comply with the conditions stipulated in each of the insurance policies. The Operator shall make no material alteration to the terms of any insurance without the prior approval of the Owner. If an insurer makes, or purports to make, any such alteration, the Operator shall notify the Owner immediately.

(9) Nothing in this GC Section 9.6 limits the obligations, liabilities or responsibilities of the Operator, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Operator.

9.7 Unforeseeable Physical Conditions

(1) In this GC Section 9.7, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Operator encounters at the Site when performing of the Build Services, including sub-surface and hydrological conditions but excluding climatic conditions.

(2) If the Operator encounters adverse physical conditions which it considers to have been Unforeseeable, the Operator shall give notice to the BUILD ENGINEER as soon as practicable.

(3) The Operator's Notice pursuant to GC Section 9.7(2) shall describe the physical conditions, so that they can be inspected by the BUILD ENGINEER, and shall set out the reasons why the Operator considers them to be Unforeseeable. The Operator shall continue performing the Build Services, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the BUILD ENGINEER may give. If an instruction constitutes a Change GC Section 10.1.3 shall apply.

(4) If and to the extent that the Operator encounters physical conditions which are Unforeseeable, gives the notice required by GC Section 9.7(2), and suffers delay or incurs Cost due to these conditions, the Operator shall be entitled subject to GC Section 1.9 to,

a. an extension of time for any such delay, if completion is or will be delayed, under GC Section 2.3.4; and

b. payment of any such Cost, which shall be included in the Contract Price.

(5) After receiving such notice and inspecting or investigating these physical conditions, the BUILD ENGINEER shall proceed in accordance with GC Section 7.2.6 to agree or determine,

a. whether and to what extent these physical conditions were Unforeseeable; and

b. the amount of delay or Cost, if any, pursuant to GC Section 9.7(4).

(5) Before additional Cost is finally agreed or determined under GC Section 9.7(5), the BUILD ENGINEER, pursuant to GC Section 7.2.6, may also review whether other physical conditions were more favorable than could reasonably have been foreseen when the Operator submitted the Bid. If and to the extent that these more favorable conditions were encountered, the BUILD ENGINEER may proceed in accordance with GC Section 7.2.6 to agree or determine the reductions in Cost which were due to these conditions, which may be included, as deductions, in the Contract Price. The net effect of all adjustments under GC Section 9.7(4)(b) and all these reductions, for all the physical conditions encountered on the Site, shall not result in a net reduction in the Contract Price.

(6) The BUILD ENGINEER may take account of any evidence of the physical conditions foreseen by the Operator when submitting the Bid, which may be made available by the Operator, but shall not be bound by any such evidence.

9.8 Force Majeure

(1) "Force Majeure" shall mean any event,

a. beyond the reasonable control of the Owner or of the Operator, as the case may be; and

b. which is unavoidable notwithstanding the reasonable care of the Party affected.

(2) Force Majeure shall include the events listed below in this GC Section 9.8(2) if the conditions set out in GC Section 9.8(1)(a) and (b) are satisfied:

a. war, hostilities or warlike operations, whether a state of war be declared or not, invasion, act of foreign enemy and civil war;

b. rebellion, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion and terrorist acts;

c. confiscation, nationalization, mobilization, commandeering or requisition by or under the order of any government or de jure or de facto authority or ruler or any other act or failure to act of any local state or national government authority;

d. strike, sabotage, lockout, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, shortage or restriction of power supply, epidemics, quarantine and plague;

e. earthquake, landslide, volcanic activity, fire, flood or inundation, tidal wave, typhoon or cyclone, hurricane, storm, lightning, or other inclement weather condition, nuclear and pressure waves or other natural or physical disaster; and

f. shortage of labour, materials or utilities where caused by circumstances that are themselves Force Majeure.

(3) If the Parties are prevented, hindered or delayed from or in performing any of their obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within 14 days after the occurrence of such event.

(4) The Party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such Party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with GC Section 2.3.4(1) for events of Force Majeure during the Build Period. If the Time for Completion is extended in accordance with GC Section 2.3.4(1), the End Date shall be extended for a period of time equal to the period of time during which the relevant event of Force Majeure continued.

(5) The Party or Parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Contract and to fulfil its or their obligations under the Contract, but without prejudice to either Party's right to terminate the Contract under GC Sections 9.8(7) and 9.9(6).

(6) No delay or non-performance by either Party hereto caused by the occurrence of any event of Force Majeure shall,

a. constitute a default or breach of the Contract; or

b. subject to GC Sections 9.4(2), 9.9(3) and 9.9(5), give rise to any claim for damages or additional Cost occasioned thereby,

if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.

(7) If the performance of the Contract is substantially prevented, hindered or delayed for a single period of more than 60 days or an aggregate period of more than 120 days on account of one or more events of Force Majeure during the term of the Contract, the Parties will attempt to develop a mutually satisfactory solution, failing which either Party may terminate the Contract by giving a notice to the other, but without prejudice to either Party's right to terminate the Contract under GC Section 9.9(6).

(8) In the event of termination pursuant to GC Section 9.8(7), the rights and obligations of the Owner and the Operator shall be as specified in GC Sections 11.2.1(2) and 11.2.2(1).

(9) Notwithstanding GC Section 9.8(6), Force Majeure shall not apply to any obligation of the Owner to make payments to the Operator herein.

9.9 War Risks

(1) "War Risks" shall mean any event specified in GC Section 9.8(2)(a) and (b) and any explosion or impact of any mine, bomb, shell, grenade or other projectile, missile, munitions or explosive of war, occurring or existing in or near the Country.

(2) Notwithstanding anything contained in the Contract, the Operator shall have no liability whatsoever for or with respect to,

a. destruction of or damage to the Site and Plant and Equipment or any part thereof;

b. destruction of or damage to property of the Owner or any Third Party; or

c. injury or loss of life,

if such destruction, damage, injury or loss of life is caused by any War Risks, and the Owner shall indemnify and hold the Operator harmless from and against any and all claims, liabilities, actions, lawsuits, damages, costs, charges or expenses arising in consequence of or in connection with the same.

(3) If the Site, Existing Facility, New Facility or any Plant and Equipment, Operator's Equipment (Build), Operator's Equipment (Operations) or any other property of the Operator used or intended to be used for the purposes of the Services sustains destruction or damage by reason of any War Risks, the Owner shall pay the Operator for,

a. any part of the New Facility or the Plant and Equipment so destroyed or damaged, to the extent not already paid for by the Owner;

b. replacing or making good any Operator's Equipment (Build), Operator's Equipment (Operations) or other property of the Operator so destroyed or damaged; and

c. so far as may be required by the Owner, and as may be necessary for completion of the Services, replacing or making good any such destruction or damage to the Site, Existing Facility, New Facility or the Plant and Equipment or any part thereof.

(4) If the Owner does not require the Operator to replace or make good any such destruction or damage to the Site, Existing Facility or New Facility, the Owner shall either request a Change in accordance with GC Section 10.1 excluding the performance of that part of the Existing Facility or New Facility thereby destroyed or damaged or, where the loss, destruction or damage affects a substantial part of the Site, Existing Facility or New Facility, shall terminate the Contract, pursuant to GC Section 11.2.1.

(5) Notwithstanding anything contained in the Contract, the Owner shall pay the Operator for any increased Costs that are in any way attributable to, consequent on, resulting from, or in any way connected with any War Risks, if the Operator notifies the Owner in writing of any such increased Cost as soon as practicable.

(6) If, during the term of the Contract, any War Risks occur that financially or otherwise materially affect the execution of the Contract by the Operator, the Operator shall use its reasonable efforts to execute the Contract with due and proper consideration given to the safety of its and its Subcontractors' personnel engaged in the work on the Services. If the execution of the Services becomes impossible or is substantially prevented for a single period of more than 60 days or an aggregate period of more than 120 days on account of any War Risks, the Parties will attempt to develop a mutually satisfactory solution, failing which either Party may terminate the Contract by giving a notice to the other.

(7) In the event of termination pursuant to GC Section 9.9(4) or 9.9(6), the rights and obligations of the Owner and the Operator shall be as specified in GC Section 11.2.1(2) and 11.2.2(1).

9.10 Change in Laws and Regulations

If, after a date which 30 days is prior to the Submission Deadline in the Bidding Documents, in the Country, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or changed, which shall be deemed to include any change in interpretation or application by the competent authorities, that subsequently affects the costs and expenses of the Operator or the Time for Completion, the Contract Price shall be correspondingly increased or decreased, or the Time for Completion shall be reasonably adjusted to the extent that the Operator has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced costs shall not be separately paid or credited if the same has already been accounted for in the Contract Price adjustment provisions where applicable, in accordance with the SCC.

9.11 Patent Indemnity

9.11.1 Indemnity by Operator

The Operator shall indemnify and hold harmless the Owner and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Owner may suffer as a result of any infringement or alleged infringement by the Operator, Subcontractors, or their employees, agents, or representatives, of any patent, utility model, , trademark, copyright or other intellectual property right registered or otherwise existing.

9.11.2 Notice of Claim

(1) If any proceedings are brought or any claim is made against the Owner arising out of the matters referred to in GC Section 9.11.1, the Owner shall promptly give the Operator a notice thereof, and the Operator may at its own expense and in the Owner's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

(2) If the Operator fails to notify the Owner no later than 30 days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Owner shall be free to conduct the same on its own behalf. Unless the Operator has so failed to notify the Owner no later than the 30 day period, the Owner shall make no admission that may be prejudicial to the defence of any such proceedings or claim.

(3) The Owner shall, at the Operator's request, give all available assistance to the Operator in conducting such proceedings or claim, and shall be reimbursed by the Operator for all reasonable expenses incurred in so doing.

9.11.3 Indemnity by Owner

The Owner shall indemnify and hold harmless the Operator and its employees, officers and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Operator may suffer as a result of any infringement or alleged infringement by the Owner of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the Effective Date arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Owner.

9.12 Functional Guarantees

(1) The Operator guarantees that during the Tests and Inspection set out in BSA Article 5, the New Facility and all parts thereof shall attain the Functional Guarantees specified in Attachment 1 to the Technical Standards Appendix (the "Functional Guarantees"), subject to and upon the conditions therein specified.

(2) If, for reasons attributable to the Operator, the minimum level of the Functional Guarantees are not met either in whole or in part, the Operator shall at its cost and expense make any such changes, modifications or additions to the New Facility or any part thereof as may be necessary to meet at least the minimum level of the Functional Guarantees. The Operator shall notify the Owner upon completion of the necessary changes, modifications or additions, and shall request the Owner to repeat the applicable Tests and Inspection until the minimum level of the Functional Guarantees has been met. If the Operator eventually fails to meet the minimum level of Functional Guarantees, the Owner may consider termination of the Contract, pursuant to GC Section 11.2.3.

(3) If, for any reasons attributable to the Operator, the Functional Guarantees are not attained either in whole or in part, but the minimum level of the Functional Guarantees is met, the Operator shall, at the Operator's option, either

a. make such changes, modifications or additions to the New Facility or any part thereof that are necessary to attain the Functional Guarantees at its cost and expense, and shall request the Owner to repeat the Tests and Inspection; or
b. pay liquidated damages to the Employer in respect of the failure to meet the Functional Guarantees in accordance with the provisions of SCC.

(4) The payment of liquidated damages under GC Section 9.12(3) up to the limitation of liability specified in the SCC, shall completely satisfy the Operator's guarantees under GC Section 9.12(3), and the Operator shall have no further liability whatsoever to the Owner in respect thereof.

G. CHANGE IN CONTRACT ELEMENTS

ARTICLE 10 - CHANGE IN CONTRACT ELEMENTS

10.1 Change to the Build Services

10.1.1 Introducing a Change

(1) Subject to GC Sections 10.1.2(6) and 10.1.2(10), the Owner shall have the right to propose, and subsequently require, that the BUILD ENGINEER order the Operator from time to time during the performance of the Contract to make any change, modification, addition or deletion to, in or from the Build Services (the "Change"), provided that such Change falls within the general scope of the Build Services and does not constitute unrelated work and that it is technically practicable, taking into account both the state of advancement of the Build Services and the technical compatibility of the Change envisaged with the nature of the Build Services as specified in the Contract.

(2) The Operator may from time to time during its performance of the Contract propose to the Owner, with a copy to the BUILD ENGINEER, any Change that the Operator considers necessary or desirable to improve the quality, efficiency or safety of the Build Services. The Owner may at its discretion approve or reject any Change proposed by the Operator.

(3) Notwithstanding GC Section 10.1.1(1) and 10.1.1(2), no change made necessary because of any default of the Operator in the performance of its obligations under the Contract shall be deemed to be a Change, and such change shall not result in any adjustment of the Contract Price or the Time for Completion.

(4) The procedure on how to proceed with and execute Changes is specified in GC Section 10.1.2 and 10.1.3, and the BUILD ENGINEER shall provide Operator with further details and sample forms on the Change procedures prior to the Build Starting Date.

10.1.2 Changes Originating from Owner

(1) If the Owner proposes a Change pursuant to GC Section 10.1.1(1), it shall send to the Operator a "Request for Change Proposal," requiring the Operator to prepare and furnish to the BUILD ENGINEER as soon as reasonably practicable a "Change Proposal," which shall include the following:

a. brief description of the Change;

b. effect on the Time for Completion;

c. estimated cost of the Change; and

d. effect on any other provisions of the Contract.

(2) Prior to preparing and submitting the Change Proposal, the Operator shall submit to the BUILD ENGINEER an "Estimate for Change Proposal," which shall be an estimate of the cost of preparing and submitting the Change Proposal.

(3) Upon receipt of the Operator's Estimate for Change Proposal, the Owner shall,

a. accept the Operator's estimate with instructions to the Operator to proceed with the preparation of the Change Proposal;

b. advise the Operator of any part of its Estimate for Change Proposal that is unacceptable and request the Operator to review its estimate; or

c. advise the Operator that the Owner does not intend to proceed with the Change.

(4) Upon receipt of the Owner's instruction to proceed under GC Section 10.1.2(3)(a) (the "Change Order"), the Operator shall, with proper expedition, proceed with the preparation of the Change Proposal, in accordance with GC Section 10.1.2(1).

(5) The pricing of any Change shall, as far as practicable, be calculated in accordance with the prices included in the Contract. If such prices are inequitable, the Parties thereto shall agree on specific rates for the valuation of the Change.

(6) If, before or during the preparation of the Change Proposal, it becomes apparent that the aggregate effect of compliance therewith and with all other Change Orders that have already become binding upon the Operator under this GC Section 10.1 would be to increase or decrease the Contract Price by more than 15 per cent, the Operator may give a written notice of objection thereto prior to furnishing the Change Proposal. If the Owner accepts the Operator's objection, the Owner shall withdraw the proposed Change and shall notify the Operator in writing thereof.

(7) The Operator's failure to object pursuant to GC Section 10.1.2(6) shall neither affect its right to object to any subsequent requested Changes or Change Orders herein, nor affect its right to take into account, when making such subsequent objection, the percentage increase or decrease in the Contract Price that any Change not objected to by the Operator represents.

(8) Upon receipt of the Change Proposal, the Owner and the Operator shall mutually agree upon all matters therein contained. No later than 14 days after such agreement, the Owner shall, if it intends to proceed with the Change, issue the Operator with a Change Order.

(9) If the Owner decides not to proceed with the Change for whatever reason, it shall notify the Operator prior to the expiration of 14 days after the agreement on the Change. Under such circumstances, the Operator shall be entitled to reimbursement of all costs reasonably incurred by it in the preparation of the Change Proposal, provided that these do not exceed the amount given by the Operator in its Estimate for Change Proposal submitted in accordance with GC Section 10.1.2(2).

(10) If the Owner and the Operator cannot reach agreement on the price for the Change, an equitable adjustment to the Time for Completion, or any other matters identified in the Change Proposal, the Owner may nevertheless instruct the Operator to proceed with the Change by issue of a "Pending Agreement Change Order."

(11) Upon receipt of a Pending Agreement Change Order, the Operator shall immediately proceed with effecting the Changes covered by such Order. The parties shall thereafter attempt to reach agreement on the outstanding issues under the Change Proposal.

(12) If the Parties cannot reach agreement prior to the expiration of 60 days after the date of issue of the Pending Agreement Change Order, then the matter may be referred to the Adjudicator in accordance with the provisions of GC Section 1.6.1.

10.1.3 Changes Originating from Operator

(1) If the Operator proposes a Change pursuant to GC Section 10.1.1(2), the Operator shall submit to the BUILD ENGINEER a written "Application for Change Proposal," giving reasons for the proposed Change and including the information specified in GC Section 10.1.2(1).

(2) Upon receipt of the Application for Change Proposal, the Parties shall follow the procedures outlined in GC Sections 10.1.2(8) and 10.1.2(10). If the Owner chooses not to proceed, the Operator shall not be entitled to recover the costs of preparing the Application for Change Proposal.

10.1.4 Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever a Change is agreed, approved or determined pursuant to GC Section 10.1.2 or 10.1.3, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the Change, and to the proportions of various currencies specified for payment of the Contract Price.

10.1.5 Build Period

GC Sections 10.1.1 to 10.1.4 shall apply during only the Build Period.

10.2 Change to the Operations and Maintenance Services

(1) Except as specifically provided in GC Section 10.2(2) or elsewhere in the Contract, the Operator shall make no claim whatsoever for any adjustment to the Contract Price during the New Operations Period.

(2) The Operator or the Owner may request an adjustment to the Monthly Operations Payment in accordance with the SCC. The Operator or the Owner shall submit a request for an adjustment pursuant to this GC Section 10.2 to the CSCU Director.

ARTICLE 11 - SUSPENSION AND TERMINATION

11.1 Suspension

11.1.1 Suspension by the Owner

(1) The Owner may request the BUILD ENGINEER or CSCU Director, as applicable, by notice to the Operator, to order the Operator to suspend performance of any or all of its obligations under the Contract. Such notice shall specify the obligation of which performance is to be suspended, the effective date of the suspension and the reasons therefor. The Operator shall thereupon suspend performance of such obligation, except those obligations necessary for the care or preservation of the Site, Existing Facility or New Facility, until ordered in writing to resume such performance by the BUILD ENGINEER or CSCU Director, as applicable.

(2) If, by virtue of a suspension order given by the BUILD ENGINEER or CSCU Director, as applicable, other than by reason of the Operator's default or breach of the Contract, the Operator's performance of any of its obligations is suspended for an aggregate period of more than 90 days, then at any time thereafter and provided that at that time such performance is still suspended, the Operator may give a notice to the BUILD ENGINEER or CSCU Director, as applicable, requiring that the Owner shall, no later than 30 days after the Owner's receipt of the notice, order the resumption of such performance or request and subsequently order a Change in accordance with GC Section 10.1, excluding the performance of the suspended obligations from the Contract.

(3) If the Owner fails to order the resumption of performance in accordance with GC Section 11.1.1(2), the Operator may, by a further notice to the BUILD ENGINEER or CSCU Director, as applicable, elect to treat the suspension, where it affects a part only of the Services, as a deletion of such part in accordance with GC Section 10.1 or, where it affects the whole of the Services, as termination of the Contract pursuant to GC Section 11.2.1.

11.1.2 Suspension by the Operator

(1) If, the Owner has,

a. failed to pay the Operator any sum due under the Contract within the period specified in the Contract;

b. failed to approve any invoice or supporting documents without just cause under the Contract; or

c. has committed a substantial breach of the Contract,

the Operator may give a notice to the Owner that requires payment of such sum, with interest thereon as stipulated in GC Section 5.2(3) requires approval of an invoice or supporting documents, or specifies a breach and requires the Owner to remedy the same, as the case may be.

(2) If the Owner fails to pay the sums required by the Operator in accordance with GC Section 11.1.2(1) or fails to remedy the breach or take steps to remedy the breach no later than 14 days after receipt of the Operator's notice, then the Operator may, upon giving 14 days' notice to the Owner, suspend performance of all or any of its obligations under the Contract, or, in the case of the Build Services, reduce the Operator's rate of progress.

(3) If the Operator is unable to carry out any of its obligations under the Contract for any reason attributable to the Owner, including the Owner's failure to provide possession of or access to the Site or other areas in accordance with GC Section 4.2, then the Operator may, upon giving 14 days' notice to the Owner, suspend performance of all or any of its obligations under the Contract, or, in the case of the Build Services, reduce the Operator's rate of progress.

(4) If the Operator's performance of its obligations is suspended or the rate of progress is reduced pursuant to this GC Section 11.1.2, then the Time for Completion shall be extended in accordance with GC Section 2.3.4, and additional Costs incurred by the Operator as a result of such suspension or reduction shall be paid by the Owner to the Operator in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Operator's default or breach of the Contract.

(5) During the period of suspension, the Operator shall not remove from the Site or New Facility any Plant and Equipment, Operator's Equipment (Build), Operator's Equipment (Operations), or any part of the New Facility, without the prior written consent of the Owner.

11.2 Termination

11.2.1 Termination for Owner's Convenience

(1) The Owner may at any time terminate the Contract for any reason by giving the Operator a notice of termination that refers to this GC Section 11.2.1(1).

(2) Upon receipt of the notice of termination under GC Section 11.2.1(1),

a. the Operator shall, either immediately or upon the date specified in the notice of termination,

(i) cease all further work, except for such work as the Owner may specify in the notice of termination for the sole purpose of protecting that part of the Facility already executed, or any work required to leave the Site in a clean and safe condition;

(ii) terminate all Subcontracts; and

(iii) remove all Operator's Equipment (Build) and, except if the Owner asserts its rights pursuant to GC Section 9.3.1(5), Operator's Equipment (Operations) from the Site, repatriate the Operator's Personnel and its Subcontractors' personnel from the Site, remove from the Site any wreckage, rubbish and debris of any kind, and leave the whole of the Site in a clean and safe condition; and

b. the Operator, subject to the payment specified in GC Section 11.2.2, shall,

(i) deliver to the Owner the parts of the New Facility executed by the Operator up to the date of termination; and

(ii) deliver to the Owner all the Contract Records, including the Build Documents, prepared by the Operator or its Subcontractors as at the date of termination.

11.2.2 Payment upon Termination by the Owner for Convenience

(1) Upon termination of this Contract pursuant to GC Section 11.2.1, the Owner shall make only the following payments to the Operator,

a. any portion of the Contract Price payable to the Operator for Services satisfactorily performed prior to the date of termination and calculated as set out in GC Section 5.2;

b. the Costs reasonably incurred by the Operator in the removal of the Operator's Equipment (Build) and, except if the Owner asserts its rights pursuant to GC Section 9.3.1(5), Operator's Equipment (Operations) from the Site and in the repatriation of the Operator's Personnel and its Subcontractors' personnel;

c. any amounts required to be paid by the Operator to its Subcontractors in connection with the termination of any Subcontracts, including any reasonable cancellation charges;

d. the reasonable Costs incurred by the Operator in protecting the Site, Existing Facility and New Facility and leaving the Site in a clean and safe condition pursuant to GC Section 11.2.1(2)(a)(i); and

e. the reasonable Cost of satisfying all other obligations, commitments and claims that the Operator may in good faith have undertaken with Third Parties in connection with the Contract and that are not covered by GC Section 11.2.2(1).

(2) The Operator acknowledges that the only payments to be made to the Operator on termination by the Owner are set out in this GC Section 11.2.2. The Operator shall not make a claim for lost or foregone profits, revenues, consequential damages or any other costs, damages, expenses or losses of any kind as a result of or in connection with the termination of this Contract.

11.2.3 Termination for Operator's Default

(1) The Owner, without prejudice to any other rights or remedies it may possess, may terminate the Contract forthwith in the following circumstances, by giving a notice of termination and its reasons therefor to the Operator, referring to this GC Section 11.2.3(1):

a. If the Operator becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, if the Operator is a corporation, a resolution is passed or order is made for its winding up, other than a voluntary liquidation for the purposes of amalgamation or reconstruction, a receiver is appointed over any part of its undertaking or assets, or if the Operator takes or suffers any other analogous action in consequence of debt;

b. If the Operator assigns or transfers the Contract or any right or interest therein in violation of the provision of GC Section 1.7; or

c. If the Operator, in the judgment of the Owner has engaged in corrupt or fraudulent practices in competing for or in executing the Contract pursuant to GC Clause 1.10.

(2) If the Operator,

a. has abandoned or repudiated the Contract;

b. has without valid reason failed to commence work on the Site, Existing Facility or New Facility promptly or has suspended, other than pursuant to GC Section 11.1.1(2), the progress of Contract performance for more than 30 days after receiving a written instruction from the Owner to proceed;

c. persistently fails to carry out the Services in accordance with the Contract or persistently neglects to carry out its obligations under the Contract without just cause; or

d. refuses or is unable to provide sufficient materials, services, labour or personnel to perform the Services,

then the Owner may, without prejudice to any other rights it may possess under the Contract, give a notice to the Operator stating the nature of the default and requiring the Operator to remedy the same. If the Operator fails to remedy or to take steps to remedy the same within 14 days after its receipt of such notice, then the Owner may terminate the Contract forthwith by giving a notice of termination to the Operator that refers to this GC Section 11.2.3(2).

(3) Upon receipt of the notice of termination under GC Sections 11.2.3(1) or 11.2.3(2) the Operator shall, either immediately or upon such date as is specified in the notice of termination,

a. cease all further work, except for such work as the Owner may specify in the notice of termination for the sole purpose of protecting that part of the Site, Existing Facility and New Facility already executed, or any work required to leave the Site, Existing Facility and New Facility in a clean and safe condition;

b. terminate all Subcontracts;

c. deliver to the Owner the parts of the New Facility executed by the Operator up to the date of termination; and

d. deliver to the Owner all Contract Records, including the Build Documents, prepared by the Operator or its Subcontractors as of the date of termination.

(4) The Owner may enter the New Facility and upon the Site, expel the Operator, and, if the New Facility is not completed, the Owner may complete the Facility itself or by employing any Third Party. The Owner may, to the exclusion of any right of the Operator over the same, take over and use with the payment of a fair rental rate to the Operator, with all the maintenance costs to the account of the Owner and with an indemnification by the Owner for all liability including damage or injury to persons arising out of the Owner's use of such equipment, any Operator's Equipment (Build) and Operator's Equipment (Operations) owned by the Operator and on the Site in connection with the Existing Facility and New Facility for such reasonable period as the Owner considers expedient for the completion of the New Facility. Upon completion of the New Facility or at such earlier date as the Owner thinks appropriate, the Owner shall give notice to the Operator that such Operator's Equipment (Build) and, except if the Owner asserts its rights pursuant to GC Section 9.3.1(5), Operator's Equipment (Operations) will be returned to the Operator at or near the Site and shall return such Operator's Equipment (Build) and Operator's Equipment (Operations) to the Operator in accordance with such notice. The Operator shall thereafter without delay and at its cost remove or arrange removal of the same from the Site.

11.2.4 Payment upon Termination for Operator's Default

(1) If the Contract is terminated pursuant to GC Section 11.2.3 and, subject to GC Section 11.2.4(2), the Operator shall be entitled to be paid,

a. any portion of the Contract Price payable to the Operator for Services satisfactorily performed prior to the date of termination;

b. the value of any unused or partially used Plant and Equipment on the Site, except to the extent that such Plant and Equipment have already been paid for by the Owner; and

c. the Costs, if any, incurred by the Operator in protecting the Site and New Facility and in leaving the Site in a clean and safe condition pursuant to GC Section 11.2.3(3)(a).

Any sums due the Owner from the Operator accruing prior to the date of termination shall be deducted from the amount to be paid to the Operator under this Contract.

(2) If the Owner completes the New Facility pursuant to GC Section 11.2.3(4), the cost of completing the New Facility by the Owner shall be determined, and, if the sum that the Operator is entitled to be paid, pursuant to GC Section 11.2.4(1), plus the reasonable costs incurred by the Owner in completing the New Facility, exceeds the Contract Price, the Operator shall be liable for such excess as follows;

a. if such excess is greater than the sums due the Operator under GC Section 11.2.4(1), the Operator shall pay the balance to the Owner; or

b. if such excess is less than the sums due the Operator under GC Section 11.2.4(1), the Owner shall pay the balance to the Operator.

(3) The Parties shall agree in writing on the computation described in GC Section 11.2.4(2) and the manner in which any sums shall be paid.

11.2.5 Termination by Operator

(1) If,

a. the Owner has,

(i) failed to pay the Operator any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to the corresponding Terms and Procedures of Payment Appendix, or commits a substantial breach of the Contract, the Operator may give a notice to the Owner that requires payment of such sum, with interest thereon as stipulated in GC Section 5.2(3), requires approval of such invoice or supporting documents, or specifies the breach and requires the Owner to remedy the same, as the case may be; and

(ii) failed to pay such sum together with such interest, failed to approve such invoice or supporting documents or give its reasons for withholding such approval, failed to remedy the breach or take steps to remedy the breach no later than 14 days after receipt of the Operator's notice; or

b. the Operator is unable to carry out any of its obligations under the Contract for any reason attributable to the Owner, including the Owner's failure to provide possession of or access to the Site or other areas,

then the Operator may give a notice to the Owner thereof, and if the Owner has failed to pay the outstanding sum, to approve the invoice or supporting documents, to give its reasons for withholding such approval, or to remedy the breach no later than 30 days after receipt of such notice, or if the Operator is still unable to carry out any of its obligations under the Contract for any reason attributable to the Owner no later than 30 days after receipt of the notice, the Operator may, by a further notice to the Owner referring to this GC Section 11.2.5(1), forthwith terminate the Contract.

(2) The Operator may terminate the Contract forthwith by giving a notice to the Owner to that effect, referring to this GC Section 11.2.5(2),

a. if the Owner becomes bankrupt or insolvent;
b. has a receiving order issued against it, or compounds with its creditors;
c. being a corporation, if a resolution is passed or order is made for its winding up, other than a voluntary liquidation for the purposes of amalgamation or reconstruction; or
d. a receiver is appointed over any part of its undertaking or assets, or if the Owner takes or suffers any other analogous action in consequence of debt.

(3) If the Contract is terminated under GC Section 11.2.5(1) or 11.2.5(2), then,

a. the Operator shall immediately,
    (i) cease all further work, except for such work as may be necessary for the purpose of protecting that part of the Site, Existing Facility and New Facility already executed, or any work required to leave the Site in a clean and safe condition; and
    (ii) terminate all Subcontracts; and
b. the Operator, subject to the payment specified in GC Section 11.2.6, shall
    (i) deliver to the Owner the parts of the New Facility executed by the Operator up to the date of termination; and
    (ii) deliver to the Owner all Contract Records, including the Build Documents, in existence as of the date of termination.

(4) Termination by the Operator pursuant to this GC Section 11.2.5 is without prejudice to any other rights or remedies of the Operator that may be exercised in lieu of or in addition to rights conferred by this GC Section 11.2.5.

11.2.6 Payment upon Termination by Operator

If the Contract is terminated under GC Sections 11.2.5(1) or 11.2.5(2), the Owner shall pay to the Operator all payments specified in GC Section 11.2.2(1), and reasonable compensation for all loss, except for loss of profit, or damage sustained by the Operator arising out of, in connection with or in consequence of such termination.

11.2.7 General Provisions - Termination

(1) In this GC Section 11.2, the expression "New Facility executed" shall include all work executed, Services provided, and all Plant and Equipment acquired, or subject to a legally binding obligation to purchase by the Operator and used or intended to be used for the purpose of the performing the Services, up to and including the date of termination.

(2) In this GC Section 11.2, in calculating any monies due from the Owner to the Operator, account shall be taken of,

a. any sum previously paid by the Owner to the Operator under the Contract, including any advance payment paid pursuant to the Terms and Procedures of Payment Appendix;
b. any sum owing by the Operator to the Owner under the Contract, including Liquidated Damages – Delay or liquidated damages calculated pursuant to GC Section 5.4.

ANNEXURE 1 TO GENERAL CONDITIONS
Bank's Policy- Corrupt and Fraudulent Practices

(Text in this Appendix shall not be modified)

Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011:

"**Fraud and Corruption:**

1.16 It is the Bank's policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts.[11] In pursuance of this policy, the Bank:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;[12];

(ii) "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;[13]

(iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;[14]

(iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;[15]

(v) "obstructive practice" is

(aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent,

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[11] In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

[12] For the purpose of this sub-paragraph, "*another party*" refers to a public official acting in relation to the procurement process or contract execution. In this context, "*public official*" includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

[13] For the purpose of this sub-paragraph, "party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.

[14] For the purpose of this sub-paragraph, "parties" refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other's bid prices or other conditions.

[15] For the purpose of this sub-paragraph, "party" refers to a participant in the procurement process or contract execution.

coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 1.16(e) below.

(b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

(c) will declare misprocurement and cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

(d) will sanction a firm or individual, at any time, in accordance with the prevailing Bank's sanctions procedures,[16] including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated[17];

(e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank."

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[16] A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including, inter alia, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

[17] A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

Annexure 2

- **Salient Features of Labour & Environment Protection Laws[18]**

SALIENT FEATURES OF SOME MAJOR LABOUR LAWS
APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK

(a) Employees Compensation Act 1923: The Act provides for compensation in case of injury, disease or death arising out of and during the course of employment.

(b) Payment of Gratuity Act 1972: gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death at the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

(c) Employees P.F. and Miscellaneous Provision Act 1952 (*since amended*): The Act provides for monthly contribution by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:

(i) Pension or family pension on retirement or death, as the case may be.
(ii) Deposit linked insurance on the death in harness of the worker.
(iii) Payment of P.F. accumulation on retirement/death etc.

(d) Maternity Benefit Act 1961: The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

(e) Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013: This Act defines sexual harassment in the workplace, provides for an enquiry procedure in case of complaints and mandates the setting up of an Internal Complaints Committee or a Local Complaints Committee

(f) Contract Labour (Regulation & Abolition) Act 1970: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by law. The Principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour.

(g) Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employments.

[18] This list is only illustrative and not exhaustive. Bidders and Contractors are responsible for checking the correctness and completeness of the list. The law as current on the date of bid opening will apply.

(h) Payment of Wages Act 1936: It lays down the mode, manner and by what date the wages are to be paid, what deductions can be made from the wages of the workers.

(i) Equal Remuneration Act 1976: The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.

(j) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more employees. Some of the State Governments have reduced this requirement from 20 to 10. The Act provides for payments of annual bonus subject to a minimum of 8.33% of the wages drawn in the relevant year. It applies to skilled or unskilled manual, supervisory, managerial, administrative, technical or clerical work for hire or reward to employees who draw a salary of Rs. 10,000/- per month or less. To be eligible for bonus, the employee should have worked in the establishment for not less than 30 working days in the relevant year. The Act does not apply to certain establishments.

(k) Industrial Disputes Act 1947: the Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations, a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

(l) Trade Unions Act 1926: The Act lays down the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.

(m) Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in the Building and Construction Industry.

(n) Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979: The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home upto the establishment and back, etc.

(o) The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and the Building and Other Construction Workers Welfare Cess Act, 1996 (BOCWW Cess Act): All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under these Acts. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be notified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as Canteens, First – Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

(p) Factories Act 1948: the Act lays down the procedure for approval of plans before setting up a factory engaged in manufacturing processes, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power.

(q) Weekly Holidays Act -1942

(r) Bonded Labour System (Abolition) Act, 1976: The Act provides for the abolition of bonded labour system with a view to preventing the economic and physical exploitation of weaker sections of society. Bonded labour covers all forms of forced labour, including that arising out of a loan, debt or advance.

(s) Employer's Liability Act, 1938: This Act protects workmen who bring suits for damages against employers in case of injuries endured in the course of employment. Such injuries could be on account of negligence on the part of the employer or persons employed by them in maintenance of all machinery, equipment etc. in healthy and sound condition.

(t) Employees State Insurance Act 1948: The Act provides for certain benefits to insured employees and their families in case of sickness, maternity and disablement arising out of an employment injury. The Act applies to all employees in factories (as defined) or establishments which may be so notified by the appropriate Government. The Act provides for the setting up of an Employees' State Insurance Fund, which is to be administered by the Employees State Insurance Corporation. Contributions to the Fund are paid by the employer and the employee at rates as prescribed by the Central Government. The Act also provides for benefits to dependents of insured persons in case of death as a result of an employment injury.

(u) The Personal Injuries (Compensation Insurance) Act, 1963: This Act provides for the employer's liability and responsibility to pay compensation to employees where workmen sustain personal injuries in the course of employment.

(v) Industrial Employment (Standing Order) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.

SALIENT FEATURES OF SOME OF THE MAJOR LAWS THAT ARE APPLICABLE FOR PROTECTION OF ENVIRONMENT.

1. The Environment (Protection) Act, 1986 and as amended: This provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

2. The Forest Conservation Act, 1980, as amended, and Forest (Conservation) Rules, 1981 as amended: These provides for protection of forests by restricting conversion of forested areas into non- forested areas and prevention of deforestation, and stipulates the procedures for cutting any trees that might be required by the applicable rules. Permissions under the Act also stipulates the norms and compliance requirements of the employer and any contractor on behalf of the employer.

3. State Tree Preservation Acts as may be in force: These provide for protection of trees of important species. Contractors will be required to obtain prior permission for full or partial cutting, uprooting, or pruning of any such trees.

4. The Wildlife (Protection) Act, 1972, and as amended: This provides for protection of wildlife through notifying National Parks and Sanctuaries and buffer areas around these zones; and to protect individuals of nationally important species listed in the Annex of the Act.

5. The Biological Diversity Act, 2002: This provides for conservation of biological diversity, sustainable use of components of biological diversity, and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.

6. The Public Liability Insurance Act, 1991 as amended and The Public Liability Insurance Rules, 1991 as amended: These provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for mattes connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

7. The Ancient Monuments and Archaeological Sites and Remains Act, 1958 and the Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010, the Ancient Monuments and Archaeological Sites and Remains Rules, 1959 amended 2011, the National Monuments Authority Rules, 2011 and the similar State Acts: These provide for conservation of cultural and historical remains found in India. Accordingly, area within the radii of 100m and 300m from the "protected property" are designated as "protected area" and "controlled area" respectively. No development activity (including building, mining, excavating, blasting) is permitted in the "protected area" and development activities likely to damage the protected property is not permitted in the "controlled area" without prior permission of the Archaeological Survey of India (ASI) or the State Departments of Art and Culture or Archaeology as applicable.

8. The Environmental Impact Assessment Notification, 2006 and as amended: This provides for prior environmental clearance for new, modernization and expansion projects listed in Schedule 1 of the

Notification. Contractors will be required to ensure that no work starts until applicable clearances under the Notification is not available. Contractors will be responsible for implementation of any environmental management plan stipulated as per the permission under this Notification; and will be required to prepare and submit to the employer and compliance report stipulated in the permission under the Notification.

9. The Water (Prevention and Control of Pollution) Act, 1974 as amended, and the Water (Prevention and Control of Pollution) Rules, 1975 as amended: These provide for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water(whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms. Contractors will need to obtain consent for establishment and consent for operation of any item of work or installation of equipment that generates waste water, and observe the required standards of establishment and operation of these items of work or installations; as well as install and operate all required waste water treatment facilities.

10. The Water (Prevention and Control of Pollution) Cess Act, 1977 and The Water (Prevention and Control of Pollution) Cess Rules, 1978: These provide for the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution under the Water (Prevention and Control of Pollution) Act, 1974.

11. The Air (Prevention and Control of Pollution) Act, 1981 as amended, and the Air (Prevention and Control of Pollution) Rules, 1982: These provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment. Contractors will need to obtain consent for establishment and consent for operation of any item of work or installation of equipment that generates air pollution such as batching plants, hot mix plants, power generators, backup power generation, material handling processes, and observe the required standards of establishment and operation of these items of work or installations.

12. Noise Pollution (Control and Regulation) Rules, 2000, and as amended: This provides for standards for noise for day and night for various land uses and specifies special standards in and around sensitive receptors of noise such as schools and hospitals. Contractors will need to ensure compliance to the applicable standards, and install and operate all required noise control devices as may be required for all plants and work processes.

13. Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996: This provides for Requirement of preparation of on-site and off-site Disaster Management Plans for accident-prone areas.

14. The Explosives Act 1884 and the Explosives Rules, 2008: These provide for safe manufacture, possession, sale, use, transportation and import of explosive materials such as diesel, Oil and lubricants etc.; and also for regulating the use of any explosives used in blasting and/or demolition.

All applicable provisions will need compliance by the contractors.

15. The Petroleum Rules, 2002: This provides for safe use and storage of petroleum products, and will need to be complied by the contractors.

16. The Gas Cylinder Rules 2004 and amendments: This provides for regulations related to storage of gas, and possession of gas cylinder more than the exempted quantity. Contractors should comply with all the requirements of this Rule.

17. Manufacture, Storage and Import of Hazardous Chemical Rules of 1989 and as amended: These provide for use and storage of hazardous material such as highly inflammable liquids like HSD/LPG. Contractors will need to ensure compliance to the Rules; and in the event where the storage quantity exceeds the regulated threshold limit, the contractors will be responsible for regular safety audits and other reporting requirements as prescribed in the Rules.

18. Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016: These provide for protection of general public from improper handling storage and disposal of hazardous waste. The rules prescribe the management requirement of hazardous wastes from its generation to final disposal. Contractors will need to obtain permission from the State Pollution Control Boards and other designated authorities for storage and handling of any hazardous material; and will to ensure full compliance to these rules and any conditions imposed in the permit.

19. The Bio Medical Waste Management Rules, 2016: This provides for control, storage, transportation and disposal of bio-medical wastes. As and where the contractor has any first aid facility and dispensaries, established in either temporary or permanent manner, compliance to these Rules are mandatory.

20. Construction and Demolition Waste Management Rules, 2016: This provides for management of construction and demolition waste (such as building materials possible to be reused, rubble and debris or the like); and applies to all those waste resulting from construction, re-modelling, repair or demolition of any civil structure. Contractor will need to prepare a waste disposal plan and obtain required approval from local authorities, if waste generation is more than 20 tons in any day or 300 tons in any month during the contract period; and ensure full compliance to these rules and any conditions imposed in the regulatory approval.

21. The E-Waste (Management) Rules, 2016: This provides for management of E-wastes (but not covering lead acid batteries and radio-active wastes) aiming to enable the recovery and/or reuse of useful material from e-waste, thereby reducing the hazardous wastes destined for disposal and to ensure the environmentally sound management of all types of waste of electrical and electronic equipment. This Rule applies to every manufacturer, producer, consumer, bulk consumer, collection centers, dealers, e-retailer, refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment listed in Schedule I, including their components, consumables, parts and spares which make the product operational.

22. Plastic waste Management Rules, 2016: This provides for control and management of the plastic waste generated from any activity. Contractors will ensure compliance to this Rule.

23. The Batteries (Management and Handling) Rules 2001: This provides for ensuring safe disposal and recycling of discarded lead acid batteries likely to be used in any equipment during construction and

operation stage. Rules require proper control and record keeping on the sale or import of lead acid batteries and recollection of the used batteries by registered recyclers to ensure environmentally sound recycling of used batteries. Contractors will ensure compliance to this Rule.

24. The Ozone Depleting Substances (Regulation and Control) Rules, 2000 and as amended: This provides for regulation of production and consumption of ozone depleting substances in the country, and specifically prohibits export to or import from countries not specified in the Rules, and prohibits unless specifically permitted, any use of ozone depleting substance.

25. The Coastal Regulation Zone Notifications, 1991 and as amended: This provides for regulation of development activities within the 500m of high tide line in coastal zone and 100m of stretches of rivers and estuaries influenced by tides. Contractors will be required to ensure that no work starts until applicable clearances under the Notification is not available. Contractors will be responsible for implementation of any plan stipulated as per the permission under this Notification; and will be required to prepare and submit to the employer and compliance report stipulated in the permission under the Notification.

26. The Motor Vehicle Act 1988 as amended (and State Motor Vehicle Acts as may be in force) and the Motor Vehicle Rules, 1989, and as amended (and State Motor Vehicle Rules as may be in force): To minimize the road accidents, penalizing the guilty, provision of compensation to victim and family and check vehicular air and noise pollution. Contractors will be required to ensure full compliance to these rules.

27. Easement Act, 1882: This provides for the rights of landowners on groundwater. Contractors will need to ensure that other landowners' rights under the Act is not affected by any groundwater abstraction by the contractors.

28. State Groundwater Acts and Rules as may be in force and the Guidelines for Groundwater Abstraction for drinking and domestic purposes in Notified Areas and Industry/Infrastructure project proposals in Non-Notified areas, 2012: These provide for regulating extraction of ground water for construction/industrial and drinking and domestic purposes. Contractors will need to obtain permission from Central/State Groundwater Boards prior to groundwater abstraction through digging any bore well or through any other means; and will to ensure full compliance to these rules and any conditions imposed in the permit.

29. The Mines Act, 1952 as amended; the Minor Mineral and concession Rules as amended; and the State Mineral (Rights and Taxation) Acts as may be in force: These provide for for safe and sound mining activity. The contractors will procure aggregates and other building materials from quarries and borrow areas approved under such Acts. In the event the contractors open any new quarry and/or borrow areas, appropriate prior permission from the State Departments of Minerals and Geology will need to be obtained. Contractors will also need to ensure full compliance to these rules and any conditions imposed in the permit.

30. The Insecticides Act, 1968 and Insecticides Rules, 1971 and as amended: These provide for regulates the manufacture, sale, transport, distribution, export, import and use of pesticides to prevent risk to human beings or animals, and for matters connected therewith. No one should import or manufacture; sell, stock or exhibit foe sale; distribute, transport, use: (i) any misbranded insecticides, (ii) any insecticide the sale, distribution or use of which is for the time being prohibited under the Act; and (iii) any insecticide except in accordance with the condition on which it was registered

under the Act.

31. National Building Codes of India, 2005 and as amended: This provides guidelines for regulating the building construction activities in India. The code mainly contains administrative regulations, development control rules and general building requirements; stipulations regarding materials, structural design and construction; and building and plumbing services. Contractors will be required to comply with all Bureau of Indian Standards Codes dealing with: (i) use and disposal of asbestos containing materials in construction; (ii) paints containing lead; (iii) permanent and temporary ventilations in workplace; (iv) safety, and hygiene at the workplace; (v) prevention of fire; (vi) prevention of accidents from faulty electrical gadgets, equipment and accessories; and all other such codes incidental to the Contract.

Appendix 1
Special Conditions of Contract

SPECIAL CONDITIONS OF CONTRACT
APPENDIX 1 TO GENERAL CONDITIONS
FOR A CONTRACT
TO
BUILD, OPERATE & MAINTAIN AND TRANSFER
SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, DISTT. GHAZIPUR

SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions. The corresponding article and section numbers of the General Conditions are indicated in parentheses.

1. Definitions (GC Section 1.1)

Country: The country is India.

2. Language (GC Section 1.3.1(1))

The language is English.

3. Shareholder's Representative (GC Section 1.3.10(1))

The Shareholder's Representative is:

[Name, address, telephone and facsimile numbers]

4. Shareholder's Equity (GC Section 1.3.10(4))

[Describe the type and amount of shareholders equity required.]

5. Survival of Obligations (GC Section 1.3.14)

Upon termination or expiration of the Contract, the following rights and obligations of the Parties survive:

(a) Such rights and obligations as may have accrued or to which the Parties may be entitled on the date of termination, and any rights which a Party may have under Applicable Law;

(b) The Operator's obligations with respect to Contract Records, accounting and auditing set out in GC Section 1.8;

(c) The Operator's obligations with respect to Transition Assistance set out in GC Section 2.4.2;

(d) The Parties' rights and obligations with respect to copyright set out in GC Section 6.1;

(e) The Operator's obligations of confidentiality as set out in GC Section 6.2;

(f) The Parties' rights and obligations with respect to defect liability set out in GC Section 9.1; and

(g) The Parties' rights and obligations with respect to indemnification set out in GC Section 9.5.

6. Notice (GC Section 1.4)

The Owner's address for notice is:

Chief Engineer,
U.P.Jal Nigam
Varanasi , U.P.
Telephone No. 9473942517
Email: zcejnvar@gmail.com
The Operator's address for notice is:

[Name, address, telephone and facsimile numbers]

7. Adjudicator (GC Section 1.6.1(1))

The Adjudicator is: Er. B.N Sharan

8. Adjudicator's Fee (GC Section 1.6.1(4))

The Adjudicator will be paid an Hourly fee of Rs. 1000.00 plus reimbursable expenses as on actuals.

9. Appointing Authority for New Adjudicator (GC Section 1.6.1(5))

The Adjudicator will be appointed with mutual consent of OWNER & OPERATOR.

10. Rules of Procedure for Arbitration Proceedings (GC Section 1.6.2(3))

All disputes arising in connection with the Contract shall be conducted in accordance with the Arbitration & Conciliation Act 1996. The place of arbitration shall be the location from where the Contract has been issued. The arbitration shall be conducted in the language for communications defined in GC Clause 1.3.1 [Language].

11. End Date (GC Section 2.1.2(a))

For the purposes of GC Section 2.1.2(a), the applicable date shall be 30 months after the New Operations Starting Date.

12. Build Starting Date (GC Section 2.1.3(1))

The Build Starting Date shall be no later than 30 days after the Effective Date.

13. Time for Completion (GC Section 2.3.2)

The Build Phase shall be completed within 12 months including 3 months of trial run period and 12 Months Defect Liability Period. The total Contract Period shall be for 24 months.

14. Delay of Completion - Liquidated Damages (GC Section 2.3.6(2))

In the event that the Operator fails to complete the performance of the Build Services by the Time for Completion, the Operator shall pay Liquidated Damages – 0.05% per day of each corresponding payment milestone based on the approved Work Plan for Build Phase.

15. Maximum Liquidated Damages (GC Section 2.3.6(2))

The Maximum Liquidated Damages – maximum amount of liquidated damages for the whole of the works is 5 (five) percent of final contract price.

16. Build Period – Special Operations Requirements (GC Section 2.3.7 and DBSA Section 4.1)

N.A.

17. Access to the Site (GC Section 4.2)

At least 30 days before commencement of construction at relevant Site.

18. Contract Price (GC Section 5.1)

Deleted

19. Terms of Payment – Interest (GC Section 5.2(3))

For the purposes of GC Section 5.2(3) and the Terms and Procedures of Payment Appendix, the interest rate that will apply to amounts owed in local currency, is 8% percent per year for the period of delay until payment has been made in full.

20. Currency (GC Section 5.2(4))

Indian Rupees (INR)

21. Performance Security (GC Section 5.5.1(2)(a))

The Operator shall provide a Performance Security in the amount of 10 percent of the total of,

(a) The Operator shall provide a Performance Security in the amount of 5 percent of the Build Price ; and

(b) Deleted.

(c) Half of the Performance Security provided for Build phase shall be released no later than 45 days after the issuance of completion certificate and remaining half shall be paid no later than 45 days after the expiry of the Defects Liability Period and 5% performance security provided for operation and maintenance phase shall be released on the completion.

22. Restriction on Build Engineer's Authority (GC Section 7.2.2(4))

The Build Engineer shall be the UPJN/ District Project Management Unit (DPMU) for the Build Phase.
The Build Engineer shall obtain the approval of the Owner before exercising its authority in the following circumstances:

(a) approving assignment of the Contract, or any part thereof, under GC Section 1.7;

(b) determining an extension of the Time for Completion under GC Section 2.3.4;

(c) certifying additional costs determined under GC Sections 1.9(8)(b) or 9.7; and

(d) issuing a Change Order under GC Section 10.1.2, except:

(i) in an emergency situation, as reasonably determined by the Build Engineer; or

(ii) if such Change Order would increase the Contract Price by less than 1%.

23. CSCU and Restrictions on CSCU's Authority (GC Section 7.3.2 (2) & (5))

The CSCU shall be the UPJN/ District Project Management Unit (DPMU) for the Operations & Maintenance Phase.
The UPJN/ DPMU is required to obtain the approval of the Owner before exercising its authority in the following circumstances:

(a) approving assignment of the Contract, or any part thereof, under GC Section 1.7;

(b) determining an extension of the Time for Completion under GC Section 2.3.4;

(c) certifying additional costs determined under GC Sections 1.9(8)(b) or 9.7; and

(d) issuing a Change Order under GC Section 10.1.2, except:

(i) in an emergency situation, as reasonably determined by the Build Engineer; or

(ii) if such Change Order would increase the Contract Price by less than 1%.

24. Operator's Representative (GC Section 8.1.2(1))

The Operator's Representative is: _____

25. Existing Staff (GC Section 8.5)
The Operator shall dispose the staff employed by the Owner in line with the Government's Social Safeguards Law.

26. Maximum Percentage of Subcontracting (GC Section 8.6(1))
25 percent

27. Defect Liability Period (GC Section 9.1(2))
The Defect Liability Period shall be: 12 months

28. Defect Liability (GC Section 9.1(13))

The Operator shall provide an extended warranty for the following components and for the following periods of time:

A. All system components of the complete project	[Up to respective build period of each & every system component of the scheme]

29. Extended Warranty (GC Section 9.1(13))

The Operator shall provide extended warranties for the following Facility Component

(a) Bulk water meter	4 years from the expiry defect liability period

30. Insurance (GC Section 9.6(1))

Title	Construction period	Operations Period
Operator procured insurance	1 Contractors all risk insurance policy 2 Insurance for third party liability 3 Insurance of existing assets of the Owner 4 Insurance for contractors equipment 5 Insurance for workers of the contractors	deleted

Minimum cover shall be for replacement cost of assets. The Insurance policy shall be endorsed in the joint names of the Owner and Operator.

31. Change in Laws and Regulations (GC Section 9.10)

Add the following at the end of GC 9.10

However if applicable, these adjustments would be restricted to direct transactions between the Owner and the Contractor and not on procurement of raw materials, intermediary components etc. by the Contractor. Further, no adjustment of the Contract price shall be made on account of variation in deemed export benefits.

32. Deleted

33. Extra Work

Rate for payment of any extra work (whose rates were not quoted) by the Operator but necessary to carry out due to special site condition. Such rates shall be taken as per analysis / SOR of Public Works Department / UPJN of the concerned circle and shall be applied as per the variation in overall cost of work, quoted by the bidder in Appendix 3C.

Appendix 2
Terms and Procedures of Payment Appendix

TERMS AND PROCEDURES OF PAYMENT
APPENDIX 2 TO THE GENERAL CONDITIONS
FOR A CONTRACT
TO
BUILD, OPERATE & MAINTAIN AND TRANSFER
SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, DISTT. GHAZIPUR

SECTION 1 - Terms of Payment

1.1 General

In accordance with the provisions of GC Section 5.2, the Owner shall pay the Operator in the manner and at the times set out in this Terms and Procedures of Payment Appendix. The payments for Operation and Maintenance Services shall be authorised by UP Jal Nigam based on sign-off on performance indicators by GP-WSCs.

1.2 Payment during the Build Period

1. In respect of the amount for Build Services listed in Schedule 1 Price Schedule of the Operator's Bid (the "Build Price : Part A") for all current portions, the Owner shall make the following payments subject to Section 1.3 of this Terms and Procedures of Payment Appendix:

(a) Advance payment as an interest free loan for mobilization and cash flow support for an amount equal to 10 % of the Build Price stipulated in the contract shall be paid to the Operator against irrevocable Bank Guarantee for Advance Payment Security for the same amount made out in favour of the Owner.

The advance payment paid to the Operator by the Owner shall be recovered at the rate of 15% from each bill pertaining to Build Services submitted by the Operator for the payment, until such time as the advance has been repaid, always provided that the advance shall be completely repaid prior to the expiry of the original time for completion.

Item wise Break up of payment schedule			
Sl. No.	**Description of item**	**Performance level of works**	**% of payment allowed on the basis of performance**
1.	Construction of boundary wall / of Brick on edge pavement for approach to water works, as per departmental type design and drawing.	As per actual measurement.	100%
2.	Supply and fixing of MS gate including construction of RCC pillars	Supply MS gate	40%
		construction of RCC pillars with ornamental brick work around RCC and fixing of Gate in proper manner.	60%
		Total	**100%**
3.	Construction of a. pump house cum chlorinating room and Staff qtr of desired size and specifications	1.Foundation up to plinth level	25%
		2.On completion of superstructure & wall with Door and window frame	20%
		3.On completion of roof slab	20%
		4.On finishing civil works	15%
		5. on finishing of electrical installation	20%
		Total	**100%**

Item wise Break up of payment schedule			
Sl. No.	**Description of item**	**Performance level of works**	**% of payment allowed on the basis of performance**
4.	**Rising Main/ Distribution System** Supplying, laying, jointing, testing and commissioning of different dia. DI S.S. K-7/9 pipe in rising main & DI/PVC pipe in distribution system, including all necessary earthwork, valves & specials, valve chamber, supporting structures, anchor / thrust block etc. all complete.	1. on supply & delivery of pipe & specials and submitting test report of pipe from reputed institution.	65%
		2. on completion of laying, earthwork, supporting structure, anchor/thrust block, and commissioning	25%
		3. on completion of testing and commissioning	10%
		Total	**100%**
5.	Construction of R.C.C. Over Head Tank of desired capacity & staging above ground level with main components, including cost of soil testing.	1. Testing of Bearing Capacity and Construction of foundation upto GL	20%
		2. Completion of Staging and stair	20%
		3. Completion of Ring beam / bottom dome/ conical dome with balcony	20%
		4. Completion of Cylindrical wall	15%
		5. Completion of Roof dome	10%
		6.Completion of piping arrangement, ascending ladder, finishing work including all appurtenances Testing and commissioning.	15 %
		Total	**100%**
6.	Supply and installation of submersible clear water pumping plant (including spare pumping plant) as per IS 8034-1989 (of desired discharge and head)	1. on supply & delivery of materials	50%
		2.on installation	20%
		3. Testing and commissioning	20%
		4. on completion of 3 months trial run	10%
		Total	**100%**
7.	6 point Wiring point for light with P.V.C. insulated multi strand copper conductor cable in heavy gauge rigid P.V.C conduit pipe 14 S.W.G. copper earth wire, switch etc complete.	1. on supply & delivery of materials	50%
		2.on installation	20%
		3. Testing and commissioning	20%
		4. on completion of 3 months trial run	10%
		Total	**100%**
8.	Construction of sub-station including supply and fixing of transformer, double pole etc. H.T. Transmission line of ACSR weasel conductor from the nearest	1. on supply & delivery of materials	50%
		2.on installation	20%
		3. Testing and commissioning	20%
		4. on completion of 3 months trial run	10%

Item wise Break up of payment schedule			
Sl. No.	**Description of item**	**Performance level of works**	**% of payment allowed on the basis of performance**
	existing H.T. line including Security Charges, System loading charges, etc complete in all respect.	**Total**	**100%**
9.	Construction of deep Tubewell of desired depth and discharge, Drilling, Supply and lowering of Tubewell Assembly etc complete, Development of Tubewell by compressor and O.P Unit,	1. Supply & delivery of materials	30%
		2. Completion of boring	15%
		3. Lowering of Tubewell Assembly complete with hosing, Plain/slotted pipe, reducer, Bail plug, M.S Clamp, well cap, M.S ring etc.	10%
		4. Development of Tubewell by compressor and O.P Unit, receiving the water sample test report and completion of strata chart.	25%
		5. Testing and commissioning	10%
		6.Completion of 3 months trial run	10%
		Total	**100%**
10.	Supply and fixing of the Digital Bulk Water Meter Enclosed Type Mettalic gears (IS: 2373).	1. Supply & delivery of materials	75%
		2. Fixing	15%
		3. Testing and commissioning	10%
		Total	**100%**
11.	Construction of Sluice valve/Butterfly valve chamber, washout / overflow chamber and Digital bulk flow meter chamber as per departmental type design and drawing (Drawing no.D-4)	After completion of work	100%
12.	Excavation in pipelines/ cutting /reinstatement of roads	As per actual measurement	100%
13.	House connection with 20 MM (O.D.) uPVC pipe in distribution line including cast of ferrule, saddle, Labour, T&P etc. complete. (drawing no.D-12)	For each completed house connection	100%
14.	Culvert crossing (drawing no.D-9)	For each completed crossing	100%
15.	Road Crossing through trenchless technique	For total length constructed as per actual measurement	100%

Note: The quantities in the above table are indicative and quoted rates will apply for increase or decrease in quantities. The Operator may give his own payment schedule, but it will be subject to approval for all items if any modification required.

(C) **Payment against delivery of non-perishable materials** (pipes, PV Arrays, pumps, motors, starters, cables, D.G. set, electric panels etc.) brought to site will be limited to 60% of invoice value or market value whichever is lower and will be subject to following conditions:

1. The quantity of materials are not excessive and shall be certified by the Operator to be utilised within a reasonable time (not exceeding 3 months).
2. The materials are in accordance with the requirement and technical specifications.
3. The materials have been delivered to site and are properly stored and protected against damage or deterioration to the satisfaction of the Owner.
4. The Operator's records of the requirement, orders, receipt and use of materials are kept in a form approved by the owner and such records shall be available for inspection by the owner.
5. Ownership of such materials shall be deemed to vest in the Owner for which the Operator shall submit an indemnity bond in a format provided by the Owner.
6. Test report of pipe from reputed institution should be submitted by the contractor before payment.

Any such material that is unlikely to be utilised for the Build Services will be taken back by the Operator after the Owner has adjusted the payment already made for such material from the invoice(s) submitted by the Operator.

(2) The amounts to be paid to the Operator during the Build Period in accordance with Section 1.2(1) of this Terms and Procedures of Payment Appendix shall include all costs and expenses of the Operator in building the New Facility and providing the Build Services, including all costs and expenses relating to the Plant and Equipment and all costs and expenses related to the Existing Operations and Maintenance Services.

1.3 Holdback

The Owner shall deduct from each payment to the Operator a holdback in the amount of 6 per cent of each payment to the Operator till the aggregate deduction reaches 5% of the Build Price. The holdback amount may be released to the Operator, subject to the Operator furnishing an irrevocable Bank Guarantee from the nationalized Bank equivalent to the holdback amount.

The Owner shall pay the amounts held back no later than 45 days after the expiry of the Defect Liability Period.

1.4 Payment during the Operation Period

In respect of the amount for Operations Services listed on the Price Schedule, after the Operations Starting Date, the Owner shall pay the Operator as per the provisions set out in Appendix 3A& B.

1.5 Currencies

Payments will be made by the Owner in the currencies and as quoted by the Operator in the Price Schedule of the Operator's Bid.

SECTION 2 - PAYMENT PROCEDURES

The procedures to be followed in applying for certification and making payments shall be as follows:

(1) During the Build Period, payment shall be dealt with in accordance with Article 1.2, and

(2) During the Operations Period, the Operator shall deliver an invoice no later than 15 days after the end of the 30 day period to which the invoice applies. If the End Date falls on a date that makes the Operator's last period of operation less than 30 days, the Operator shall submit an invoice that pro-rates the Monthly Operations Payment based on the number of days that the Operations Services were provided in the final period of operations.

Appendix 3

Technical Specifications Appendix

DESIGN-BUILD SERVICES
APPENDIX 3 TO THE GENERAL CONDITIONS
FOR A CONTRACT TO
BUILD, OPERATE & MAINTAIN AND TRANSFER

SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEME, DISTT. GHAZIPUR

Appendix 3: Technical Specifications Appendix includes the following appendices,

Appendix 3A: Build Services Appendix

Appendix 3B: Operations & Maintenance Services Appendix

Appendix 3C: Bill of Quantities (BOQ) Appendix

Appendix 3A

Build, Operate & Maintenance and Transfer Services Appendix

APPENDIX 3A TO THE GENERAL CONDITIONS
FOR A CONTRACT
TO
BUILD, OPERATE & MAINTAIN AND TRANSFER
SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEME, DISTT. GHAZIPUR

A. INTRODUCTION TO THE TECHNICAL SPECIFICATIONS

A.1 Kind and Scope of Work

The Contractor is to construct, operate and maintain a complete and fully functioning water supply system in the villages/ households covered under Water Supply Schemes listed in the table for which bid is being invited in accordance with these Bid Documents.

Slice No.	Name of Work
1	Babura Single Village Piped Water Supply Scheme, District Ghazipur
2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur
3	Kathut GOV Piped Water Supply Scheme, District Ghazipur
4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur
5	Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur
6	Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur

1. Construction of boundary wall / of Brick on edge pavement for approach to water works, as per departmental type design and drawing
2. Supply and fixing of MS gate including construction of RCC pillars
3. Construction of pump house cum chlorinating room and Staff quarters
4. Supplying, laying, jointing, testing and commissioning of different dia. DI S.S. K-7/9 pipe in rising main & DI/PVC pipe in distribution system, including all necessary earthwork, valves & specials, valve chamber, supporting structures, anchor / thrust block etc. all complete.
5. Construction of R.C.C. Over Head Tank of desired capacity & staging above ground level with main components, including cost of soil testing
6. Supply and installation of submersible clear water pumping plant (including spare pumping plant) as per IS 8034-1989 (of desired discharge and head)
7. 6 point Wiring point for light with P.V.C. insulated multi strand copper conductor cable in heavy gauge rigid P.V.C conduit pipe 14 S.W.G. copper earth wire, switch etc complete.
8. Construction of sub-station including supply and fixing of transformer, double pole etc. H.T. Transmission line of ACSR weasel conductor from the nearest existing H.T. line including Security Charges, System loading charges, etc complete in all respect.
9. Construction of deep Tubewell of desired depth and discharge, Drilling, Supply and lowering of Tubewell Assembly etc complete, Development of Tubewell by compressor and O.P Unit,
10. Supply and fixing of the Digital Bulk Water Meter Enclosed Type Mettalic gears (IS: 2373).
11. Construction of Sluice valve/Butterfly valve chamber, washout / overflow chamber and Digital bulk flow meter chamber as per departmental type design and drawing (Drawing no.D-4)
12. Excavation in pipelines/ cutting /reinstatement of roads
13. House connection with 20 MM (O.D.) uPVC pipe in distribution line including cast of ferrule, saddle, Labour, T&P etc. complete. (drawing no.D-12)
14. Culvert crossing (drawing no.D-9)
15. Road Crossing through trenchless technique

A.2 Specifications for Construction (Part A)

The Contractor shall be responsible for the construction of the element as defined in the attached specifications and as per the description of items.

A.3 Operation and Maintenance of the Scheme (Part B)

The Contractor shall be responsible for the operation and maintenance of the water supply system as described in the attached Operations and Maintenance Specifications.

B. Technical Specifications

PREAMBLE

The Technical Specifications described herein shall be read in conjunction with the other sections of Bidding Documents.

B.1 General: The Technical Specifications covering the materials and the workmanship aspects as well as method of measurements and payments are included in this section. These specifications cover the items of civil and non-civil works coming under scope of this document. All works shall be carried out in conformity with the same. These specifications are not intended to cover the minute details. The works shall be executed in accordance with good engineering practices followed for achieving high standards of workmanship, thus ensuring safety and durability of the construction.

B.2 Inclusive Documents: The provisions of General Conditions of Contract and Particular Conditions of Contract, those specified elsewhere in the bidding document, as well as execution drawings and notes, or other specifications issued in writing by the Engineer shall also form part of the technical specifications of this contract.

B.3 Measurement and Payment: The methods of measurement and payment shall be as described under various items and in the Description of items where specific definitions are not given, the methods described in Bureau of Indian Standards (BIS) Code will be followed. Should there be any detail of construction or materials which has not been referred to in the Specifications or in the Description of Items and Drawings but the necessity for which may be implied or inferred therefrom, or which is usual or essential to the completion of the work, the same shall be deemed to be included in the rates and prices entered by the contractor in the Bill of Quantities.

The information given hereunder and provided elsewhere in these documents is given in good faith by the Employer but the Contractor shall satisfy himself regarding all aspects of site conditions and no claim whatsoever will be entertained on the plea that the information supplied by the Employer is erroneous or insufficient.

C. GENERAL REQUIREMENTS

The Technical Specifications, in accordance with which the entire work described hereinafter shall be constructed and completed by the Contractor, shall comprise the following:

C.1 PART - I- General Specifications

The General Specification shall be as described for all materials and works are to be in conformity with the specification of the UP.P.W.D. and the specifications prescribed in the Indian Standard Codes (I.S. Code) published by the BIS (Bureau of Indian Standard). While Executing the works all the relevant IS code in general, and the following I.S. Codes in particular, all with latest amendments, current at the time of execution are to be referred.

D. BUILD SPECIFICATIONS:

The works objective is to provide a complete and fully functioning water supply system including but not necessarily limited to the items described in the Scope of Works.

The provisions contained in this Build Specification are intended to supplement the General Conditions of the Build Contract for the purpose of providing greater specificity of the Build Services that the Contractor shall perform.

Materials and construction methods to be used shall be so as to ensure that the residual life of the water supply system shall be of at least 30 years

The Contractor shall sign and maintain insurances according to Clause 14 of the General conditions of Contract, and make Performance Security according to Clause 4.4 of the General Conditions of Contract (in the following GC) in the form of a Bank Guarantee or a Performance Bond.

The Employer shall provide required land, including acquisition, for the Project and right of access to Project areas according to Clause 2.1 of the GC.

D.1 Building and Construction Services

General

1 The Contractor shall carry out all building and construction of all items required to meet the output requirements.

2 The Contractor shall be solely responsible for construction means, methods, techniques, sequences, and procedures and for co-ordinating the various parts of the Build Services under the Contract.

3 The Contractor shall inform the concerned executive engineer three days prior of any concreting work, and make sure that his technical representative must be available throughout the concreting work.

4 It is the contractor’s responsibility that his technical staff must be available at the time of site visit by any official.

DETAILED SPECIFICATIONS FOR CIVIL WORKS

1. EARTH WORK

1.1 GENERAL

The conditions/specifications laid down hereunder will hold good whether the excavation is to be carried out over areas for leveling foundations of structure, trenches for pipes or cables or any other type of work which involves earth work like the leveling of forming/embankments etc. as per UP Jal Nigam/ UP PWD specifications.

a. Earthwork in excavation includes site-cleaning activities like removal of shrubs, loose stones, rubbish of all kinds, interfering with the works and with complete removal of roots.

b. The products of the above clearing operations shall be removed from the site, dumped, stacked at a place, burnt or otherwise disposed of as directed by the Engineer-in-Charge within the compound.

c. A permanent base line and cross lines shall be established to serve as reference grid using MS plates, peps, pins set in concrete or brick masonry pillars where they will be free from disturbances.

d. A permanent bench marks or marks as required necessary for the works connected to the nearest GTS benchmark shall be established for reference.

e. Excavation shall be carried out in all types of soil like top soil, silt, sand, gravel, soft moorrum, clay, kankar, hard materials like disintegrated rock shale which can be removed by picks, crowbars and shovels. Soil/earth may contain boulders. Loosening of rocks include the other methods of excavation other than blasting such as chiseling, wedging line drilling to avoid shattering of rocks. The Engineer-in-Charge shall decide what method shall be adopted for removal of the hard rock.

f. Excavation, whose sides are required to be maintained at a steeper slope than the stable slopes, will be required to be properly shored and strutted failing which the contractor will be required to execute the work by open cutting by the approval of Engineer-in-Charge.

g. **Negligence on account of this leading to any mishap will be entirely the responsibility of the contractor.**

h. Where Excavation is made in excess of the depths required as shown in the drawings or as directed by the Engineer-in-Charge the contractor shall at his own expense fill up to the required level with lean concrete or well compacted sand as decided by the Engineer-in-Charge.

i. Any public utility services/facilities like water supply lines, gas supply line, sewers, telephone/electric cables poles etc. met with during Excavation shall not be damaged and no disruption is caused to the utility service on account of damages caused by the contractor. Such facilities shall be properly supported in their original positions by giving signs, suspension beams etc. as contractors own expenses.

j. The Contractor shall be solely responsible for the protection of adjoining properties from damages that may be on account of excavation close to the properties whether the property belongs to government or to a private party.

k. The contractor shall make all arrangements for proper warnings like providing. Fences, danger flags, barricading, night warning lights, watch and ward etc, to caution the public as well as the labours engaged by him about the dangers that may be involved by excavation of trenches, pits, foundations etc, Safety code for excavation work IS: 3764- 1966 shall be rigidly followed unless instructed otherwise by the Engineer-in-Charge.

l. Any useful material obtained during Excavation shall be stacked as directed by the Engineer-in-Charge and will be the property of the department. The decision of the Engineer-in-Charge in this regard shall be final and binding on the contractor.

m. The rates quoted shall include back filling of excavated material and disposal of surplus earth as directed by the Engineer-in-Charge.

1.2 EXCAVATION IN TRENCHES

a. Excavation as required in trenches, cable ducts, for manholes, other overflow structure, cross drainage works, extra depths for joints of pipes shall be carried out as shown in the drawings/directed by the Engineer-in-Charge.

b. For deep foundations necessary shoring and strutting shall be executed as directed by the Engineer-in-charge. If additional slopes are to be provided where vertical cuts are not possible the same shall be executed without any additional cost. The rates quoted shall be deemed to be inclusive of all such extra work.

c. The trench shall be kept perfectly dry by preventing the extraneous water entering the pits and also wherever necessary by pumping at the cost of the contractor. No additional cost of dewatering shall be payable.

d. The trenches after laying. Jointing and testing of pipes/cables are to be back filled. The trenches shall be filled with the excavated material if found suitable as directed by the Engineer-in-Charge.

e. All surplus soil/earth shall be transported and disposed of as directed by the Engineer-in-Charge Boulders, sharp objects, brickbats, roots of trees, rubbish, rubble etc. Shall not be used for back filling. The back filling shall be done very carefully so as not to damage the pipes/cables or disturb the alignment levels of the pipes/cables. The back filling shall be done in layers on both sided of the pipes watered, consolidated by ramming to a dense layer. The thickness of each layer shall not be more than 15 cms. Special care shall be taken to avoid unequal pressures and not to disturb the pipe.

f. In case the excavated material falls short of requirement the back fill soil/earth shall be taken from borrow pits approved by the Engineer- in-Charge. The rates quoted by the contractor shall be deemed to be inclusive of all such works.

g. Sight rails and boning rods are to be used at regular intervals as directed by the Engineer-in-Charge to excavate the trenches true to line and grade.

1.3 BACK FILLING/EARTH FILLING

a. Back filling of earth around liquid retaining structures and pipes shall be done only after the water-tightness test is done to the satisfaction of the Engineer-in-Charge Selected earth from the excavated earth shall be used for back filling/ embankment.

b. Care shall be taken to see that unsuitable soil/earth does not get mixed up with the material proposed to be used for filling.

c. Regarding the soil/earth to be used for back filling the contractor shall have the prior approval of the Engineer-in-Charge.

d. Backfill shall be placed in successive horizontal layers of loose material not more than 15 cm thick. The material shall be brought to within +2% of the optimum moisture content as described in is:2720 (Part VIII) after adjusting the moisture content, the layers shall be thoroughly compacted with such equipment as may be required to obtain a density equal to or greater than 95% of maximum laboratory dry density of the soil.

e. Successive layers of filling shall not be placed until the layer under construction has been thoroughly compacted to satisfy the requirements laid down in the requirements.

1.4 FILLING AND EMBANKMENT

a. The area where filling or embankment is to be carried out shall be cleared from loose material and the virgin soil shall be exposed. All shrubs and vegetation with roots are cleared. All soft patches shall be removed and filled with selected soil/earth and consolidated. Exposed soil/earth shall be consolidated properly to obtain 95% of maximum laboratory dry density of the soil.

b. Approved filling material shall be uniformly spread in layers not exceeding 20 cms in loose depth. All clods, lumps, etc shall be broken before consolidation.

c. Successive layers of filling shall not be placed until the layer under construction has been thoroughly compacted to satisfy the requirement laid down in these specification.

d. The contractor shall give the samples of the earth he proposed to use for back filling for testing, if required or directed by the Engineer-in-Charge along with the following characteristics of the soil/earth.

e. Only earth having plasticity index less than 20 shall be used.

f. Soil/earth having laboratory maximum dry density of less than 1500 kg per cubic meter shall not be used.

g. If the layer fails to meet the required density it shall be reworked or the materials shall be replaced and method of compaction altered as directed by the Engineer-in- Charge to obtain the required density.

h. If any test indicates less than the specified degree of compaction the Engineer-in-Charge may require all the fill placed, subsequent to the latest successfully tests to be removed and compacted and compaction procedure to be done once again to obtain satisfactory density.

i. The contractor shall perform all necessary tests to determine optimum moisture content and the degree of compaction. He shall furnish the results to the Engineer-in-Charge.

j. Prior to rolling, the moisture content of the material shall be brought to within ±2% of the optimum moisture content as described in is-2720 (part VIII). The moisture content shall preferably be on the wet side for potentially expansive soil/earth. After adjusting the moisture content as described in this clause, the layers shall be thoroughly compacted by means of rollers till 95% of maximum laboratory dry density is obtained.

k. If the layer fails to meet the required density it shall be reworked or the materials shall be replaced and method of compaction altered as directed by the Engineer-in-Charge to obtain the required density.

l. The embankment shall be finished to the alignment levels and grades, cross sections, dimensions shown in the drawings or as directed.

m. If sand filling is specified in the tender for filling the trenches, plinth or foundation the sand used shall be hard free from inorganic materials and deleterious materials and approved by the Engineer-in-Charge. Filling shall be carried out in layers not exceeding 15 cms in loose depth and flooded and tamped till it meets the approval of the Engineer-in-Charge.

n. The contractor shall perform all necessary tests to determine optimum moisture content and the degree of compaction. He shall furnish the results to the Engineer-in-Charge.

1.5 SHORING/ STRUTTING/TIMBERING

a. When the depth of foundation or pipe trench is great and the soil/earth is soft and generally for depths more than 1.5 m. stepping, sloping and or paneling and strutting or sides shall be done as directed by the Engineer-in-Charge. The decisions regarding the positions and depths at which and what type of precautions are to be provided shall be decided by the Engineer-in-Charge.

b. It shall be the responsibility of the contractor to take all necessary precautions or steps to prevent the sides of trenches from collapse. The contractor shall be responsible to make good any losses or damages caused to execute works, life and property due to his negligence.

c. Deep excavation shall be inspected after every rain, storm, or other hazards and if necessary the precautions required shall be augmented.

d. Planking and strutting shall be either "Close" or "Open" type depending upon the nature of the soil/earth and depth of excavation etc.

e. The timbering shall be of sufficient strength to resist earth pressure and ensure safety to the adjoining property and to persons. Where the excavation is subjected to vibrations due to machinery, vehicles, rail traffic, blasting and other sources, additional bracings shall be provided.

f. Generally the specifications and sizes and spacing of sheeting, wallers and struts used for timbering of different depths shall be as given in the is: 3764-1965 Safety code for excavation work unless otherwise specified in the tender elsewhere. Shoring shall extend 30 cms, above the vertical sides.

g. Withdrawal of timbering shall be done very carefully to prevent collapse of the sides of excavation and any damage to the work executed.

h. Open timbering shall be provided wherever the Engineer-in-Charge directs, where the trenches are not close to any buildings/property/structures. In open timbering the trench shall be protected by covering 1/3 the surface area by planks.

IMPORTANT NOTE

1. IS Codes

Some of the important relevant applicable codes for this section are
IS: 1200 (Part-1)- Method of measurement of building and civil engineering works and earthwork
IS: 3764 – Safety – code for excavation work
IS: 4701 – Code of practice for earthwork on canals

2. PLAIN CEMENT CONCRETE

General

Aggregate shall be of inert materials and shall be clean, dense, hard, sound durable non-absorbent and capable of developing good bond with mortar. Coarse aggregate shall be of hard broken stone or granite or similar stone free from dust dirt and other foreign matters. The ballast shall conform to UP Jal Nigam, UP PWD specification.

Fine aggregate shall be of coarse sand consisting of hard, sharp and angular grains and shall' pass through screen of 4.75 mm IS Sieve. Sand shall be of standard specification, clean and free from dust, dirt and organic matters. Fine aggregate may also be crushed stone.

Portland cement of 43/53 grade as per **IS: 8112** shall be used. It shall have the required tensile and compressive stresses and fineness. Water shall be clean and free from alkaline and acid matters and suitable for drinking purposes.

The proportion of concrete shall be M-10 (Cement: Fine Aggregate: Coarse Aggregate) by unless otherwise specified. Minimum compressive strength of concrete of M-10 proportion shall be as per IS: 456 -2000 or its latest revision.

Stone aggregate sand and cement shall be mixed as per UP Jal Nigam, UP PWD specification. All materials shall be dry. If damp sand is used, compensation shall be made by adding additional san to the extent required for the bulking of damp sand.

Appropriate quantity of water required for cement may be taken as specified in **IS 456-2000** or its latest amendment. For concrete compacted by mechanical vibration the quantity of water shall be reduced by 20%.

Mixing shall be of machine mixing type. Hand mixing shall not be permitted.

Machinery Mixing: Ballast, sand and cement shall be put into the cement concrete mixer to have the required proportion. For concrete of M-15 , first four boxes of ballast, then two boxes of sand and then one bag of cement shall be put into the C.C. Mixer, the machine shall then be revolved to mix materials dry and then water shall be added gradually to the required quantity, 25 to 30litres per bag of cement to have the required water cement ratio. The mixing shall be thorough to have a plastic mix of uniform colour. It requires 1.5 to 2 minutes rotation for thorough mixing.

Mixed concrete shall be unloaded on masonry platform or on a sheet iron. Output of concrete mixer is 15 to 20 mix per hour.

Regular slump test shall be carried out to control the addition of water to maintain the required consistency.

Formwork centering and shuttering shall be provided as required, as per standard specification before laying concrete to continue to support or to keep the concrete in position.

Concrete shall be laid gently (not thrown) in layers not exceeding 15 cm and with mechanical vibrating machine until a dense concrete is obtained. (For important work mechanical vibrating shall be used for thick or mass concrete immersion type vibrators and for thin concrete surface vibrators shall be used for compacting concrete). Over vibration will separate coarse aggregate from concrete and shall be avoided. After removal of the formwork in due time the concrete surface shall be free honey combing, air holes or any other defect.

Concrete shall be laid continuously, if laying is suspended for rest or for the following day the end shall be shuttered and vibrated to achieve dense concrete and made rough after de-shuttering for further jointing. When the work is resumed, the previous portion shall be roughened, cleaned and watered and a grout of neat cement shall be applied and the fresh concrete shall be laid. For successive layer shall be laid before the lower has set.

After about 2 hours laying when concrete has begun to harden, it shall be kept damp by covering with wet gunny bags or wet sand for 24 hours, and then cured by flooding with water, making mud walls 7.5 cm high or by covering with wet sand or earth and kept damp continuously for 15 days. If specified, curing may be done by covering concrete with special type of waterproof paper as to prevent water escaping or evaporating.

Plain cement concrete shall be provided for leveling courses, foundations, pipe bedding or at other places wherever indicated in the drawings/directed by the Engineer-in-charge. Grade and thickness of all PCC works shall be as mentioned in the drawings.

The proportion of the concrete, size of the aggregate shall be as specified in the drawings and technical specifications shall be approved by Engineer-in-charge.

While placing concrete directly on the soil for foundations etc. all the loose material shall be removed. The surface shall be trimmed and well consolidated.

The material specification, mixing, placing of concrete compaction, removal of the form work shall all be done as specified for reinforced cement concrete in the section of this tender document. The clauses provided therein shall also equally apply for this item of work to the extent relevant.

The rates quoted shall include supply of material, labour, tools and plant, water, mixing platforms, curing, supplying, erecting and dismantling of all form works as required.

Testing and Acceptance Criteria of Concrete

The sampling of concrete making the test specimens, curing and testing procedures etc. shall be in accordance with IS: 1199, IS: 3085 and IS: 516, the size of specimen being 15 cm cubes. Normally only compression tests shall be performed in accordance with IS: 516.

For each grade of concrete and for each 8 hour of work or portion thereof the following samples shall be taken.

At least six specimens shall be taken from the first 15.0 m3 or part thereof and three of these shall be tested at 7 days and the remaining at 28 days. Four additional specimens shall be taken from each additional 15.0 m of concrete or portion thereof of which 2 specimens shall be tested at 7 days and the remaining at 28 days.

To control the consistency of concrete from every mixing plant slump tests, and/or compacting factor tests in accordance with IS: 1199 shall be carried out by the contractor every two hours or as directed by the Engineer-in-charge. Slumps corresponding to the test specimens shall be recorded for reference. The acceptance criteria of concrete shall be in accordance with IS: 456-2000.

Concrete work found unsuitable for acceptance shall have to be dismantled and replacement is to be done as per specification by the contractor. No payment for the dismantled concrete, the relevant formwork and reinforcement embedded fixtures etc. shall be paid.

In the course of dismantling if any damage is done to, the embedded items or adjacent structures the same shall be made good free of charge by the contractor the satisfaction of the Engineer-in-Charge.

3. BRICK MASONRY AND PLASTERING

3.1 BRICK MASONRY

General

All bricks shall be of class designation 10 or best locally available approved by Engineer-in-Charge or DBE made of good brick earth thoroughly burnt, and shall be of deep cherry red or copper colour. Bricks shall be regular in shape and their edges shall be sharp and shall emit clear ringing sound on being struck and shall be free from cracks, chips, flaws and lumps of any kind. Bricks shall not absorb water more than one sixth of their weight after one hour of soaking by immersing the water. Bricks shall have a minimum crushing strength of 105 kg/cm2 (10.5N/mm2).

Bricks shall be fully soaked in clean water by submerging in a tank for a period of 12 hours immediately before use. Soaking shall be continued till air bubbling is ceased.

Bricks shall be well bonded and laid in English bond unless otherwise specified. Every course shall be truly horizontal and wall shall be truly in plumb. Vertical joints of consecutive course shall not come directly over one another; vertical joints in alternate course shall come directly over one another. No damaged or broken bricks shall be used. Closers shall be of clean-cut bricks and shall be placed near the ends of walls but not at the other edge. Selected best-shaped bricks shall be used for face work. Mortar joints shall not exceed 6 mm in thickness and joints shall be fully filled with mortar. Bricks shall be laid with frogs upwards except in the top course where frogs shall be placed downward. Brickwork shall be carried out not more than 1.2m height at a time. When one part of the wall has to be delayed, stepping shall be left at an angle of 45^0. Corbelling or projections where shall not be more, than X brick projections in one course. All joints shall be raked and faces of wall cleaned at the end of each day's work.

These specifications deal with all types of brickwork required for buildings, manholes, drains, retaining walls or any construction made out of bricks.

3.1.1 Materials

3.1.1.1 Bricks

Bricks used for the construction of brick masonry shall be hard, rectangular in shape and size and well burnt of uniform deep red, cherry or copper colour and shall confirm to IS: 1077-1986.

The bricks shall be brought from approved brick kilns. The bricks shall be free from cracks, chippings, flaws, stones or lumps of any king. The bricks shall not show any signs of efflorescence and shall be homogeneous in texture.

They shall emit a clear metallic ringing sound on being struck and shall have a minimum compressive strength of 10.5 N/mm2 equivalent to 105 kg/cm^2.

They shall not absorb more than 20% of its dry weight when soaked in cold water for 24 hours or otherwise specified in the Indian standard Specification.

3.1.1.2 Mortar

The proportion of the cement mortar used for the masonry work shall be as specified on the various drawings for different places/types of construction, specification for each part of the work.

For cement mortar fresh Portland cement of standard specification shall be used. Sand shall be sharp, clean and free from organic and foreign matters. For rich mortar coarse or medium sand shall be used and for weak mortar local fine sand may be used. Materials of mortar shall be measured to have the required proportion with measuring box and first mixed dry to have a uniform colour in a clean masonry platform and then mixed by adding clean water slowly and gradually to have workable consistency and mixed thoroughly by turning at least three times. Fresh mixed mortar shall be used, old and stale mortar shall not be used and mortar for an hour work only shall be mixed with water so that the mortar may be used before setting starts.

Coarse sand is mixed with the required quantity of cement for the preparation of the mortar. Mortar shall be prepared in accordance with **IS: 2250-1981**. The sand used for the masonry mortar shall meet the requirements as specified in **IS: 2116-1980**. For masonry mortars, sand and cement of required proportions are mixed in small quantities in a dry state first and then water is added to make the mortar of required consistency suitable for the type of work for which it is required as directed by the Engineer-in-Charge. No left over mortar shall be used and therefore only that much quantity of mortar that can be consumed within 30 minutes shall be mixed in batches.

3.1.1.3 Sand for Brick Masonry

Table 3.1 : Grading of sand for use in Masonry Mortar

IS : Sieve Designation	**Percentage passing by Mass**
4.75 mm	100
2.36 mm	90 to 100
1.18 mm	70 to 100
600 micron	40 to 100
300 micron	5 to 70
150 micron	0 to 15

3.1.2 Construction

The brick masonry shall be constructed as per the Indian Standard Code of Practice for Brick Work **IS: 2212-1962.** The thickness of the joints shall not be thicker than those specified in para 504 of the above Code of Practice.

The bricks shall be thoroughly soaked in water before using them on the work for at least twelve hours and all the air bubbles shall come out during soaking process. The soaked bricks shall be stacked on wooden planks/platforms so as to avoid sticking of the earth and other materials on to the surface of bricks. Bricks required for construction in mud mortar or lime mortar shall not be soaked. Brickwork shall be laid in English Bond unless otherwise specified. Half bricks shall not be used except when needed to complete the bond. Each course of vertical walls and in case of battered construction the better or slope shall be truly maintained. The level of the course completed shall be checked at every one meter interval or less as required.

The bricks shall be laid frogs upwards. While laying the bricks they shall be thoroughly bedded and flushed in mortar and well tapped into position with wooden mallets and superfluous mortar shall be removed.

No part of the structure shall be raised more than one meter above than the rest of the work. In case it is unavoidable the brickwork shall be raked back at an angle of not more than 45 degrees so as to maintain a uniform and effectual bond, but raking shall not start within 60 cms from a corner.

In case of construction of buttresses, counter-forts, returns they are built course by course carefully bound into the main walls.

At all junction of walls the bricks at alternate courses, shall be carried into each of the respective walls so as to thoroughly unite both the walls together. The brickwork shall not be raised more than 14 courses per day.

All the beds and joints shall be normal to the pressures applied upon them Le horizontal in vertical walls, radial in arches and at right angles to the face in battered retaining walls.

Vertical joints in alternate courses shall come directly one over the other and shall be truly vertical. Care shall be taken to ensure that all the joints are fully fitted up with mortar, well flushed up where no pointing is proposed, nearly struck as the work proceeds. The joints in faces which are plastered or painted shall be squarely raked out to a depth not less than 12 mm while the mortar is still green. The raked joints shall be well brushed to remove the loose particles and the surfaces shall be cleaned with a wire brush so as to remove any splashes of mortar sticking to the surfaces during the construction.

All iron fixtures, pipes, bolts, conduits, sleeves, holdfasts etc. which are required to built into the walls shall be embedded in cement mortar or cement concrete as shown in the drawings/indicated in the specification/directed during the execution by the Engineer-in-Charge as the work proceeds and no holes be left for fixing them at a later date unless authorized by the Engineer-in-charge.

3.1.2.1 Curing

Green work shall be protected from rain by covering the work suitably. Masonry work as it progresses shall be thoroughly kept wet by watering on all the faces for at least 10 (Ten) days after completion of the parts of the work. Proper watering cans, flexible pipes, nozzles shall be used for the purpose in case of fat lime mortar curing shall start two days after construction of masonry and shall continue for seven days. No additional payment is admissible for curing and the rates quoted are deemed to be inclusive of the cost of curing.

3.1.2.2 Scaffolding

Double scaffolding sufficiently strong so as to withstand all loads that are likely to come upon it san having two sets of vertical supports shall be provided. Where two sets of vertical supports are not possible the inner end of the horizontal supporting pole shall rest in a hole provided in a header course only. Only one header for each pole shall be left out. Such holes however shall not be permitted in pillars less one meter in width or immediately near the skew backs of arches. Such holes shall be filled up immediately after removal of the scaffoldings. Safety Code for Scaffolds and Ladders, IS: 3696-1987 (Part I and II) shall be followed.

3.2 Plastering

Cement mortar used for plastering shall be of the mix proportions and thickness as specified on the drawings or bill of quantities or particular specification for the various different parts of the works. The materials used i.e. cement, sand and water shall be of the same quality and of the same specifications as indicated for plain and reinforced cement concrete works according to the specifications and approved by the Engineer-in-Charge. Sand further shall meet the specification as laid down is **IS: 1542-1977** Specification for sand for plaster.

The sand for preparation of mortar for plastering shall confirm to following gradation, shown in Table 3.2

TABLE 3.2: GRADING OF FINE AGGREGATES

IS: Sieve Designation	Grading Zone-I	Grading Zone-II	Grading Zone-III	Grading Zone –IV
10 mm	100	100	100	100
4.75 mm	90-100	90-100	90-100	95-100
2.36 mm	60-95	75-100	85-100	95-100
1.18 mm	30-70	5-90	75-100	90-100
600 microns	15-34	35-59	60-79	80-100

300 microns	5-20	8-30	12-40	15-50
150 microns	0-10	0-10	0-10	0-15

For the purpose of indication the suitability for use, the sand is classified as Class A and Class B in accordance with the limits of grading. Class A sand shall be used generally for plastering and when they are not available, Class B sand may be used with the approval of Engineer-in-Charge.
The procurement of sand for Mortar for plastering and pointing shall confirm to be specification given in Table 3.2.
Surface that are to be applied with plaster shall be thoroughly cleaned to remove dust, dirt, loose particle, oil, soil, salts etc, that may be sticking to the surfaces. The surfaces shall be washed, clean and watered properly for 4 hours before applying plaster.
The plastered surface shall be cured for 10 (ten) days. Construction joints in plastering shall be kept at places approved by the Engineer-in-Charge. When the thickness of the plaster specified is to be made up in more than on e layer the second layer shall be applied only when the lower coat is still green.
Wherever scaffolds are necessary for plastering they shall be provided as specified for scaffolds under clause 3.2.2. Stage scaffolding shall be provided for ceiling plaster.
Surface which is to be plastered shall be roughened while they are still green or raked so as to give proper bond between the surface and plaster.
All corners junctions shall be truly vertical or horizontal as the case may be and carefully finished. Rounding or chamfering of corners shall be carried out with proper templates to the required size and shapes.
The work shall be tested frequently with a straight edge and plumb bob. At the end of the day the plaster shall be left cut clean to line. When the next days' plastering is started the edge of the old work shall be scrapped, cleaned and wetted with cement slurry. At the end of the day the plastering shall be closed on the body of the wall and not nearer the 15 cm to any corner.
Curing shall be started as soon as the plaster has hardened sufficiently not to be damaged when watered. The plaster shall be kept wet for at least 10 days. Any defective plaster shall be cut in rectangular shape and replaced.
All the plastered surface shall be finished with 2 coats wall putty including rubbing and making surface even with approved quality material of Berger/ JK/ Birla or similar make surface coating before painting work.

4. REINFORCED CEMENT CONCRETE AND ALLIED WORKS

GENERAL

In general RCC work is to be executed as per **IS: 456-2000** or its latest revision. The water storage tanks/ reservoirs shall be followed by **IS: 3370** Part I to IV & latest revision. Steel reinforcement bars shall be of High Yield Strength Deformed (HYSD) steel bars as per **IS: 1786** and shall be free from corrosion, loose rust scales, oil, grease, paint, etc. Wire mesh of fabric shall be in accordance with **IS: 1566**. The steel bar shall be capable of being bent without fracture. Bars shall be bent accurately and placed in position as per design and drawing and bound together tight with 20 SWG annealed steel wire@ 10 kg/ton of reinforcement at their point of intersection.
Formwork and shuttering shall be made with steel plate close and tight to prevent leakage of mortar, with necessary props, bracings and wedges, sufficiently strong and stable and should not yield on laying concrete and made in such a way that they can be slackened and removed gradually without disturbing the concrete. For slab and beam small camber should be given in centering, 1 cm per 2.5 m with a maximum of 4 cm. Shuttering should not be removed before 14 days in general (4 days for RCC columns, 10 days for roof slab, and 14 days for beams).
The grade of concrete to be used shall be as mentioned in specification/ shown on drawings.

Table – 4.1 Minimum compressive strength of 15 cm cubes at 7 and 28 days after mixing, conducted in accordance with IS: 516

Class	Preliminary test N/mm^2		Work test N/mm^2		Maximum size of Aggregate mm	Locations for use
	At 7 Days		At 7 days	At 28 days		
M40	33.50	50.00	27.00	40.00	20	As indicated in the specification or as required
M 35	30.00	44.00	23.50	35.00	20	-do-
M30	25.00	38.00	20.00	30.00	20	--do-
M25	22.00	32.00	17.00	25.00	20	--do-
M20	17.50	26.00	13.50	20.00	20	--do-
M15	13.50	20.00	10.00	15.00	20	--do-

The coarse aggregate shall usually be 20 mm to 6 mm gauge unless otherwise specified. For heavily reinforced concrete members as in the case of ribs of main beams the maximum size of aggregate should usually be restricted to 5 mm less than the minimum clear distance between the main bars or 5 mm less than the minimum cover to the reinforcement whichever is smaller.

Mixing is done in the same manner as in PCC.

Concrete shall be compacted by mechanical vibrating machine until a dense concrete is obtained. The vibration shall continue during the entire period of placing concrete. Compaction shall be completed before the initial setting starts i.e. within 30 minutes of addition of water to the dry mixture. After removal of the form work in due time, the concrete surface shall be free honey combing, air holes or any other defect.

Concrete shall be laid continuously, if laying is suspended for rest the following day the end shall be shuttered and vibrated to achieve dense concrete and made rough after de-shuttering for further jointing. For successive layer the upper layer shall be laid before the lower has set.

Pre-cast concrete shall be provided with lifting device.

4.1.1 Standards

Following Indian Standards as revised most recently along with amendments will be followed for the works included in the contract.

IS:8112	Ordinary / Pozzolona Portland cement
IS:383	Coarse and fine aggregates from natural sources for concrete
IS:445	Portland slag cement
IS:456-1978	Code of practice for plaint and reinforced concrete
IS:516	Method of test for strength of concrete
	Methods of sampling and analysis of concrete
IS:2386	Methods of test for aggregates for concrete (Part I to Vi)
IS: 3414	Code of practice design and installation of expansion and contraction joints in building.
IS: 3713 Part- I to IV	Code of practice for water storage Tanks

Standards on special subjects have been mentioned elsewhere in this para and also shall be followed.

4.2 Forms, false work or centering

4.2.1 Definitions

"forms, formwork or shuttering" shall include all temporary moulds for forming the concrete to the required shape, together with any special lining that may be required to produce the concrete finish specified.

"False work or centering" shall consist of furnishing, placing and removal of all temporary construction such as forming, props and struts required for the support of forms.

4.2.2 Materials

Steel shuttering shall be provided as directed by the Engineer-in-Charge.

4.2.3 Forms

All forms shall be of mild steel approved by the Engineer-in-Charge and shall be fabricated and prepared water tight and of sufficient rigidly to prevent distortion due to the pressure of the concrete and other incidental loads incident to the construction operations.

Form work shall be true to line and braced and strutted 10 prevent deformation under the weight and pressure of the unset concrete, constructional load, wing and other forces. The deflection shall not exceed 3 mm per meter of the span. The form work for a column may be erected.

One side shall be left open and shall be built up in sections as placing of the concrete proceeds. Before placing the concrete, bolts and fixtures shall be in position, and cores and other devices, used for forming openings, holes, chases, recesses and other cavities shall be filled to the form work. No holes shall be cut in any concrete unless approved. Approved mould oil or other material shall be applied to faces of formwork in contact with unset concrete to prevent adherence of the non-staying concrete. Such coating shall be insoluble in water, non-staying and non detrimental to the concrete and shall not be flaky or removed by wash water.

4.2.4 Tolerance in finished concrete

(As per IS code 456-2000,0.1)

The form work shall be so made as to produce a finished concrete true to shape, lines, level, plumb and dimensions as shown in the drawing subject to the following tolerances, unless otherwise specified in drawings or directed by the Engineer-in-Charge.

For Deviation from specified

Dimensions of cross-section of columns

a.	And beams	=	-6mm +12mm
b.	Deviations of dimension of footing (See Note)		
	Dimensions in plane	=	-12mm +50mm
	Eccentricity	=	0.02 times the width of footing in the direction of Deviation but not more than 50mm
	Thickness	=	+/-0.05 times the specified thickness

Note: Tolerances applied to concrete dimensions only, not to positioning of vertical reinforcing steel or dowels.

4.2.5 False work and Centering

All false work shall be designed and constructed to provide the necessary rigidity and to support the loads from the weight of green concrete and shuttering and incidental construction loads.

False work or catering shall be founded upon a solid footing safe against undermining and protected from softening.

False work which cannot be founded on satisfactory footing shall be supported on piling which shall be spaced, driven and removed in a manner approved by the Engineer-in-Charge. The Engineer-in-Charge

may require the contractor to employ screw jacks or hardwood wedges to make up any settlement in the formwork either before or during the placing of concrete. Props of the upper storey shall be placed directly over those in the storey immediately below.

False work shall be set to give the finished structure the required grade and camber specified on the plans.

4.2.6 Formwork and Construction Joints

Where permanent or temporary joints are to be made in horizontal inclined members, stout stopping of boards shall be securely fixed across the mould to form a watertight joint. The form of the permanent construction joint shall be as shown on the drawings. Temporary construction joints shall have blocks of timber at least 75 mm thick, slightly tapered to facilitate withdrawal and securely fixed to the face of the stopping off board. The area of the key or keys so formed shall be at least 30% the area of the member. The blocks shall kept back at least 50 mm from the exposed face of the concrete.

Where reinforcement passes through the face of a construction joint the stopping off board shall be drilled so that the bars can pass through, or the board shall be made in sections which a half round indentation in the joint faces for each bar so that when laced, the board is a neat and accurate fit and no grout leaks from the concrete through the bar holes or joints.

4.2.7 Removal of Forms and False work

In the determination of the time for the removal of forms, false work and housing, consideration shall be given to the location and character of the structure, the weather and other conditions influencing the setting of the concrete and the materials used in the mix.

Forms shall be removed in such a manner as not to injure the concrete and no formwork shall be removed before the concrete has sufficiently set and hardened. The minimum periods which shall elapse between the placing and compacting of normal Portland cement concrete for the various parts of the structures are given in the following table, but compliance with these requirements shall not relieve the contractor of the obligation to delay the removal of the forms if the concrete has not set sufficiently hard.

Forms shall not be struck until the concrete has reached strength at least twice the stress to which the concrete may be subject at the time of removal of formwork. In normal circumstance, generally where the temperatures are above 20^0C and where cement is used, form may generally be removed after the expiry of the following periods, according to the Clause 10.3, **IS: 456-2000.**

Table 4.2 : Removal of the Forms

a.	Walls columns and vertical faces of all structural members	24 to 48 hours as may be decided by the engineer-in-charge
b.	Slabs (Props left under)	3 days
c.	Beam soffit (Props left under)	7 days
d.	Removal of props under slabs 1. Spanning upto 4.5m 2. Spanning above 4.5 m	 7 days 14 days
e.	Removal of props under beams and arches 1. Spanning upto 4.5m 2. Spanning above 4.5 m	 14 days 21 days

4.2.8 Reuse of Forms

Only mild steel formwork of best quality as per approved vendor list given by Engineer-in-Charge shall be used for concreting purpose.

4.2.9 Cleaning and treatment of Forms

All forms shall be thoroughly cleaned of old concrete, wood shavings, sawdust, dirt and dust sticking to them before these is fixed in position.

4.3 Materials for Concrete

4.3.1 Water

Water used for cement concrete mortar, plaster, grout, curing or washing of sand shall be clear and free form injurious amount of Oil, Acid, Alkali, Organic matter or other harmful substances in such amounts that may impair the strength of durability of the structure.

4.3.2 Aggregate

General

Coarse and Fine Aggregates for concrete shall confirm in all respect to PWD specification / IS: 383 Specification for Coarse and Fine Aggregates from Natural Sources for Concrete. Aggregates shall be obtained from a source known to produce satisfactory material for concrete.

The source of aggregates shall be approved by the Engineer-in-Charge and shall not be changed during the course of the job without his approval. Rejected aggregates shall be promptly removed from the work site by the contractor at his own expense.

4.3.2.1 Deleterious Materials

Aggregates shall not contain any harmful material, such as iron pyrites, coal, mica, shale or similar laminated materials, clay, alkali, soft fragment, sea shells, organic impurities etc, in such quantities as to affect the strength or durability of the concrete and in addition to the above, for reinforced concrete, any material which might cause corrosion of the reinforcement. Aggregates which are chemically reactive with the alkalis of cement shall not be used.

The maximum quantities of deleterious materials in the aggregate, shall be in accordance with **IS : 2386** (Part II). Methods of Test for Aggregates for Concrete, shall not exceed the limit given in Table I of **IS: 383**.

The sum of the percentages of all deleterious materials shall not exceed five. Deleterious materials also include material passing 75 micron IS sieve.

4.3.2.2 Coarse Aggregates

Coarse aggregate is aggregate most of which is retained on 4.75 mm IS: sieve. Coarse aggregate for concrete shall conform to IS: 383

These may be obtained from crushed or uncrushed gravel or stone and shall be clean and free from elongated, Flaky or laminated pieces, adhering coatings, clay lumps, coal residue, clinkers, slag, alkali, mica, organic matter or other deleterious matter. Coarse aggregate shall be either in single size or graded, in both cases the grading shall be within the following limits.

Table 4.3 : Grading of Coarse Aggregates

IS Sieve size (mm)	Percentage Passing For Single Sized Aggregate of Normal Size					Percentage Passing for Graded Aggregate of Normal Size			
	40mm	20mm	16mm	12.5mm	10mm	40mm	20mm	16mm	12.5mm
63	100	-	-	-	-	100	-	-	-
40	85-100	100	-	-	-	95-100	100	-	-
20	0-20	85-100	100	-	-	30-70	95-100	100	-
16	-	-	85-100	100	-	-	-	90-100	-
12.5	-	-	-	85-100	100	-	-	-	90-100
10	0-5	0-20	0-30	0-45	85-100	10-35	25-35	30-70	40-85
4.75	-	0-5	0-5	0-10	0-20	0-5	0-10	0-10	0-10
2-36	-	-	-	-	0-5	-	-	-	-

The Engineer-in-Charge may allow graded aggregates to be used provided they satisfy the requirements and Table IV of IS : 383.

4.3.2.3 Fine Aggregates

Fine aggregates is aggregate most of which passes 4.75 mm IS sieve but not more the 10 % passes through 150 micron IS. These shall comply with the requirement of grading zones I, II and 1II as given in Table III of IS:383. Fine aggregate conforming to grading zone IV shall not be normally used in

reinforced concrete unless tests have been made by the contractor to ascertain the suitability of the proposed mix proportions and approved by the Engineer-in-Charge.
Grading as per IS: 383 is given **in Table 3.2.**

4.3.2.4 Sampling and Testing

Sampling and testing shall be carried out by the contractor, at the contractor's expense, in accordance with:

IS: 516 METHOD OF TEST FOR STRENGTH OF CONCRETE
IS: 2386 Method of Test for Aggregates for concrete

4.3.2.5 Storage of Aggregates

The contractor shall at all times maintain at the site of work such quantities of aggregates as are considered by the Engineer-in-Charge to be sufficient to ensure continuity of work. Each type and grade of aggregate shall be stored separately on hard firm ground having sufficient slope to provide adequate drainage to rain water.

4.3.3 Cement

4.3.3.1 General

The cement used shall be ordinary / puzzolona Portland cement conforming to IS: 8112 or as specified in the particular specification/drawings or as directed by the Engineer-in-charge.

4.3.3.2 Storage on the site

The cement shall be stored in a suitable weatherproof building and in such a manner as to permit easy access for proper inspection and counting. The cement shall be stored in such a manner as to prevent deterioration. Cement of different types and brands shall be kept in separate stacks and A cement register shall be maintained at site in which all entries shall be completed day to day, showing the quantities received date of receipt, source of receipt, type of cement etc, and also the daily cement consumption on site. This register shall be accessible to the Engineer-in-charge for his certification. The godown / room, in which cement shall be kept, shall be locked double, one of UPJN and another of contractor.

4.3.3.3 Rejection of Cement

The Engineer-in-charge may reject any cement as a result of any tests, thereof, not withstanding the manufacture's certificate. He may also reject cement, which has deteriorated owing to inadequate protection during storage from moisture or due to intrusion of foreign matter or other causes. Any such cement which is considered defective by the Engineer-in-Charge shall not be used, and shall be promptly removed from the site of the work by the contractor at his own expense.

4.3.4 Other Materials

Al materials including admixture, joint filters and joint sealants not full specified herein and which may be used in the work shall be of quality approved by the Engineer-in-Charge and he shall have the right to determine whether all or any of the materials offered or delivered for use in the works are suitable for the purpose. Contractor shall give the samples of materials to the Engineer-in-Charge and shall get them approved before procurement and use.

4.3.5 Reinforcement

All reinforcement shall be clean and free from pitting, loose mill scales, dust and coats of paints, oil or other coating which may destroy or reduce the bond.

4.3.5.1 Welded Joints

Welding of joints in reinforcement for bars of 28 mm dia. and below shall not be allowed. However, in case of using welded joints for bars 32 mm and above the approval of the Engineer-in-Charge shall be obtained. The Engineer-in-Charge may require the contractor, prior to the use of welded joints to have tests carried out at he contractor's expense to prove that the joints are of the full strength of the bars connected. The welding of the reinforcement shall be done in accordance with the recommendation of **IS: 2751** code of practice for welding of mild steel bars for reinforced concrete construction. Special precautions are required in the welding of cold worked reinforcing bars.

4.3.5.2 Reinforcement Splices

Laps & anchorage length of reinforcing bars shall be in accordance with **IS: 456**, unless otherwise specified. If the bars in a lap are not of the same diameter, the smaller dia. will guide the lap lengths. Laps shall be staggered as far as practicable and as directed by Engineer-in-Charge and not more than 50% of the bars shall be lapped at a particular section. Mechanical connections, for splicing reinforcement bars in congested locations may be used by the contractor, only if approved by the Engineer-in-Charge. Reinforcement bars shall not be lapped unless the length required exceeds the maximum available lengths of the bars at site.

4.3.5.3 Fabrication and placement

Bars shall be pre fabricated accurately to dimensions, forms and shapes, bending procedure shall be approved by the Engineer-in-Charge. Placing and typing of reinforcement shall conform to IS: 2502-1963 Code of practice for bending and fixing of bars for concrete reinforcement. Bar bending schedules for the reinforced concrete works shown on the drawings shall be prepared by the contractors and furnished to the Engineer-in-Charge at least two weeks before the commencement of bending.

Dimensions shown as furnished by the contractor's shall be his responsibility and approval of the schedule shall not constitute the approval of the dimensions thereon.

4.3.5.4 Field Control

The contractor shall appoint a qualified Engineer experienced in reinforcement cutting bending and placing the same correctly, binding and cleaning before pouring the concrete. The reinforcement shall be continuously kept in correct position during connections.

4.3.5.5 Steel Reinforcement

The reinforcement shall be high Yield Strength Deformed (HYSD) bars. Grade Fe- 415 conforming to **IS: 1786-1985** shall be used unless otherwise specified.

Placement of reinforcement should be as per IS : 456 Clause 11.3.

4.3.5.6 Structural Steel

Structural steel shall conform to **IS: 226** and **IS: 2062.**

Electrodes for welding shall conform to **IS: 815** or equivalent

All bolts and nuts shall conform to IS: 1367. Stainless steel nuts and bolts shall be of SS 3047 type. All materials shall be of new and unused stocks. Manufacturer's test certificate shall be made available to the Engineer-in-Charge when called for.

4.3.5.7 Storage

The steel reinforcement and structural steel shall be stored in steel yard in such a way as to prevent deterioration and corrosion, preferably at least 150 mm above ground by supporting on wooden or concrete sleepers at contractor's expenses.

4.4 Proportioning of Concrete

The determination of the water-cement ration and proportions of the aggregates to obtain the required strength shall be made from preliminary tests by designing the concrete mix as per provisions laid down in IS: 456-2000 &IS: 10262 or its latest revision. Design mix shall be admissible only if contractor is able to manage the quality control of design mix e.g. weighbridge, proper water measuring device etc. and designing the concrete mix as and when source of any of the consistent of concrete is changed. If contractor fails to comply with the requirements of design mix concrete, he shall have to follow the nominal mix as tabulated below.

Table- 4.5 recommended water-cement Ratio (As per IS: 456-2000)

Grade of Concrete	**Nominal Mix of Concrete**	**Quantity of Water per 50 Kg. of cement (Max)**
M 5	1:5:10	60 litres
M7.5	1:4:8	45 litres
M 10	1:3:6	34 litres
M15	1:2:4	32 litres
M20	1:1:5:3	30 litres

M-25	1:1:2	26 litres

Cube tests shall be carried out by the contractor on the trail mixes before the actual concreting operation starts. Based on the strength of the concrete mix sanction for its use has to be obtained from Engineer-in-charge.

The Engineer-in-Charge may require the contractor to carry out moisture content tests in both fine and coarse aggregates. The amount of the added water shall then be adjusted to compensate for any observed variations in the moisture contents. For the determination of moisture content IS: 2386 shall be refereed to.

No Engineer-in-Charge may require the contractor to carry out moisture content test in both fine and coarse aggregates. The amount of the added water shall then be adjusted to compensate for any observed variations in the moisture contents. For the determination of moisture content IS: 2386 shall be referred to.

No substitution in material, used on the work or alternation in the established proportions shall be made without additional tests to show that the quality and strength of concrete are satisfactory. No alternations shall be permitted without the prior sanction of the Engineer-in-Charge.

4.5 Mixing of Concrete

The mixing of concrete shall be strictly carried out in an approved type of mechanical concrete mixer. The mixing equipment shall be capable of combining the aggregates, cement and water within the specified time into a thoroughly mixed and uniform mass, and of discharging the mixture without segregation. Mixing shall be continued until there is a uniform distribution of the materials and the mass in uniform in colour and consistency. Hand mixing of concrete shall not be permitted at all.

4.6 Grades of Concrete

The different grades of concrete shall conform to the strength as required by **IS: 456-2000.** Standard deviation shall be calculated as stated in clause 14.5 of **IS: 456-2000**. The acceptable criteria for concrete shall be as stated in clause 15 of **IS: 456-2000.** The assumed standard deviations as given in table 6 of 18:456-2000 have to be followed and are given hereunder:

Table 4.6 Assumed Standard Deviation

Grade of Concrete	**Assumed standard Deviation N/mm^2**
M 10	2.3
M 15	3.5
M 20	4.6
M 25	5.3

In order to get a quick idea of quality of concrete, the optional tests are conducted as stipulated in 14.1.1 of **IS: 456-2000** and the results are analysed according to table 5 of **IS: 456-200**

4.6.1 Concrete

In general design mix concrete shall be used conforming to **IS: 456-2000**. Nominal Mix concrete batching by volume can only be allowed if the contractor is not able to adhere to the quality control provisions of the design mix with prior approval from Engineer on in writing request of the contractor mentioning reasons, for which no extra payment shall be made

The mix proportions for all grades of nominal mix concrete shall be provided corresponding to the values specified in table -4.7 below, for respective grades of concrete.

Table - 4.6.1 Characteristics Compressive strength of Concrete

Grade Designation	**Proportion of cement: Fine aggregate: Coarse aggregate**	**Specified characteristic compressive strength at 28 days (N/mm^2)**
M15	1:2:4	15
M 20	1:1.5:3	20

M 25	1:1:2	25

The maximum water-cement ratio for all concrete works shall be as specified in IS: 456-2000 and required by the Engineer-in-Charge.
The determination of moisture contents shall be according to **IS: 2386** (Part III).

4.6.1.1 Controlled concrete
Controlled concrete shall be used on all concreting works except where specified otherwise.
The mix proportions for all grades of concrete shall be designed to obtain strengths corresponding to the values specified in Table 4.6.1.1 below for respective grades of concrete.
Table – 4.6.1.1

Grade of Concrete	**Specified characteristic compressive strength at 28 days [N/mm^2]**
M 15	15
M 20	20
M 25	25
M 30	30

The minimum cement content for each grade of concrete shall be as per Table – 4.6.1.2 below. If the requirement of cement is found to be more than that specified below then such excess quantities of cement shall be used and for which no extra payment shall be made.

Table – 4.6.1.2
Minimum Cement Content In Concrete

Grade of Concrete	**Minimum cement content as peer IS: 456 in kg./ cu. M of finished Concrete**
M 15	310
M 20	360
M 25	410
M 30	500

At least 4 (four) trial batches are to be made and 7 (seven) test cubes taken for each batch noting the slump on each mix. These cubes shall then be properly cured and two cubes for each mix shall be tested in a testing in a testing laboratory approved by the Engineer at 7 (seven) days and other at 28 (twenty eight) days for obtaining the ultimate compressive strength. The test reports shall be submitted to the Engineer. The cost of mix design and testing shall be borne by the contractor.
The mix once approved must not be varied without prior approval of the Engineer. However, should the contractor anticipate any change in the quality of future supply of materials than that used for preliminary mix design, he shall inform the same to Engineer and bring fresh samples sufficiently ahead to carry out fresh trial mixed. The Engineer shall have access to all places and laboratory where design mix is prepared. Design mix will indicate by means of graphs and curves etc. the extent of variation in the grading of aggregates which can be allowed. In designing the mix proportions of concrete, the quantity of both cement, and aggregate and water shall be determined by weight. All measuring equipment shall be maintained in clean and serviceable condition and their accuracy periodically checked.

4.6.2 Strength Requirements
Where Ordinary/ Pozzolana Portland cement conforming to **IS: 269** is used the compressive strength requirements for various grades of concrete shall be as shown in Table – 2 of IS: 456 – 2000 where rapid hardening Portland cement is used the 28 days compressive strength requirement specified in Table-2 shall be met in 7 days. The strength requirements specified in Table-2 as previously given shall apply to both controlled concrete and ordinary concrete.

Other requirements of concrete strength as may be desired by the Engineer-in-Charge shall be in accordance with India standard **IS: 456 -2000**. The acceptance of strength of concrete shall be as per clause 14 "Sampling and Strength Test of Concrete" and clause. 15 "Acceptance Criteria" of **IS: 456 - 2000** subject to stipulations and/or modifications stated elsewhere in this specification. if any.

4.6.3 Workability

The workability of concrete shall be checked at frequent intervals by slump test. Where facilities exist and if required by the Engineer-in-charge, alternatively the Compacting Factor test in accordance with IS: 1199 shall be carried out. The degree of workability necessary to allow the concrete to be well consolidated and to be worked into the corners of formwork and round the reinforcement to give the required surface finish shall depend on the type and nature of the structure and shall be based on experience and tests. The limits of consistency for structures are as specified in Table 4.6.3 below:

Table 4.6.3 : Limits of Consistency (as per IS : 456)

Placing Conditions	**Degree of Workability**	**Values of Workability**
Concreting of shallow sections with vibration	Very low	20.1 0 Second, vee-bee time or 0.75-0.60 compacting factor
Concreting of lightly reinforced sections with vibration	Low	10-05 seconds, vee-bee time or 0.80 – 0.85 compacting factor
Concreting of lightly reinforced sections without vibration or heavily reinforced section with vibration	Medium	05-02 seconds, vee-bee time or 0.85 - 0.92 compacting factor or 25-75mm, slump for 20 mm aggregate
Concreting of heavily reinforced sections with vibration	High	Above 0.92 compacting factor or 75 - 125 m, slump or 20 mm *aggregate

- For smaller aggregate the values shall be lower.

4.7 Workmanship

All workmanship shall be according to the latest relevant standards. Before starting a pour the contractor shall obtain the approval of the Engineer-in-Charge or his representative in a "Pour Card" maintained for this purpose.

4.8 Transportation and Pouring

The concrete mixer shall be as close to the place of concreting as possible but not as close as to produce vibration and disturbance to the shuttering and reinforcement. It shall be located at such a position that time lapse, for transportation of unloaded concrete mix from the mixer to the place of deposition of concrete, is minimum.

Chutes for transporting the concrete shall not normally be used. The Engineer-in-charge's written permission shall be taken for transporting by means of chutes. If use of chutes is permitted then the concrete shall be again thoroughly mixed by using spades manually before placing the concrete in the mould/shuttering to avoid segregation of concrete. It shall be ensured that initial setting of the concrete shall not take place and the mix of the concrete is as good as that of freshly poured concrete delivered directly into the mould/shuttering. It shall be ensured that the drop of concrete is not from an excessive height and that the vibration and deposition of concrete are simultaneously carried out.

Before placing concrete, all equipment for mixing and transporting the concrete shall be cleaned and all debris shall be removed from the place to be occupied by the concrete. All form and soil surface shall be finished to desired levels and shall be thoroughly wetted immediately prior to placing of concrete.

No concrete shall be placed until the Engineer-in-charge has approved the excavation formwork and the reinforcement. The competent formwork maker and steel fixer shall be in attendance during concreting operation.

In specified cases, with approval of Engineer-in-charge the surface shall be cleaned and roughened by initial green cut by wire brushes or chipping. The initial green cutting may be done after 6 hours of placing concrete in order to facilitate the work. The old concrete walls/members shall be given a shear of 50 x 65 mm deep. This key shall also be thoroughly cleaned with wire brush in green stage before next lift pouring to avoid percolation of works.

4.8.1 Placing of concrete in slabs and beams

Concrete in slabs shall be placed in one continuous operation for each span unless otherwise directed. Longitudinal construction joints, if required by reason of the width to be placed shall be located as shown on the drawings or as directed by the Engineer-in-charge.

4.8.2 Concreting floors

Concreting shall not be started unless the electrical conduits or any other piping puddle Collars wherever required or laid by the concerned agency. The civil contractor shall afford all the facilities and maintain co-ordination of work with other agencies engaged in electrical and such other works as directed by the Engineer-in-charge.

4.9 Compaction

Concrete during and immediately after depositing shall be thoroughly compacted. The compaction shall be done by mechanical vibration subject to the following provisions.

a. The vibration shall be internal unless special authorization of other methods is given by the Engineer-in-charge or as provided herein.
b. Vibrators shall be of type and design approved by the Engineer-in-charge. They shall be capable of transmitting vibration to the concrete at frequencies of not less than 4,500 impulses per minute.
c. The intensity of vibration shall be such as to visibly affect a mass of concrete of 25 mm slump over a radius of at least 0.5m
d. The contractor shall provide a sufficiently number of vibrators to properly compact each batch immediately after it is placed in the forms.
e. Vibrators shall be manipulated so as to the thoroughly work the concrete around the reinforcement and embedded fixtures, and into the corners and angles of the forms.
f. Vibration shall not be applied directly or through the reinforcement to sections or layers of concrete which have hardened to the degree that the concrete ceases to be plastic under vibration. It shall not be used to make concrete flow in forms over distances so great as to cause segregation and vibrators shall not be used to transport concrete in the forms.
g. The whole process starting from the mixing of concrete to the placing and compaction shall not take more than 20 minutes and the process shall be completed before the initial setting takes place.

4.10 Curing

Curing shall be accomplished in accordance with **IS: 456-2000** by keeping the concrete covered with a layer of sacking canvas, Hessian or similar absorbent materials and kept constantly wet for at least seven days from the date of placing of concrete unless otherwise specified. The approval of the Engineer-in-charge shall be obtained for the method of curing the contractor proposes to use on the work. In very hot weather precautions shall be taken to see that temperature of wet concrete does not exceed 38^0c while placing.

4.11 Consistency

The consistency of concrete shall be frequently checked by means of a slump test performed as per the relevant Indian Standard by the Engineer-in-charge. The maximum and minimum slump for each class of

concrete shall be as directed by the Engineer-in-charge, and any concrete as represented by the slump test which fails to comply with these directions shall be removed from the site and disposal off at the contractors cost.

4.12 Finishing Concrete

On striking the formwork, all blowholes and honeycombing observed shall be brought to the notice of Engineer-in-charge. The Engineer-in-Charge may, at his discretion allow such honeycombing or blowholes to be rectified by necessary chippings and packing or grouting with concrete or cement mortar. If mortar is used, it shall be 1:2 mix or as specified by Engineer-in-charge. However, if honey combing or blowholes are of such extent as being undesirable, the Engineer-in-Charge may reject the work totally and his decision shall be binding. No extra payment shall be made for rectifying these defects. All burrs and uneven faces shall be rubbed smooth with the help of carborundum stone.

4.13 Work in Extreme Weather

During hot weather (atmospheric temperature above 40 degree centigrade) or cold weather (atmospheric temperature at 5 degree centigrade and below) the concreting shall be done as per the procedure and precautions set out in **IS: 7861** (Part I and II).
Recommendation given in relevant clauses if IS: 456 shall be strictly adhered to.

4.14 Loading of the Structures

No concrete structures shall be loaded until the concrete is at least 28 days old and only then with the approval of the Engineer-in-charge and subject to such conditions as he may lay down.

4.15 Testing and Acceptance Criteria of Concrete

The sampling of concrete making the test specimens, curing and testing procedures etc. shall be in accordance with **IS: 1199, IS: 3085** and **IS: 516,** the size of specimen being 15 cm rubes. Normally only compression tests shall be performed in accordance with **IS: 516.**
For each grade of concrete and for each 8 hours of work or portion thereof the following samples
To control the consistency of concrete from every mixing plant slump tests, and/or compacting factor tests in accordance with **IS: 1199** shall be carried out by the contractor every two hours or as directed by the Engineer-in-Charge. Slumps corresponding to the test specimens shall be recorded for reference. The acceptance criteria of concrete shall be in accordance with **IS: 456-2000.**

4.16 Load Test of Structures

The Engineer-in-Charge may instruct for a load test to be carried out on any structure if in his opinion such a test is deemed necessary for any of the following reasons.
The work site made concrete test-cube failing to attain the specified strength, as per the criteria laid down in **IS: 456-2000.**
If the results of the load test be unsatisfactory, the Engineer-in-charge may instruct the Contractor to demolish and reconstruct the structure or part thereof at the contractor's cost. The load test of structures shall be carried out as per the clause 16.5 of **IS: 456-2000.**

5. BITUMINOUS & CEMENT CONCRETE ROAD

5.1 All work shall be carried out as per IRC detailed specification where there are no IRC specification M.O.S.T. specification/P.W.D. specification will be followed unless otherwise specified or directed by the Engineer in charge.

5.2 The contractor shall take all necessary measures for the safety to traffic during construction and provide, erect and maintain such barricades, including sighs, marking flags, lights and flagman, as necessary at either end of work site and at such intermediate points as directed by the Engineer in charge for the proper identification of the construction area. He shall be responsible for all

damages and accidents caused due to negligence on his part. The temporary warning lamps or reflective barriers or sign boards shall be installed at all barricades during the hours of darkness.

5.3 Stone/ Brick ballast/ Stone grit should be stacked at site for satisfaction regarding quantity of material to Engineer in charge.

5.4 The material collected for use in the work shall satisfy all requirements for the particular work, failing which the material will be rejected. The gauge of ballast shall be as per detailed specification for the respective items and deduction will be made for the under gauge/over gauge material as per Engineer in charge.

5.5 During construction care shall be take to ensure there is least disturbance to the traffic. Adequate barriers, red flags in day time and light in night hours shall be provided to guide and inform the traffic. All necessary precautions shall be taken to avoid any road accident at work-site but if there happens any the responsibility will be of the contractor and he shall be responsible for all consequences and damages/ claims etc.

5.6 The consolidation will be in specified layers. Proper and adequate camber or super elevation etc. shall be provided as per directions of Engineer in charge.

5.7 Next coat of consolidation shall be allowed after checking of the crust and quality of previously consolidated layer by the Engineer in charge checking of the crust and quality of previously consolidated layer by the Engineer in charge and found satisfactory.

5.8 The material of the different layer will be spread in required loose thickness so as to achieve the desired compacted thickness.

5.9 The binding material for consolidation shall be soil having plasticity index not more than 6 which is to be arranged by the contractor from a suitable place as directed by Engineer in charge. The soil shall be got approved from the Engineer in charge before start of consolidation and nothing extra shall be paid either for the cost of binding material or for its cartage.

5.10 Proper arrangement of water and its storage for consolidation shall have to be made by the contractor at his own cost.

5.11 The stone ballast shall confirm to the following sieves.

Name of metal		Percentage by weight passing					
1.	63-45 mm gauge	90 mm 10%	63 mm 90-100%	53 mm 25-75%	45 mm 0-15%	22.4 mm 0-5%	1.2 mm -
2.	53-22.4 mm gauge	-	100%	95-100%	65-90%	0-10%	0-5%

5.12 (a) 16-22.4 mm size grit shall pass 100% from 22.4 mm square mesh sieve and all retained on 16 mm square mesh sieve.

(b) 10-16 mm size shingle / grit shall pass 100% from 16 mm square mesh sieve and all retained on 10 mm square mesh sieve.

5.13 (A) Material for Ist coat painting shall be as follows:-

(i) Grit 16-22.4 mm size (crushed) 1.9 cum per% sqm

(ii) Bitumen

(a) For pre coating 15 kg per cum of shingle/grit

(b) For tack coat 180 kg per% sqm.

(B) Material for IInd coat painting shall be as follows:-

(i) Grit/Shingle 10-16 mm size 1.20 cum per% sqm

(ii) Bitumen

(a) For Pre coating 15 kg per cum of shingle/grit

(b) For tack coat 110 kg per% sqm

(c) Material for open Graded Premix Carpet shall be as follows:-

(i) Aggregates for Carpet

(a) Stone chippings 11.2 mm size, passing
22.4 mm sieve and retained on 11.2 mm sieve 1.8 cum per% sqm
(b) Stone chippings 11.2 mm size, passing 13.2 mm
Sieve and retained on 5.6 mm sieve 0.9 cum per% sqm
(ii) Bitumen
(a) For tack coat 180 kg per % sqm
(b) For stone chipping of 13.2 mm size 52 kg per cum
(C) For stone chipping of 11.2 mm size 56 kg per cum

(D) Material for type 'A' seal coat shall be as follows:-
(i) Stone chippings 6.7 mm size passing through
11.2 mm sieve and retained on 2.36 mm sieve 0.9 cum per% sqm
(ii) Bitumen 98 kg per % sqm

(E) Material for type 'B' seal coat shall be as follows:-
(i) Chippings aggregates passing 2.36 mm sieve
And be retained on 180 micron sieve 0.6 cum per% sqm
(ii) Bitumen 68 kg per % sqm

5.14 Stone ballast/Grit/Shingle of approved quarry only, confirming to I.R.C. Specifications shall be used. Before using stone ballast/Stone Grit/River shingle the quality & size has to be approved by the Engineer in charge.

5.15 Contractor shall always cooperate in procurement of sample, conduction of tests as may be directed and no extra payment shall be made for the same. Test samples shall be taken carefully in accordance with the standard method of taking the test sample.

5.16 The contractor shall at all times keep the premises free from accumulated waste materials or rubbish caused by his employee on the works and on completion of the work, he shall clear away and remove from site all surplus materials, rubbish and temporary works of any king and fill up borrow pits dug by his. He shall leave whole of the site and work clean and in a workman like condition to the entire satisfaction of the Engineer in charge.

5.17 The cement concrete road shall be constructed with concrete mix of M-20 grade as per IS code-456.

6. Pipe Line Work :

6.1 GENERAL ARRANGEMENTS & SETTING OUT THE WORKS:

The contactor will establish the necessary bench marks and levels, and he must set out the work and shall be held responsible for its correctness and it shall be incumbent on him to dismantle, remove and rebuild at his own expenses any work not correctly set out.

The contractor shall make provision in his rates to provide all pegs, plates, pillars lines boning rods, sight rails and templates required for setting out the work and shall give such assistance as may be required by the Engineer or his authorized representative in checking the work before, during and after the execution of the work.

6.2 ERECTION & CHECKING OF WORKS :

The contractor shall provide and supply and include in his rates for all labour, machinery, engines, pumps, timbering, shoring, strutting, drain pipes, culverts, rails, tools, tackles, implements, staging, scaffolding, planking, centering, piling, moulds, profiles, templates, timber, boning rods, posts, sight rails and setting materials, all fencing and lighting etc. necessary both for proper execution of works and for the safety and convenience of the public during the progress of the work and maintenance and all temporary plants and appliances and permanent materials of any and every kind whatsoever, although the same may not be included in the description aforesaid, or any of them become, proper or necessary for, or incidental to the full and complete execution of the several works in

all their parts or may have been omitted, or otherwise referred to in these specification or in the annexed schedules, or shown in the drawings.

6.3 TEST:

During the progress of the work & during the period of maintenance the Contractor shall carryout such tests as in the opinion of the Engineer or his authorized representative are necessary to determine that the materials supplied comply with the conditions or in actual use.

6.4 SAMPLES:

As the work proceeds the Contractor shall submit samples of materials for approval as may be required by the Engineer and all deliveries at the site shall not below the standard of the samples.

7. JOINTING OF PIPES AND FITTINGS

7.1 CAST IRON DETACHABLE FLANGED JOINTS

It shall consist of two C.I. flanges, C.I. collar and two rubber rings with a set of nut bolts. For jointing, a flange, a rubber ring and a collar should be slipped to the first pipe In that order, a flange and a rubber ring shall be introduced from the jointing of the next pipe. After aligning the both pipes and keeping the collar centrally placed. Joints of the flanges shall be tightened with nut and bolts.

7.2 FIXING OF VALVES AND FITTINGS

7.2.1 Plain ended C.I. valves confirming to I.S. 2906-1984 and I.S.I. marked fittings and specials confirming to I.S.-5531-1977 (part 1 to 3) shall be fixed as per method described above and relevant IS Codes/Manual on water supply & treatment-1993 or its latest edition.

7.2.2 C.I. flanged specials and fittings like tee, bends tapers, etc. confirming to I.S. 1538-1976/84 or its latest amendments part 1 to 24 shall be jointed as per methods told above. Fixing of C.I. D/F, Sluice Valve I.S.I. marked will confirm to IS 780-1984 tested to 10 kg./cm^2. Underground fire hydrant ' (sluice valve type) shall be fixed as per IS: 909-1975 or its latest amendment. Selection, installation and maintenance of sluice valve shall confirm to specification laid down in IS 2685-1971 or its latest amendment. Reflux valves shall confirm to IS 5312-1969 or its latest amendment. fixing ball valves horizontal plunger type shall confirm to IS 1703-1977. Air valves as required in schedule 'G' shall confirm to relevant IS codes.

8.0 LAYING AND JOINTING OF PIPES

Laying and jointing of various pipes of required working pressure as per schedule 'G' and Index plan will be as per I.S. 4985-1988, I.S. 4984-1995 or its latest amendment or its relevant IS Code and laying shall be done as per latest revision of I.S.-7634 (Part-3) and as detailed in Schedule 'G'. The Jal Nigam / LS.G.E.D. detailed specifications can be seen in the office of Engineer. Solvent cement technique for jointing of uPVC pipes shall be adopted as per I.S.-7634 or its latest amendment. Injection molded uPVC fittings with solvent cement joints shall be fixed as per I.S. 7834 with Its latest amendment Work specifications of latest edition of Manual on water supply and treatment, Ministry of Housing and development Govt. of India shall be followed in general for all other works for which specifications are not detailed herein. DI Pipes shall confirm to IS:8329/2000. Before laying of pipe line a certificate of testing of pipes have to be produced to the satisfaction of Engineer.

9.0 HANDLING AND STORAGE

PVC pipes on no account should be dragged along the ground and special care shall be taken in handling and transportation of PVC pipes. Pipes shall not be stacked in large numbers, especially under warm climatic conditions, to avoid distortion of pipes placed in bottom of stack. For temporary stacking of PVC pipes in fields where racks are not provided care shall be taken that the ground is level, free from

loose stones. Maximum three layers should be kept and so stacked as to prevent movement. Pipes shall not be stored one pipe inside another. Contractors should fill in the rates taking care of all these in his rates.

10.0 TRENCH PREPARATION

The trenches bed should be free from any rock projections, hard object such **as** flints, or tree roots, etc. If Kanker/boulder mixed soil is met, a with layer of sand or alluvial earth (or screened earth) equal to ½ dia. of the pipe or *15* cm. whichever Is maximum shall be provided under and above PVC pipes. Sand/earth cushions shall not be paid extra. Depth of trenches should be such as to provide minimum one meter cover td the pipe. The width of trench shall be minimum 60 cm. plus the inner dia. of pipe for proper laying of pipeline.

11.0 LAYING AND JOINTING

Pipes shall be laid end to end in already prepared trenches and using solvent cement, socket and spigot joint shall be made. The socket in the form of injection molded fittings shall be used and glued to pipes with solvent cement. Full load should be done only after 48 hours of jointing. The uPVC pipes are notch sensitive hence no threading into PVC pipes shall be done. All the valves are jointed by flanged joints. Lockers can sometime be plugged by fastening clamps with rubber gaskets. However laying of uPVC pipe will be done only after the pipes is supplied and tested as per relevant IS codes to the satisfaction of Engineer and a certificate to this effect is produced. Contractor shall be solely responsible for pipe lines to be made 100% leak proof during work and for a maintenance period of one year after the date of commissioning.

12.0 PRESSURE TESTING OF PVC PIPES

Pressure testing of PVC pipes shall not be done until otherwise desired by the Engineer In charge. However, pipelines shall be tested against any leakage by the contractor in a Manner as Specified in relevant IS code or as per para 6.10.5 on page 120 of the Manual on water supply and treatment. Prior to testing care should be taken to evacuate any entrapped air and slowly raising the system to appropriate test pressure. After about one hour has elapsed a measured quantity of water shall be pumped to bring the pressure back to test pressure, if there is a loss of pressure during the test. The quantity of water required to restore the test pressure of 30 M. for; 24 hours should not exceed 1.5 litres per 10 mm of nominal dia. for a length of 1 Km.

Contractor shall include in his rates sufficient margin for testing and repair of subsequent leakages of joints, fitting and specials during work and after commissioning of pipe line and also during maintenance period of one year. During maintenance period contractor wills include material cost for repairing of pipe line as well as cost of repair of public places due to excavation. Excluding cost of specials and pipes.

13.0 PILLAR TYPE STAND POST AND VALVE CHAMBER

Single tap pillar type stand post and Valve chambers shall be constructed as per departmental type design. Item wise general specifications of work and materials are given in following parts of specification Journal and shown In the drawing. For detailed specifications relevant IS specification/ Jal Nigam/PWD specification shall be followed. However estimate of unit quantities of work and; work specifications unit wise can be seen in the office on any working day.

14.0 SURFACE BOX

Supply and fixing of C.I. surface box, for sluice valve, shall confirm to IS 3950-1979 or its latest amendment and chambers as per type design and drawing attached with the tender and to the satisfaction of Engineer.

15.0 INTERCONNECTIONS

Suitable inter connections shall be made as per direction of Engineer In charge with the existing main 'for equitable distribution of flow in the distribution system.

16.0 OTHER ITEMS

No extra payment shall be made to the contractor for:

a. Inter connection done in any running line.
b. Emergency work carried out in night hour to efficient start of water supply during day hours.
c. Labour charges during maintenance period for repair of leakage and other repairs.
d. Control of traffic, proper sign boards and lighting arrangement for working in night.

17.0 Laying of Distribution system & Rising Main

i) Supply & laying of distribution system, rising main as per alignment including fixing of specials, fire hydrants and different type of valves, stand posts etc. comprising of ISI marked DI, CI, AC & PVC pipe of requisite class and specifications as mentioned in technical specifications, BOQ etc.

ii) Route Survey including making the route as per plan on ground, submission of survey records and such other activity to complete the works and submission of the same to the Engineer and its approval.

iii) Construction of brick masonry chambers of required size as per Departmental type design.

iv) Hydraulic testing & commissioning of all the system.

(v) Diversion of traffic with necessary sign/ caution board, required as per site conditions and as approved by Engineer in charge shall be made by the contractor, for which no extra payment shall be admissible.

(vi) The roads (Bituminous/ CC /BOE) cut during executions of works shall have to be made walk able after proper back filling and compaction as specified by using old material obtained during cutting of same. This work shall be executed as per direction of Engineer in charge after proper refilling and proper compaction of earth, so that no hindrance/ inconvenience occurs for traffic / public. It will also include obtaining permission from the concerned authority for cutting of the roads, for which no extra payment shall be admissible.

(vii) Providing necessary barricading with necessary bellies and GI sheets as per site requirement and as per direction of Engineer in charge, for which no extra payment shall be admissible.

(viii) Diversion and restoration of utility services such as telephone lines/ electric cables/data cables, water supply lines, sewers, drains, minors, irrigation channels, roads metalled or Kutchcha etc. as per site requirement and as per direction of Engineer-in-charge for which no extra claim shall be admissible.

(ix) Supply of completion drawings after completion and commissioning of works as per built drawing and requirement of Engineer-in-charge. No extra payment for this shall be admissible.

18.0 Construction of Pump House

i) Construction of Pump House as per approved design drawing including grouting of AC down pipe etc. grouting of inlet, outlet & over flow pipe (only grouting, no supply of inlet, outlet & over flow pipes).

ii) Operation & Maintenance of Pump Houses: No extra claim shall be admissible on this account. During this period all expenses shall be borne by the contractor and no extra payment shall be admissible for this activity up to the handing over of the work.

iii) Defects liability for a period of twelve (12) months after the completion of works i.e. after commissioning and stabilization of works, any defect occurred in this period shall be rectified by contractor at his own cost.

iv) Handing over of works to local body or as directed.

v) Supply of completion drawings after completion and commissioning of work as per requirement of Engineer-in-charge. No extra payment for this shall be admissible.

(B)- SPECIFICATIONS of E/M Works

(A) TECHNICAL SPECIFICATION FOR CONSTRUCTION OF TUBEWELL BY R.C RIG MACHINE UNDER WORLD BANK PROJECT

1. Rates are to be quoted for quantities required for 1 No. Tube well as per schedule 'G' including supply of assembly and accessories as per requirement of each site. The make of all equipments shall be as given in the list of make of electrical and mechanical equipments and other data shall be as per relevant IS or their latest revision.

2. Quantities given in schedule 'G' are approximate and average and may vary as per site condition.

3. Contractor has to arrange adequate continuous clear water supply required during drilling and include the cost of the same in the rates.

4. The rates shall include the collection and preservation of strata samples taken at every three meters depth and where ever the strata changes, supplying the boring/strata chart immediately after completion of drilling and supplying lowering chart to the deptt. and should got approved before lowering from the Engineer-In-Charge (Executive Engineer (E/M) or his authorized representative) and the contactor shall submit finally tubewell completion chart.

5. 7.10 mm thick Housing/plain/ slotted pipe Tubewell assembly shall be supplied by the contractor and painted by contractor with anticorrosive paint as per IS: 3589. Other parts of assembly such as ring, reducer etc. shall be made out from 12 mm thick MS plate/flat. The water bearing area of the slotted pipe should not be less than 16% and the size of slot should be 3"x3/64" for both size of pipes. (A Third party inspection of M.S. pipe should be got done by the contractor before dispatch to site /store by the agency which is approved by UP Jal Nigam i.e. Crown/ Cipet/ SGS). The cost of third party inspection as above should be included in the rates of construction of tubewell. Procuring of all the materiel will be done by the contractor at his own cost and the safety of all the material will be the responsibility of the contractor.

6. Supplied Assembly pipes and accessories shall be unthreaded type and joined together by means of collar rings which shall be electrically welded by the contractor circumferentially in good manner; hence rates should be quoted accordingly. The lowering of the TW will be done in the presence of Engineer in-charge or his representative after prior approval of the assembly from the competent authority on the basis of actual strata collected the T/W assembly chart will be made by the contractor and after approval of the assembly from the Engineer-in-charge or his representative, lowering of the T/W will be done.

7. Pea gravel shall be supplied from LAL KUAN quarry (Haldwani, Uttranchal) which shall be through washed, graded, screened and stacked properly at site.

8. Yield test of tube well shall be carried out in accordance with IS-2800 (part II) and detailed specifications given in tender form. In case of any deviation suitable action shall be taken as per

CB or decision taken by the competent authority regarding the acceptance of tubewell which shall be final and binding.

9. The income tax, trade tax, work contract tax etc. as applicable at the time of payment, shall be deducted at source as per Govt. rules, hence rates should be quoted accordingly.

10. Site clearance/leveling of site will be done by the contractor after completion of TW construction.

11. Site office facility, if necessary, will be provided by the contractor as per direction of Engineer incharge as per site conditions.

12. The contractor shall take protection/safety measures for safety of lives around the site, In case of any accident during the work which results in any type of injury to labour or any public, shall be the responsibility of the contractor.

13. Proper lighting arrangement at site will be made by the contractor at his own cost.

14. During development of tube-well, disposal of discharged water if necessary will be made by the contractor at his own risk and cost.

15. After completion of work all pits would be leveled and cleared, excess earth shall be removed from the site by the contractor.

General Specification

1. Extent of Works:-

This provides for the supply and erection of Rig machine, Drilling, lowering, development and testing of the work and all material required in connection therewith for the purpose enumerated in schedule 'A' in accordance with the drawing referred in Schedule 'B'.

2. Description of works: -

Construction of tube wells in all respects at different places by means of reverse circulation method or by direct circulation method as per direction of Engineer incharge.

3. **The contract includes:-**

a) The erection of all necessary T&P for drilling 675/600 mm dia. hole and lowering of tubewell assembly.

b) The erection of all temporary and auxiliary plants such as derricks, hoist, rotary rig and other appliances required for the work.

c) The supply of all tools and plants lubricating oil, fuel oil, cotton waste, wilding sets, wilding rods and other materials required during construction work.

d) Handing over of works to Local body/Deptt.

4. Arrangement of works: -

The contractor shall pay all charges for use, deterioration or damage of all tools, implements and tackle as well as all other apparatus supplied by the Deptt., if any, which may be necessary for the proper execution of the works as herein specified.

The contractor shall maintain a Chaukidar to watch the T&P and also provide necessary fencing for protection of the work. He shall make his own arrangement for storing of T&P and materials and for accommodation of supervising staff engaged in the work; the cost of such services must also be included in the rates. The contractor shall also arrange his own supplies of water, light, fuel etc. for the use of his workman and also for the execution of me work whenever required.

5. Design, Material and Workmanship: -

All materials used on this work shall be as per IS unless otherwise specified on the contrary. The design, construction and erection of the various parts covered by these specifications are proposed to be followed but any alteration or suggestions with a view to effect economy in design or construction or increased reliability in operations, which the firm tendering may wish to offer, must be clearly set forth in schedule as addendum similar to those attached to this tender and will be considered.

6. Responsibility of Contractor:

Until the test specified herein have been applied and the installation has been passed and formally by the Engineer, the contractor shall be entirely responsible for all apparatus whether such working be for the purpose of testing or in the service of Jal Nigam.

As such part of the construction, the tube well is complete it shall be checked over by the Engineer or his authorized representative. The representative of contractor shall ascertain from the Engineer's representative from time to time, what part be wished to check over and pass, but such passing shall in no way relieve the contractor of his responsibility until the entire work has been completed by the contractor at his own costs.

7. **Tests: -**

During the progress of the work and after its completion the contractor shall carry out such tests, as in the opinion of the Engineer are necessary to ensure the installation complies with conditions of these specifications whether under test conditions or in ordinary working. All pumps, motors meters, engines and pipe connections and other apparatus required for the test shall be provided by the contractor at his own costs.

8. Reinstatement:-

The contractor shall remove all surplus materials and reinstate the ground disturbed by the operation of the excavation, boring and construction of the well to the satisfaction of the Engineer. No pits shall be permitted to be dug around the tube well.

No taxes/duties will be paid by the department for materials used in the tube wells and equipment for execution of wells. The contractors are advised to include in their rates on account of taxes which are to be paid by them.

9. Preservation of Excavated Materials:-

The contractor shall submit to the Engineer daily report of the work done by him each day on the prescribed form to be obtained from the Engineer. These reports shall be handed over to the Engineer's representative at site or posted to the Engineer (in Case there be no representative stationed at site) every day after close of day's work. The cost of such postage shall however not be borne by the Deptt.

As the boring of tubewell is proceeding, the contractor shall keep care full notes of-all changes of strata measurements from ground level and shall preserve a sample of soil taken from every stratum. Each sample must be at least 15x15x23 cm. deep in bulk and must be carefully preserved and marked with the depth and place from which it was taken. The contractor shall also maintain at the site a boring chart showing progress of the work, nature of soil passed through each day and the thickness of each stratum and other particulars in the prescribed form. Immediate after completion of boring the contractor shall submit the preserved samples of soil/strata met during boring in transparent plastic container duly marked firmly the depth and name of soil/strata on each container arranging all containers in a box.

10. Want of Knowledge:-

Contractor is particularly requested to read the specification and term of contract and obtain clearance of surety, if any, before submitting his tender, as no excuse for non compliance with part or portion of the works described in these specification and conditions of contract shall be accepted.

No material, of any kind carted to the site for the construction of the tubewell such as, pea gravel or any other thing shall be accepted by the Deptt. in case of failure of the tubewell due to any reason. The contractor will have to supply the pea gravel to be used in development of the tubewell.

Detailed Specification

1. **Tube well assembly:**

This will be supplied by the contractor along with MS rings, reducer, centre guide, housing cover etc and shall be inspected by department before dispatch to individual site at works (RS Joist girder of H shape will be supplied as per size mentioned?)

2. Gravel Packing:

Gravel packing shall be done by suitable method approved by the Engineer or his authorized representative. The placing of the gravel in the annular space between the well pipe and the hole shall start at the bottom of the well and extend upward to ground level. The construction of the gravel filter once started will be continuous operation until it is finished.

The following specifications are to be followed for supply of Pea Gravel for Tubewell.

1. The Gravel has to be supplied from Lalkuan, Query Haldwani and conforming to IS 4097-1967 and as latest amendments.
2. The average particle size of Gravel shall be 2.0 to 4.75mm.
3. The Gravel shall consist of hard quartz (about 96% SiO_2) or other suitable material, with an average specific gravity of not less than 2.5. Not more different place of 10% by weight of the material shall have a specific gravity of less different place 2.25. The Gravel shall contain not more than 2% by weight of thin flat or elongated pieces. In case of such pieces, the larger dimensions shall not be more different place of 3 times the smallest dimensions. The quartz shall be of sub rounded to rounded grains with minimum angular features.
4. The Gravel shall be free from impurities, such as shale, mica, feldspar, clay, sand, dirt, loam hematite and organic materials.
5. The particle size distribution of Gravel may be Determine by screening through standard sieve accordance with IS: 460.
6. The gravel shall have a hardness of not less different places of district / 5 in Moh's scale.
7. Voids @ 5% shall be deducted from quantities measured at site.
8. Any tax, Royalty shall be included in the offered rates.

3- <u>Development</u>:

The well shall be developed either by surging, including washing and agitation or by over pumping and back washing with or without an air lift. The development process shall be continued until (i) the well ceases to- absorb further gravel (ii) the depression ceases to improve (iii) the-discharge ceases to improve, & (iv) the water is reasonably sand free. The analysis of sand content will be carried out by the contractor as per written instruction by the Engineer. The sounding of T/W will be taken after development by compressor and OP unit.

The contractor shall over develop so as to yield a discharge 20% in excess of the rated discharge or to depress the well to <u>50% higher difference</u> the nominal depression of that area at which the tube well is pumped on continuous duty which ever may be more.

The discharge during development shall be measured at minimum intervals of 6 hours over a V-Notch weir or by other suitable method and record kept as previously provided. The development will continue till no further feeding of gravel is found necessary and the discharge is free of sand within the requirement of specifications.

The discharge shall be sand free i.e. sand contents will be less by 10 ppm in the final discharge of the tube well obtained after 05 minutes of starting and clear/traces within 10 minutes.

The discharge of tubewell shall be measured by means of water meter or orifice meter or rectangular V-notch chamber constructed according to IS such that the full size discharge from the outlet pipe the plumb will fall into the first compartment of V-notch chamber. In order to enable the collection

of water in a bucket for, measuring the sand contents of water a bib cock shall be provided in the delivery pipe away from the discharge outlet. The contractor will also provide necessary measuring jars.

4- The yield of the tube well will be carried out as under:

Firstly, the discharge of the tube well will be increased in stages at an interval of one hour and relevant readings at each stage will be recorded by checking these readings. The most suitable discharge will be selected and the tube well will run for about 6 hours and the readings of depression and discharge will be taken after every half an hour for ensuring the figure of discharge and depression remain steady during the entire period of test. The specified discharge of the tube-well shall be obtained at a depression not exceeding 20 ft. Thereafter the recoupment test of the tubewell will be conducted by noting the readings of recumbent of water level in the housing pipe by noting the depth of water level from the top of the housing pipe after suitable intervals/ Cleaning of water after stopping pumping.

5- **Abandonment of Tubewell:** During construction it may be required to abandon the tubewell due to negligence of the working staff of the contractor, in such case no payment of the executed work will be made to the contractor.

6- **Quality of water:** In the construction of the tubewell, due precautions shall be taken by the drilling agency to maintain the premises in a sanitary condition and to avoid as much as practical, the entrance of contaminated water into the safe water bearing formations, any water or materials used shall be free of contamination and, if their nature permits, should be adequately disinfected with chlorine before use. The slush pit should be constructed so that no material there from will enter the well, except mud reused when the construction is by rotary method. In such cases the slush pit and mud return channels should be protected against contamination from surface water or/ any other sources.

The well shall be disinfected after completion of test for yield. All the exterior parts of the pump coming in contact with the water shall be thoroughly cleaned and dusted with powdered chlorine compound.

7- Testing of water sample:

Testing of water sample after completing the yield test. The water sample collected in presence of engineer incharge from tube well will be chemically and bacteriologically tested from the NABL accredited laboratory

SCHEDULE 'A'

The site of tube well or tube wells shall be shown to contractor or his agent before starting the work. The advantage of maximum yield from the strata met with may be taken consequently as soon as the strata for approval and the tube well shall not be put in until the approval of the Engineer or his representative has been obtained and officially communicated to the contractor.

The contractor should clearly understand that he will have to make his own arrangements for the T&P and other accessories which may be required for boring purpose.

The contractor shall be deemed to have carefully inspected the site to find what obstructions are there in the way of rapid progress so as to include in his rates sufficient margin cover the cost of removing them.

The contractor is strongly advised to consult strata chart of boring done in the vicinity of the place. A few strata chart may be available in the office of the Engineer. But those can only be taken as guidance and no claim shall be entertained on the ground strata actually met differs from the shown on these charts.

Time is the essence of this contract. No request for extension of time will be entertained unless the Engineer finds the delay was unavoidable.

Witness **Contractor**

Date.....

SCHEDULE 'B'

List of drawings to be provided for by the contractor before putting in the tube well.

1. Strata chart of the tubewell
2. Proposed tube well assembly chart for lowering.

Witness Contractor

Date.....

SCHEDULE 'C

List of samples to be deposited with the Engineer concerned on demand to deliver either at the site of work or at the office of the undersigned as desired by the Engineer. 1. Samples of strata met with during boring.

2. Samples of slotted pipe (returnable) if required to be supplied
3. Samples of TW accessories, such as sockets, reducer, clamp (etc) returnable.
4. Samples of LAL KUAN Pea Gravel (Returnable)
5. Any Other sample if required by the Engineer.

Witness **Contractor**

Date.....

(B) TECHNICAL SPECIFICATIONS FOR TW SUBMERSIBLE PUMPING PLANT & THEIR ACCESSORIES AT DIFFERENT TWs UNDER WORLD BANK PROJECT.

1. SWITCH GEAR:

Complete switch gear with all equipment, accessories shall be supplied and erected by the contractor with the provision for connecting to the 380 ± 10%v, 3 phase 50 Hz A.C. supply system at tubewell pump house. Under this item, following equipments shall be provided:

1.1 POWER CONTROL PANEL:

This shall be a 18 SWG sheet fabricated cubical wall mounting type dust & vermin proof panel having front opening door complete with hinges, glands for cables etc. and with internal control wiring with 1.5/2.5 mm2 PVC insulated & sheathed cable and consisting of the following:

a) Contactors of suitable rating.

b) 1 No. four Pole MCCB complete of suitable capacity.

c) 1 No. 96 mm2 dial volt meter 0-500 volts.

d) 1 No. 3 way selector switch for volt meter.

e) 1 No. 96 mm2 Ampere meter adequate to cover twice the full load current along with C.T. & selector switch.

f) 1 No. single phasing preventer.

g) 1 No. capacitor of required KVAR to improve PF upto 0.95.

h) 3 Nos. indicating lamps of Red, Yellow & Blue Color

i) 3 Nos. instrument fuses of suitable capacity.

j) 3 Nos. toggle switches, 5 ampere.

k) 2 Nos. Danger plates (caution boards) & Medical treatment charts as per ISS.

Note: The single line diagram of LT Panel should be submitted by the Contractor and the panel should be manufactured after approval of single line diagram by the Engineer Incharge.

1. 2 **STARTER:** Confirming to IS specifications automatic star delta starter with Push button will be installed with above panel water level controller and GSM based controller as per specification mentioned.

1.3 Water Level Controller:

- Auto & Manual Provisions.
- Pump 'OFF' when Tank is full.
- Pump 'ON' when Tank is empty.
- Indication for controller 'ON'.

1.4 GSM BASED CONTROLLER:

- Controller can be made 'ON' for particular time.
- Feature of daily timer.
- Auto/Manual Mode
- Power Resume feedback with duration.
- Feedback can be given to 03 monitoring numbers
- Feedback will be given if the controller is manually 'OFF'
- Feedback on faults.
- Feedback in case of power failure up to two phases.
- Wide input voltage-100V to 540V, AC3 phase, 03 wire, 50 Hz.

1.5 POWER WIRING AND EARTHING:

(a) **Power wiring:**

40 meters PVC insulated 3 core flat copper submersible cable of required size, 1100 V grade confirming to IS 694 part I shall be supplied to carry out power wiring from submersible motor to starter. The submersible cable shall be fixed to the M.S. - column pipes by suitable cable clamps. The length and size of the cable should be mentioned by the tenderer.

From starter to control panel and control panel to suitable capacity amp. kit kat power wiring done by suitable size PVC insulated-separate copper lead for each phase and Neutral. To connect to UPPCL energy meter 2 meter leads should be left spare for making connections. The size of the submersible cable should be adequate to take starting current of motor after taking into account derating factors at 48° ambient temperature.

(b) 75 cm x 45 cm, 12 mm thick hard board with sun mica top board with 3 nos. porcelain cutout and neutral link of required capacity with angle iron frame as per design-of department.

(c) Board of required size and capacity to mount tools.

(d) 12 mm thick Rubber matting 1 meter x 1 meter size.

(b) EARTHING:

Double plate earthing of the entire electrical system shall be carried out and connected to permanent earthing plates buried in ground and surrounded with coke, salt upto adequate depth where earth is encountered. It shall be consisting of the following:

i) GI Earth plates of 600 X 600 X 6 mm size as per latest relevant IS/IER.

ii) GI water pipes of required length and 40 mm dia. as per latest relevant IS/IER.

iii) Aluminum Earth strip of adequate size as per relevant IS/IER and in required quantities to cover complete installation in double run. The strip shall be without kinks and without any joints.

iv) Necessary quantities of lugs and clamps etc. for proper earthing,

v) Necessary quantities of salt and coal.

vi) Earth chamber CI box 300 X 300 mm as per ISS/IER and its cover.

NOTE:

i) The digging of pits for earthing and construction of suitable size earth chambers shall be done by the tenderer,

ii) The whole of the above work of power wiring and earthing shall be carried out to the entire satisfaction of Engineer In-Charge and subject to the approval of UPPCL and be in accordance with IER and other Govt. regulations prescribed/amended up to date,

iii) The power wiring shall be done properly on MS clamps to be grouted in wall. The submersible cable/copper lead will run through MS conduits on wall and floor.

2.0 SUBMERSIBLE PUMP SET WITH SUBMERSIBLE MOTOR:

Submersible pumping set suitable for 300/250 mm dia. T/W Bore fitted with dynamically balance S.S. impellers mounted on a stainless steel pump shaft with shaft protection sleeves having stage bowls of closed grained cast iron. The pump will be fitted with built in non-return valve and shall be suitable for direct coupling to the squirrel cage electric induction, water cooled type submersible motor suitable to operate on 380 ± 10% V, 3 phase, 50 cycles/sec. A.C. Power Supply and 2900 rpm (nominal) speed and capable to give a discharge against a particular head as is mentioned in NIT. Other specification shall be as per following:

2.1 Pump Set:

21.1. A Standard hydrostatic test on all pressure containing parts shall be made at 1.5 times the maximum discharge pressure.

2.1.2 The bowls shall be equipped with replaceable casing bearing.

2.1.3. The bowl assembly shall bear a name plate preferably embossed information as per following:

a) Name of the manufacturer or trade mark.

b) Serial number of the pump set.

c) Pump type.

d) Number of stages.

e) Total head.

f) Capacity.

2.1.4 The impeller shall be of enclosed type equipped with seal rings on their hubs. Seal rings shall be provided either with impeller or in the bowl.

2.1.5 The pump shaft shall be guided by bearing provided in each bowl of above and below the impeller shaft assembly. The shaft without sleeves shall have a surface finish 0.75 micron Ra Max.

2.1.6 The opening in the suction case for the entrance of water shall be of proper size and shape to avoid eddy currents.

2.1.7 The suction case shall be fitted with a strainer made of corrosion resistant material.

2:1.8 Suitable sand guard shall be provided just above the suction case bearing to prevent the entry of foreign matter into the suction case.

2.1.9 Non return valve shall be provided above the pump discharge case.

2.2. **SUBMERSIBLE MOTOR:**

2.2.1 The submersible motor shall be squirrel cage induction motor.

2.2.2. The winding of motor shall be wet type.

2.2.3. The motor shall be suitable for operation voltages and frequency confirming to IS 585-1962 (revised) "Voltages and frequency for A.C. transmission and distribution system"

2.2.4. The earthing of the motor shall comply with IS: 3043-1966 code of practice for earthing.

2.2.5. The Thrust bearing shall be of adequate size to withstand the weight of all rotating parts as well as the imposed hydraulic thrust. These shall be lubricated suitably.

2.2.6. The Motor winding and nearing bushes of the rotor shaft shall be cooled/lubricated by pure water filled in the motor before erecting the pump set.

2.2.7. The motor shall be protected by means of cable glands, rubber seals etc. from ingress of tubewell water, sand and other foreign matter.

2.2.8. The thrust bearing housing shall be provided with a drain plug to empty the pure water filled into the thrust bearing housing/Motor.

2.2.9. The rotor shaft shall be provided with shaft protecting sleeves having a surface finish of 0.75 micron Ra max.

2.2.10. The Motor shall be provided with a breathing attachment like bellows, diaphragm etc. to compensate the Volumetric variations due to change in temperature.

2.2.11. The motor shall be made of corrosion resistant materials or suitably treated materials to resist corrosion.

2.2.12. The motor rating should be calculated considering the multiplying factor as per CPHEEO manual.

2.2.13. The motor shall have a name plate preferably embossed on body of motor giving the following information:

a) Induction Motor;

b) Name of Manufacturer;

c) Manufacturer's number and frame reference;

d) Type of duty;

e) Frequency in Hz;

f) Number of Phases;

g) Rated output in HP/KW;

h) Rated voltage and winding connections;

i) Current in amperes at rated output.

j) Speed in RPM at rated output.

2.3. DATA OF PUMP SET:

These shall be furnished in the following manner:

a) Model of motor.

b) Model of pump.

c) Discharge in LPM.

d) Total head. Meter

e) Nett effective head

f) Number of stages.

g) Pump outlet size in mm.

h) O.D. of pump in mm.

i) Speed of pump set.

j) Method of starting.

The performance details as per enclosed schedule 'E' are to be submitted separately.

NOTE:- The discharge & head mentioned are tentative. The pump shall be installed of available recommended discharge of TW & subsequently revised head as per site conditions.

3. MAIN PIPING AND VALVES

Main piping and valves will be provided 80 mm size upto 300 LPM discharge, 100 mm size for above 300 to 1000 LPM discharge, 150 mm size for above 1000 to 2000 LPM discharge & 200 mm size for above 2000 LPM, discharge.

Under this item, supplies shall be made as per following specifications

3.1. SLUICE AND REFLUX VALVE:

2 Nos. non-rising stem type CIDF sluice valves with hand wheel, clockwise closing, manufacturing standard IS-14846, flanges drilled to IS: 1538 part -IV & VI.

Material of Construction:

I. Body, Bonnet, Wedge - CI/IS: 210

II. a) Seat & face ring- IS: 318

b) Body ring-Bronze - IS: 318

c) Channel & shoe-IS: 318

III. Spindle-Stainless steel AISI 410

Test Pressure:

Body 15 kg/cm2; Seat 10 kg/cm2

(b) 1 No. CIDF. Reflux valve without bye pass arrangement and manufactured as per IS. 5312 Part-I, flanges drilled to IS- 1538 Part-IV & VI.

Material of Construction

I. Body, cover and door-CI/IS-210

II. Rings for body, door and bearing block - Bronze/IS: 318

Test Pressure

Body 15 kg/cm2

Seat 10 kg/cm2

3.2 MAIN PIPING:

Under this item supplies shall be made as per following specifications and relevant ISS.

1. Column pipe of 80 MM and 100 MM as per IS 1239 (heavy duty) with thickness 5.4 MM and column pipe of 150 MM and 200 MM as per relevant IS with thickness 7.1 MM and having special M.S flange welded at both end duly painted with Anti corrosive paint with groove cutting for submersible cable and M.S. top flange. 24mt. /27M as per requirement
2. CI D/F sluice valve with hand wheel 02 nos.
3. CI D/F reflux valve 01 no
4. CI D/F 90° heavy duty bend 01 no
5. CI A/F heavy duty tee 01 no
6. M.S. D/F 5.4 mm thick MS pipe 1.5 m long. 02 nos
7. M.S. D/F 5.4 mm thick MS pipe 1.0m long. 01 no
8. Necessary Nuts and Bolts and rubber packing L.S.
9. M.S. Enlarger for submersible pump 1 no (if reqd.)
10. Heavy duty column pipe clamp with Nut bolt 2 pair

3.3 FLOW MEASUREMENT:

Suitable size electromagnetic online flow meter should be provided. The location of the flow meter will be decided by the Engineer Incharge.

4. **VOLTAGE STABLIZER:**

The Contractor shall provide 3 phase servo controlled stabilizer along with required cable and other all material required, so as to install the servo stabilizer after UPPCL Supply so that the output voltage at LT panel incoming side is received constant as 415 Volt with incoming voltage anticipated from UPPCL at each site may vary from 250-460 voltage or suitable range of input voltage as per site condition. The stabilizer shall be oil filled copper wound suitable for unbalance current load and unbalance voltage supply. The insulation should be 'A' class and maximum temperature rise of oil should not be more than 55°C.

5. **PRESSURE AND DEPTH GAUGE:**

The contractor shall provide a pressure gauge of 100 mm dia. suitable to read the delivery head of water in 'Meters head of water' and one pneumatic type of depth gauge which should be capable to read the depth of water in Meters directly.

5.1. **AIR LINE:**

The contractor shall provide GI Airline of 6 mm dia. in required length to lower below the floor of pump house. The air line pipes should be ERW type and confirming to IS specification of IS: 239 (part-I) i.e. duly threaded and sockets of heavy type.

5.2 **ACCESSORIES AND SPECIALS:**

I. Both the gauges are to be mounted on a common teakwood board with white sun-mica top of suitable size on wall at a height of 1.5 meters from the floor of pump house and to be connected with air line. The above board will be a part of the supply of pr. and depth gauge.

II. The pressure gauge is to be supplied with control cock of brass.

III. The depth gauge is to be supplied with following accessories.

(a) 1 No. foot operated air pump of reputed make and strong flexible piping.

(b) Schrader valve, M.S. Tee, Coupler, elbows etc. of suitable sizes for fixing in the air line. NOTE:- The contractor has to supply all M.S. Clamps etc. to be grouted in the wall for fixing airlines to the gauges in proper way and parallel to each other and other required fittings for proper installation.

6.0 **LIFTING TACKLE:**

Under this item the contractor shall provide a spur geared chain pulley block of capacity 2.0 Tons, tested 3.0 Tons with load and hand chains for 4.5 meters lift approximately along with test certificate.

7.0 **CHOLORINATION PLANT:** Required capacity electronic type chlorinating plant solenoid driven dosing pump single phase 220V, and 06 LPH capably 3.5 kg/cm^2 injection pressure with automatic voltage stabilizer 220 volt., P.V.C. tank 100 ltr. Capacity, residual chlorine test kit (2 PPM), M.S. base frame, gate valves and fitting sodium hypochlorite solution 8% strength in 2 ltr. P.V.C. cane and also with one no. spare solenoid driven dosing pump.

8.0 **PAINTING:**

Under this item all parts of switch gear, accessories, piping and other iron or steel work not finished bright shall be painted with two coats of approved and good quality synthetic enamel paint which shall be applied on above parts after erection.

9. **ERECTION:**

Under this item the contractor shall undertake complete installation of switch gears and pumping plant including power wiring and earthing of electrical items, main piping and valves, pressure and depth gauges with air line etc. with required minor civil works such as cutting of walls/repairing and setting to work of the plant, including watch and ward of pumping plant upto commissioning/ handing over to the local body.

10. **TESTING OF PLANT:**

The contractor shall provide preliminary testing of pumps and valves at manufacture's works and at site also through testing of the whole plant during the course of erection and when it is completed as specified and for official testing of the same in accordance with schedule 'E'. The testing of the electric motor and pump may be witnessed at the manufacturer's works by the depth representative. Pump sets will be tested at manufacturer works as per schedule-E given by the contractor and as per latest revision of IS-8034. Other material/accessories will be checked as per relevant IS.

10.1 **TEST DUTIES AND EFFICIENCIES:**

The contractor shall state in the tables attached with tender documents the efficiencies and duties of the pumping plants when working at specified conditions of the pumping and the guaranteed performance in K.W. hour input per water horse power output under various conditions of working. The guaranteed performances are also to be specified under following conditions i.e. variation in head discharge and power consumption in the following cases:

a) When available voltage decreases from 415 volts to 380 volts or increases from 415 volts to 440 volts.

b) When there is fluctuation of ±3% in the frequency of the AC power supply from 50 C/S.

c) When there is above change in voltage and frequency of the AC power supply simultaneously.

The official tests shall be conducted in two stages. Preliminary tests may be conducted at the manufacturer's works. The final tests shall be conducted at site. Pumps shall be run so as to obtain the range of heads specified in the performance tables by means of throttling or opening valves of the pumping mains and tests results will be compared with those guaranteed by averaging the units consumption per water horse power hour.

- The guaranteed figures stated above shall be subjected to no tolerance and the average results shall be obtained during official test of plant. If the results lack average guaranteed figures the contractor shall forfeit followings ascertained damages relating to each set installed.

- If BOT unit (KW) per WHP), the consumption is above the average guaranteed figure under the specified Q and H, the liquidated damages will be recovered as the capitalized cost of the Extra Energy Consumption during the useful life span 15 years of the pumping set. The liquidated damages shall be calculated as below:-

  Cost of extra power consumption

  to be recovered shall be equal to = Cost of extra power per annum
  X capitalization factor for 15
  years at an interest rate of 9%.

- No damage will however, be recovered if the consumption is less 0.05 BOT units per WHP above the guaranteed.

- If on testing the discharge of pumps is found to be within the permissible limit of ±4% then the pumping plant will be accepted without imposing any penalty. If discharge is less by 5% to 10% then pro rate deduction @ 1% of the cost of pump and motor for less percentage of discharge shall be made and further if the discharge is less 10%, plant will be rejected.

- It may be noted carefully that no privilege shall be given to any offer for evaluation purposes considering the efficiency of the pump and Motor. Better efficiency pump and motor however shall be preferred. For evaluation purposes pump and motor efficiency shall be considered as 72% & 82% respectively but pump will be tested on the efficiency quoted by the firm in schedule-E of their tender.

The pump efficiency offered below the efficiency quoted shall be considered for evaluation as follows:

(i) Electric charges shall be based on 20 hours of operation per day for 15 years at the prevailing rate of Electric Charges.

(ii) All future costs of yearly power consumption will be capitalized to present value at capitalization factor @ 9% interest.

- The tenderers shall have to consider the condition of pumps being run at shut off head under the pump duty variation condition as narrated above. The tenderer should ensure selection of pumps considering shut off head at least 25% more than the duty head. However the motor should be selected as per tender specification and scope of work defined. The possibilities of change of duty point of each pump in parallel operation can not be ruled out , under such condition tenderer should select the pump carefully.

- Penalty for delay in supply and installation-0.25% per day of the total tendered cost subject to a maximum of 10%.

11. **COMMISSIONING & TRIAL RUN FOR ONE MONTH:**

After intimation, contractor will commission the pumping plant within 10 days time just after that trial run will start. During trial run the contractor shall depute his skilled staff for trial run for one month (As and when required and as per availability of Power Supply) during this period except Power all consumables shall be provided by the contractor free of cost including watch & ward of

pumping plant for 24 hours per day. After erection or commissioning & trial run, the contractor shall also depute their staff upto handing over to gram panchayat for watch & ward of all equipments.

12. **RUNNING & MAINTENANCE:**

- The contractor shall provide necessary staff for operation and maintenance of the pumping plant, including watch & ward just after successful trial run period of one month as per satisfaction of department/Engineer incharge, for a period of 3 months. He shall depute qualified persons with necessary experience and know how to operate pumping plant. As pumping plant will be in defect liability period of 12 months from the date of commissioning hence no payment shall be made for any spare part during this period.

Note: -

1. Contractor has to present at manufacturer works witnessed test certificate of Pumping Plants & Valves at the time of payment.
2. A Third party inspection of M.S. pipe of tubewell will also be done by the agency which is approved by U.P. Jal Nigam i.e. crown/Cipet/ SGS before dispatch the MS pipes to site/store. The cost of third party inspection of MS pipe should be included in the rates of construction of tubewell.
3. Quoted rates should be inclusive of all charges regarding taxes and duties including GST, royalties, or any other taxes or duties levied on the contractors' work by Government, Local bodies etc. will be payable by the contractor

   The rate quoted should include all taxes and duties and should be F.O.R. site of work; the contractor shall be fully responsible for storage, watch and ward, insurance etc. of all stores, inventories and assets etc. during the construction and O&M periods. The escalation on taxes. levies, cesses etc. in any form shall not be payable.

SCHEDULE - 'E'

Guaranteed performance figures of TW submersible pumping plant to be furnished at the time of tendering

Sr. No.	Details	I	
1.	Discharge in LPM		
2.	Total head in Meters		
3.	WHP at total head		
4.	Guaranteed Pump efficiency		
5.	BHP at pump Shaft		
6.	Guaranteed Motor efficiency		
7.	H.P. Input to Motor		
8.	KWI to Motor		
9.	Guaranteed KWI/WHP		
10.	Overall efficiency		
11.	Shut off head in motors		
12.	OD of Pump		
13.	No. of stages		
14.	Make (Pump & Motor)		
15.	Model (Pump & Motor)		

Note:- i) Characteristic curve duly certified by manufactures and duty point marked shall be submitted (Head V/S discharge, efficiency V/S discharge and power output V/S discharge).

ii) The pump shall be installed as per available discharge & required head as per site conditions.

MAKE OF ELECTRICAL/MECHANICAL WORKS,

SL. NO.	MATERIAL, WORK	SUPPLIER, MANUFACTURER, VENDOR, AGENCY
1.	MSERW Pipe for TW Assembly	Jindal/Surya/AST/Dadu (as per latest revision of IS-4270)
2	Submersible Pump Set	KSB/VARUNA/WPIL/ Kirloskar
3	Voltage Stabilizer	Volt Safe/, Electron
4	Distribution Boards	MDS / Siemens / Schneider / Hager
5	Indicating Digital Meters	AE / Meco / L&T
6	MCB / MCCB	Siemens / Schneider / Havells /Control & Switch Gear/ Crompton
7	Main L.T Panels / PDB / LDB Panel	Incorporating L&T / Siemens / E&S / Crompton / Schneider Switchgear Components
8	Switches and sockets Modular type	MDS / Anchor, Cona, Harvells
9	Submersible cable	CCI,, Finolex, Harvells
10	P VC Insulated (HD) Cable up to 1.1 KV as per IS: 1554 Part I - 1988	Macro, Finolex, CCI, Polycab, Harvells
11	C.T./P.T.	AE/MEI/ABB/Kappa
12	Auto Transformer Starter	MEI, Jyoti, Advance, Siemens, UEI.
13	Measuring instrument	AE, Rishab,Minilec
14	Current Transformer	AE, MET, Siemens, Kappa, ABB
15	Chain Pully Block (Lifting Tackle)	Indef/ Morris/Wester
16	Chlorinator	Clomax, CMC/Aquajet
17	Motor Protection Relays	Universal, Thresold, E.E., L&T, Kaycee, Minilac, Siemens, C.S. Tele-mechanique, Indo-Asian
18	PVC Wires, Copper Aluminium Conductor, Flexible Cables	Ralicab/ Finolex/ Harvells/ Polyplast/ Gloster/ CCI/ Meab

19	Air/Oil Circuit Breakers (LT)	Control & Switch Gear, L& T, Siemens, GE Power, Jyoti, Siemens, L&T, Soutern, Telemechanique, Crompton.
20	Capacitors	GEC, Khatau Junkar, Crompton, L&T, Momaya, Prabhodhan, Siemens, NGEF
21	Rotary/select or switches	L&T, Siemens, Kaycee, **EE,** Harvells
22	Fluorescent Fixtures	Bajaj, Crompton, Philips, GEC, Havells
23	Valves	Kirloskar/ IVC/ AVK/ Inter valve/Bray
24	Pressure gauges	H. Guru,/ Febig
25	P.V.C. Tank	Syntex/ Tirupati
26	Flow Meter	Krohme, ABB, Endress & Houser

Operations and Maintenance Specifications - deleted

D. Institutional & Financial Arrangements for the Project

1. **Implementation Arrangements**

An integrated project cycle approach will be adopted for implementing and managing the water supply scheme. The Scheme will promote decentralized service delivery arrangement with increased participation by the PRIs and communities and enhanced accountability at all levels. While UPJN will be contracting counterpart from government of UP for the Scheme, PRIs consisting of GP-WSC will play a pivotal role by exercising signing-off on the achievement of performance indicators. Support Organizations (SOs) to be contracted by the DPMU to help the GP-WSCs in IEC (information Education & Communication), for creating demand from end user for taking water supply connections.

The project is to be implemented under a, Build and Operate (BOMT) arrangement in which the Operator will be responsible for -

- Building all water supply facilities from the Water Source (Tube-well) to the house connections.
- Operation and Maintenance of the facilities for a period of 1 years.

The contract will be signed by Executive Engineer and countersigned by the owner on behalf of UP Jal Nigam on one side and by the Operator on the other side. During the implementation of the project a GP WSCs of the scheme area will be established and GPWSCs. There will also be a Subsidiary agreement for operation and maintenance of supply system between the Operator, GPWSC, DWSC/DPMU and UPJN

2. **Financing Arrangements**

All payments by the Owner would be made by UP Jal Nigam through the Escrow Account, on the basis of Milestone achievement. The Milestone payments would be based on the certification by the Authorized Engineer of Owner. The payments for Operation and Maintenance Services shall be authorised by UPJN based on sign-off by GP-WSCs.

3. **Payment mechanism during O&M phase**

During the O&M period, payment shall be made every month based on the rate quoted by the Operator for following:

Fixed operation charges (establishment cost); Expenses on Manpower and consumables for regular operation and maintenance of the scheme

The achievement of performance indicators shall be assessed on a monthly basis and deductions for non-achievement shall be made every quarter. The measurement of performance indicators would be done as follows:

Performance indicator	Criteria	Weig htage	Measurement procedure	Responsibility for measurement
Quantity	All consumers are supplied as per minimum norm of 70 lpcd	40%	Based on bulk volume supplied by Operator and water level at reservoirs. This metric has to be met for GP-WSC	GP-WSC to certify the meeting of the performance indicator
Water quality	All water samples meet quality standards (BIS 10500 and other applicable ones) at customer end	15%	Water samples to be tested by UPJN or by an independent agency to be appointed by UPJN in presence of GP/GPWSC's representative. Testing protocol to be established by UPJN. All GP-	UPJN

			WSCs should be covered in the testing procedure. This metric has to be met for GP-WSC	
Uninterrupted supply	16 hours of supply to households as per performance criteria for O&M defined in contract	15%	To be measured based on water being availability of water in reservoirs alongwith resolution data on complaint from customers on interruptions of supply	Water level in reservoir to be monitored through reports from Automation system and Complaint redressal data to be monitored by GP-WSCs
Complaint redressal	90% complaints addressed within 3 days	15%	Based on the complaint redressal data to be maintained by the Operator	GP-WSC to verify this metric
Billing efficiency	100%	15%	To be measured based on bulk water supply bills generated by the Operator and individual customer bills generated by Operator and handed over to GP-WSC for distribution and collections. The performance of this metric would be measured for each GP	GP-WSC shall monitor and verify customer bills and ensure that all customer bills are generated, distributed and collected on time.

While the Owner shall be responsible for meeting the electricity cost, the Operator shall be responsible for ensuring that the actual units of electricity consumed in a month is not more than 105% of the rated capacity of the installations. In case such excess consumption is not due to specific instructions given by the Owner, the excess cost in the electricity bill would be recovered from the Operator.

The UPJN will have the responsibilities for Capex release, tariff fixation, verification of performance indicators, release of payment to Operator. The SV WSCs and the GP WSCs will mainly be responsible for signing off on milestone accomplishments by the Operator and also verify performance indicators. ICQSC ~~IVA~~ will be responsible for verification of the milestones in the Build phase. The GP-WSC would also be responsible for transferring user fee to operators' account and GPWSC shall ensure that such transfer of user fee is done without any delay. The GPWSC shall in turn be responsible for verifying the achievement of performance indicators (based on verification of intra-village level indicators by each GP-WSC) and signing-off on the release of payment. Payment for O&M shall be made to the Operator by UPJN based on verification and signing-off by GPWSC.

UPJN will be responsible for independent surveys and social audits for assessing customer satisfaction levels.

4. Independent Concurrent Monitoring Agency

The Owner shall appoint a BUILD ENGINEER which shall be responsible for the following during the Build stage of the contract:

- Request the Operator to prepare any document necessary for the OWNER/ Authorised Engineer to assess progress of the Operator's compliance with the contract
- Verify and check the quality of plant and equipment being used on sample basis.
- Review and verify the Operator's Quality Assurances procedures

Transfer

On completion of the Build period the Bidder will transfer all assets including equipment to the UPJN with no liabilities whatsoever. However, the bidder will be liable to any defect in the WSS till 12 months An independent agency will be identified to verify the useful life of assets and to suggest any refurbishment necessary to the assets managed by the Contractor before such transfer.

Appendix 3B

Operations & Maintenance Services Appendix

OPERATIONS SERVICES
APPENDIX 3B TO THE GENERAL CONDITIONS
FOR A CONTRACT
TO
DESIGN, BUILD, OPERATE & MAINTAIN AND TRANSFER
SINGLE / MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, DISTT. GHAZIPUR

WHEREAS:

A. The UPJN has appointed the Operator to operate and maintain the water supply assets for the single-village water supply scheme specified in the First Schedule (the Water Supply Area);

B. Following a process of competitive tender the UPJN has requested the Operator to undertake the design confirmation and construction the assets foreseen under the BOMT Project within the Water Supply Area in accordance with the Build Agreement as well as to undertake the operation and maintenance of water supply services within the Water Supply Area in accordance with this Operation and Maintenance Services Appendix (OMSA);

C. The Operator, having represented to the Owner that it has the required managerial, technical, scientific, engineering and operational skills and competencies in respect of the construction, operation and maintenance of the water supply system, has agreed to be responsible for the operation and maintenance of the water supply system as described in this Agreement and based on existing standards in the sector and reflecting service delivery reliability and quality.

THE PARTIES AGREE AS FOLLOWS:

1. INTERPRETATIONS

1.1 In this OMSA, unless the context otherwise requires:

(a) **"Owner"** means the UPJN for the [name of GPWSC Scheme];

(b) **"Water Supply System"** means the piped water supply system in the Water Supply Area from the intake and up to and including individual end-customers in the Gram Panchayats covered in the scheme;

(c) **"Commencement Date"** means the date as specified by Owner after successful completion of trial run.

(d) **"Maintenance & Reinvestment Sub-Account"** means the Sub-Account where all funds for Maintenance & Reinvestments (other than the UPJN Investment Contribution) will be deposited;

(e) **"Operations Sub-Account"** means the Sub-Account where all tariffs and connection fees received from customers in Water Supply Areas and Bulk Supply Areas shall be deposited before being distributed (at the end of each month);

(f) **"Operations and Maintenance Contract"** means the clauses and provisions contained in the Agreement that relate to Operation and Maintenance of the Water Supply System

(g) **"Generally Accepted Accounting Principles"** means the Generally Accepted Accounting Principles prescribed by the Institute of Chartered Accountants of India;

(h) **"GP-WSC"** means the Water and Sanitation Committee of the individual Gram Panchayat under the Water Supply Area.

(i) **"Water Supply Area"** means such area as mentioned in the First Schedule of this Operations and Maintenance Contract

(j) **Subsidiary Agreements** means a Tripartite agreement to be entered into between the Operator, GPWSC, DWSC/DPMU and UPJN which shall govern the inter-se responsibilities of each part with respect to bulk water supply and another agreement between Operator, GPWSC, DWSC/DPMU and UPJN which shall govern the interse responsibilities for each party with respect to intra-village water supply distribution, revenue collection and payment.

2. COMMENCEMENT OF THIS OMSA

This OMSA shall come into effect on the Commencement Date

3. DURATION OF THIS OMSA

This OMSA shall continue in force for a period of 12 Months i.e. Defect Liability Period ending on the [first] anniversary of the Commencement Date.

4. NOTICE UNDER THIS OMSA

1.1 Any notice, instruction, direction, request or permission to be given or made under this OMSA shall be in writing and signed by:

For the Owner: _____
A member of the UPJN authorized by and acting on behalf of the UPJN;

For the Operator: _____
The Operator or any person authorized by and acting on behalf of the Operator.

Such authorizations shall become OMSA Documents

1.2 Such notice, instruction, request or permission under sub-clause 4.1 shall be deemed to be duly given or made when it shall have been delivered by hand or mail at the address of the party concerned as specified below:

For the Owner:
…….
……..……
…….
For the Operator:
…….
…….
…….

5. APPOINTMENT AND RESPONSIBILITY OF THE OPERATOR

5.1 The Owner hereby appoints the Operator to be the sole and exclusive manager of the Water Supply System in the Water Supply Area for the duration of this OMSA.

5.2 The Operator shall, in such manner and at such times as it shall in its absolute discretion see fit, use all its skills and knowledge to manage, administer, conduct, maintain and develop the piped water supply system in the Water Supply Area efficiently, in the best interests of the Owner, in a professional manner and, in particular but without prejudice to the generality of the foregoing, shall carry out the duties and obligations and have the rights set forth in this OMSA.

5.3 Notwithstanding Clause 5.1, the Operator may sub-contract the day to day management of the piped water supply system and Assets in the Water Supply Area, or sections of the Water Supply Area or any part of the system or Assets to any person or entity subject to compliance with the following requirements:

(a) the Operator shall not sub-contract the performance of any of its obligations under this OMSA without first informing the Owner in writing, providing such information about the sub-Operator as the Owner may require, and obtaining the Owner's written consent (not to be unreasonably withheld);

(b) the Operator shall remain liable under this OMSA for the performance of any obligations sub-contracted by it under this Clause; and

(c) failure by the Operator to inform the Owner and to obtain the Owner's written consent to any purported assignment of any of its obligations under this OMSA shall invalidate the sub-contract as well as constitute a ground for termination of the OMSA by the Owner under Clause 21.1 (c) of this OMSA.

DUTIES, OBLIGATIONS AND RIGHTS OF THE OPERATOR

Without detracting from any duties, obligations and rights imposed on or conferred upon (whether expressly or by implication) the Operator by this OMSA or implied by law or commercial custom on managers of a business similar to the Service, it shall be the duty, obligation or right of the Operator:

6. TO SAFEGUARD, USE, MANAGE AND CONTROL ASSETS

6.1 The Owner reserves the rights in the assets comprising the system in sub-clause 5.1 as set out in the Third Schedule to this OMSA.

6.2 The Operator shall have access to, the right to use, and the duty to safeguard, manage and control the assets referred to in sub-clause 6.1, for the purpose of discharging its duties and obligations or exercising its rights under this OMSA, for the term of this OMSA.

6.3 The Operator shall maintain in good working condition, throughout the term of this OMSA, the assets referred to in sub-clause 6.1 and shall ensure that adequate control is maintained over assets owned by, or in the custody of the Operator.

6.4 The Operator shall not dispose of or create any lien, charge or proprietary interest of any nature whatsoever in favor of the Operator or a third party in the assets referred to in sub-clause 6.1, except on the express written instruction of the Owner.

6.5 The Operator shall comply with any directions of the Owner to use or dispose of any asset or any money or other consideration to which the Owner becomes entitled as a result of disposing of any asset referred to in sub-clause 6.1.

6.6 The Operator shall generate water supply bill for the volume of water supplied to GP based on the rates as provided in Schedule

6.7 The payment to the Operator, net of transfer to Maintenance & Reinvestment Sub-Account, from Operations Sub-Account every month shall be governed by the Payment Mechanism defined in the Schedule;

6.8 The Operator shall, based on his own plans for major maintenance and reinvestment in the Water Supply System or in the case of request from the Owner, prepare requests for disbursements from the Maintenance & Reinvestment Sub-Account for maintenance and reinvestment expenditures Owner

7. PROVIDE WATER SUPPLY SERVICES

7.1 The Operator shall discharge all the duties and obligations of a water supply service provider within the Water Supply Area for the term of this OMSA.

7.2 In discharging the duties and obligations referred to in sub-clause 7.1, the Operator shall:

(a) exercise due diligence, efficiency and economy in accordance with generally accepted professional conduct and practice, and shall employ sound management practices and appropriate technology in the best interests of the Owner;

(b) employ key personnel having the requisite skill to ensure performance as per terms and conditions of the OMSA, inter alia, operation and maintenance of the treatment plant and appurtenants, rising mains, transmission system, reservoirs and intra-village distribution system. The Operator shall also maintain requisite staff for recording and addressing customer complaints, generation of bills, financial management and office administration.

(c) comply with:

(1) any code of workmanship prescribed by the legislation of India and Uttar Pradesh.

(2) the service standards specified or referred to in the Fourth Schedule to this Operations and Maintenance Contract

(3) every provision of all laws relating to the duties and obligations referred to in sub-clause 7.1, to occupational health safety of employees, to the environment, to the collection and payment of taxes and to any other matter whatsoever.

(4) the terms of any water or waste discharge permit granted to the Owner.

(5) any notice, instruction or direction issued in accordance with clause 4

Failure by the Operator to comply with any of the foregoing provisions shall amount to a breach of this OMSA subject to clause 21 at the discretion of the Owner.

(d) Pay all taxes, rates, charges, fees, and penalties and provide all returns, files and documents required of it under applicable tax laws or other laws and discharge all obligations imposed on it by such laws.

(e) The Operator shall meet all costs relating to operation and maintenance of the Water Supply System, except electricity cost which will be separately paid for by the Owner.

7.3 In discharging the duties and obligations referred to in sub-clause 7.1, the Operator may sub-contract any part of such duties to an independent Operator with the express approval of the Owner. The Operator shall provide the Owner with such information about the proposed sub-Operators as the Owner may require and shall execute a contract approved by the Owner.

7.4 The Operator shall remain liable under the OMSA for the discharge of any duties and obligations sub-contracted under sub-clause 7.3.

8. TO MAINTAIN AND IMPROVE THE SYSTEM

8.1 The Operator shall be responsible, at its own cost, for managing all preventive maintenance and normal repairs, major maintenance or replacements to the system including rectifying damage to the system due to any act of negligence in performance of its functions, deemed necessary to maintain the value of the assets included in the Third Schedule and ensure compliance with the Standards in the Fourth Schedule.

8.2 In case of occurrence of an insurable event, the Operator shall be responsible for informing the insurance agency about the event, complete any survey, follow-up with the insurance agency for insurance claim settlement and repair/replacement of assets affected by the insurable event. The expenditure on repair/replacement shall be certified by the Authorised Engineer of the owner. In the event the expenditure on repair/replacement of assets due to insurable event is more than the insurance claim settlement, the difference would be borne by the Owner.

9. TO CHARGE AND COLLECT FOR SERVICES PROVIDED

9.1 The Operator shall have the right to charge and collect fee from the GP-WSC for water quantity of water supplied for services provided under clause 7 in accordance with the Second Schedule.

9.2 The fee shall be invoiced monthly based on the fixed charges 9.3 GP-WSC, which will be part of the Water Supply Areas, will be responsible for distribution of bills to customers, collections from customers and depositing the amount collected into the Escrow Account. However, the operator will prepare the bills for GPWSC and will provide the same to GPWSC.

9.4 The Owner shall be responsible for making monthly payment to the Operator from the Escrow Account for services provided. The Owner shall be responsible for maintaining sufficient balance in the Escrow Account to make payment to the Operator

10. TO MAINTAIN AND KEEP RECORDS

10.1 The Operator shall keep proper and adequate accounts and records of the transactions and affairs of the water supply and shall keep records that are necessary to explain the financial operations and financial position of the system.

10.2 The Operator shall keep a computerised database of customers records. The Operator shall also keep record of billing, collection and outstanding from customers in an electronic format using a simple office management software. There should be suitable controls to prevent un-authorised access to these records. The Operator shall be required to allow inspection of these records to the Engineer or his authorized representative.

10.3 The Operator shall follow good industry practices including use of modern technology

10.4 The accounting period of the Operator shall coincide with the accounting period of the Owner.

10.5 The Operator shall develop and maintain an adequate budgeting and accounting system. The Operator shall develop and maintain an adequate internal accounting control system.

10.6 Without detracting from sub-clause 10.1, the Operator shall keep the records referred to in the Sixth Schedule of this Operations and Maintenance Contract and shall retain those records for the period prescribed in the Schedule.

10.7 Except as provided in sub-clauses 10.6 and clause 13, all records are confidential to the Operator and the Owner.

(a) Any customer or former customer of the Operator may apply to the Operator for a copy of all records held by the Operator concerning that customer, in such a form as may be prescribed by the Owner.

(b) The Operator shall provide a customer or former customer under sub-clause 10.7 (a) with a copy of the relevant records, but may impose a reasonable charge to cover the costs to the Operator of making the copy available in accordance with clause 10.7(a).

11 TO REPORT TO THE Owner/AUTHORITY

12.1 The Operator shall, in respect of each quarter of a financial year and no later than 30 calendar days after the end of such quarter, prepare a report to the Owner containing:

(a) information about, and an analysis of, its operations for the quarter and cumulatively for the year to date; and

(b) financial statements in accordance with Generally Accepted Accounting Principles for the quarter and cumulatively for the year to date.

12.2 The report referred to under sub-clause 12.1 shall:

(a) be prepared in a form acceptable to the Owner; and

(b) contain any other information reasonably required by the Owner.

12.3 The financial statements referred to under sub-clause 12.1 (b) shall:

(a) contain information determined by the Owner to be appropriate;

(b) include an assessment of the cost of carrying out any other obligation that is imposed on the Operator under this OMSA and that requires the Operator to act otherwise than in accordance with normal commercial practice;

(c) be prepared in a manner and form approved by the Owner; and

(d) present fairly the results of the financial transactions of the Operator during the financial period to which they relate and the financial position of the Operator as at the end of that period.

12.4 The Operator shall, in respect of each calendar month, and no later than 5 days after the end of such month, prepare a report to the Owner containing:

(a) the billings for the month showing distinctly the billing based on the volume of water supplied

12.5 The Owner may require and the Operator, when notified, is obliged to appear in meetings of the Owner convened to discuss the affairs of the Owner. The Owner may request the Operator to make such presentations, reports, demonstrations or take such actions as the Owner may deem necessary with reasonable prior notice.

12.6 Failure of the Operator to comply with the provisions of this clause shall amount to a breach of this OMSA subject to clause 21 at the discretion of the Owner, and shall result in withholding the fee (clause 9.2) and reports in accordance with sub-clause 12.1.

12 TO ALLOW INSPECTION

The Operator shall allow the Owner and the, or any person representing the Owner or the RWSSD, access at any time to:

(a) any land owned or occupied by the Owner;

(b) any assets renewed, acquired or constructed by the Owner;

(c) any assets under the contract owned by the Operator;

(d) inspect any land, works, buildings or any other assets;

(e) make any tests, take any measurements or take any samples;

(f) take any photographs or make any plans or drawings; and

(g) inspect and, if necessary, make any copies of any records or documents referred to in clause 10 in order to ascertain whether the Operator is complying in every respect with this OMSA.

13 TO BE INDEMNIFIED

Provided that the Operator, their servants and employees shall use diligence and care in carrying out their duties hereunder, neither they nor any of their servants and employees shall be liable for any damage to persons or property arising out of any information, advice or service supplied to the Owner or act performed for the Owner or otherwise in the course of their duties hereunder. The Owner shall indemnify the Operator and every such person against all claims, demands, losses, liabilities, actions, lawsuits, costs and expenses arising directly or indirectly out of or in consequence thereof or in the implementation of this OMSA.

DUTIES, RIGHTS AND OBLIGATIONS OF OWNER/AUTHORIED REPRESENTATIVE OF OWNER

Without detracting from any duties, obligations and rights imposed on or conferred upon (whether expressly or by implication) the Owner by this OMSA or implied by law or commercial custom on persons similar to the Owner, it shall be the duty, obligation or right of the Owner:

14 TO RECOGNIZE THE OPERATOR'S RIGHTS TO CHARGE TARIFFS AND CONNECTION FEES

14.1 The Operator shall be responsible for generation of bills to GP-WSC for the volume of water produced/ supplied during the preceding month as per the rates specified in Second Schedule to this OMSA

14.2 The Owner shall have the obligation to recognize the rights of the Operator to charge the GP in Water Supply Area in accordance with Clause 9

14.3 GP-WSC that will be part of the Water Supply Area under this contract shall enter into a Subsidiary Agreement with the Operator which shall govern the inter-se responsibilities for each party with respect to water supply distribution and generation of bills. DWSC/DPMU and UPJN will also be a signatory to these Subsidiary Agreements.

15. TO AUDIT ACCOUNTS

15.1 The Owner shall have the right to appoint an auditor to examine the accounts, books and records of the Operator.

15.2 The Owner shall pay the costs of any auditor engaged under sub-clause 15.1.

16 NOT TO INTERFERE WITH OPERATIONS

The provisions in this OMSA notwithstanding, the Owner shall not interfere with the day to day operations of the Operator. In particular, the Owner shall not issue instructions to the Operator

regarding operational decisions or actions except by way of the Owner's approved business plan or amended business plan or as required by the law;

(a) Withhold payments due to the Operator on account of the Operator refusing or failing to comply with instructions issued in contravention of this clause;

(b) Contravention of this clause by the Owner shall constitute a breach of this OMSA subject to termination of the OMSA under clause 21.

MISCELLANEOUS PROVISIONS

17 WAIVER

17.1 A failure, delay or indulgence on the part of either party in exercising any power or right under this OMSA does not waive that power or right.

17.2 Any single exercise of a power or right under this OMSA does not preclude any other or further exercise of it or the exercise of any other power or right under this OMSA.

18. AMENDMENT OR VARIATION

This OMSA may be amended or supplemented, at any time, in writing signed by both parties.

19. SUSPENSION AND TERMINATION

As per provisions in Article 11 of the General Conditions

20. TRANSFER

20.1 The Operator shall be responsible for transfer of all assets, equipments, customer records and other material created or maintained by him for the smooth operation and maintenance of the Water Supply System

20.2 Before expiry of the duration of the contract as under clause 3 or before finalising the termination payment under clause 21, both parties shall jointly appoint a professional valuer who shall assess the remaining useful life of the assets being transferred to the Owner. If the valuer determines that the remaining useful life of assets is substantially less than what it should be if these were operated as per prescribed methodology, the Operator shall be responsible for undertaking any refurbishment or replacement as required. If the Operator fails to undertake such refurbishment or replacement, such reasonable amount as may be recommended by the valuer or otherwise can be deducted from any payments due to the operator including termination payment or Performance Security

FIRST SCHEDULE

WATER SUPPLY AREA

The Operator shall for the duration of the Contract have obligation and rights to supply water in the Water Supply Area and the Bulk Supply Area as detailed in the table below and the attached sketch map of the Water Supply Area.

No	Name of Scheme / District	Development Block	Panchayat Name	Habitation	Population (2017)
1	Babura Single Village Piped Water Supply Scheme, District Ghazipur	Sadat	Babura	1.Babura Samanya Basti -I 2.Harijan Basti -I 3.Harijan Basti -II 4.Yadav Basti 5.Babura Samanya Basti -II 6.Chauhan Basti	2267
2	Deochandpur Small Multi Village Piped Water Supply Scheme, District Ghazipur	Deokali	1.Deochand Pur 2.Malik Shah Pur 3.Bisun Pura 4.Mirpur Tirwah 5.Phulwari Khurd	1.Deochand Pur 2 Harijan Basti 3.Sonkar Basti 4.Babhanauli 5.Harijan Basti 6.Sumar Patti 7.Harijan Basti 8.Malik Shah Pur 9.Harijan Basti 10.Mahacha 11.Balahi 12.Bisun Pura 13.Barbani 14.Cchatriya 15.Mirpur Tirwah 16.Harijan Basti 17.Yadav Basti 18.Todarpur 19.Nasirabad 20.Yadav Basti 21.Phulwari Khurd 22.Harijan Basti 23.Yadav Basti 24.Turkahi 25.Harijan Basti 26.Manai Par	14906
3	Kathut GOV Piped Water Supply Scheme, District Ghazipur	Mohammadabad	1. Gouspur, 2. Kathut, 3. Firozpur Kala	1. Kathut, 2. Harijan Basti, 3. Shahpur T. Kathut, 4. Dharampur , 5. Kalyanpur M. Kathaut, 6. Firozpur Kalan, 7. Harijan Basti, 8. Naur Deur, 9. Akbarpur, 10. Harijan Basti, 11. Gouspur, 12. Shahpur T. Gauspur, 13. Ahmad Patti, 14. Mamrejpur, 15.Delawalpur	18051
4	Malsa Kalan Small Multi Village Piped Water Supply Scheme, District Ghazipur	Zamania	Malsa kalan, Bhagirathpur, Rampur patti sarnam khan-1, Gadha chhanbey, Chak medni no. 2	1.Malsa Kalan 2.Karaila Kalan 3.Garaha Chhanbe 4.Manpur Urf Sultanpur 5.Ghatampur 6.Bhagirath Pur 7.Rampur Patti Sarnam Khan No-(1) 8.Ijari 9.Rampur Milky 10.Rampur Patti Sarnam Khan No-(2) 11.Chak Pyare 12.Basuhari 13.Chak Medni No-(1) 14 Chak Medni No-(2)	17710
5	Nagwa Urf Nawapara GOV Piped Water Supply Scheme, District Ghazipur	Mohammadabad	1. Nagwa Urf Nawapura, 2. Chaksahba	1. Nagwa Urf Nawapura, 2. Harijan Basti, 3. Chaksahbaj Kull Urf Saraya	4522

No	Name of Scheme / District	Development Block	Panchayat Name	Habitation	Population (2017)
			j Kull Urf Saraya		
6	Tiwaripur GOV Piped Water Supply Scheme, District Ghazipur	Mohammadabad	1. Bajalpur 2. Tiwaripur 3.Hari Ballampur	1. Bajalpur 2.Ganga Vishnu ka Dera 3.Purwa 4. Bahoranpah Dehati 5.Harijan Basti 6.Jiwan Daspur Kalan 7.Ibrahimpur 8.Tiwaripur 9.Hari Ballampur 10. Chak Tarifa	8739

In Water Supply Areas the Operator shall gradually extend the service provision in accordance with the provisions of the Contract. The Operator shall be responsible for contact with the individual end-users and GPWSC during the First Period. For Second Period, the Operator shall be responsible for all direct contact with the GPWSCs.

SECOND SCHEDULE

PAYMENT FOR OPERATOR SERVICES

DELETED

THIRD SCHEDULE

ASSETS UNDER MANAGEMENT OF THE OPERATOR

Type of Assets	**Initial Assets** (to be operated and maintained by the Operator)	**Assets to be constructed under BOT Agreement** (to be operated and maintained by the Operator)

Upon termination of contract the management of the above assets shall be transferred to the Owner.

FOURTH SCHEDULE

STANDARDS OF OPERATIONS AND MAINTENANCE SERVICES - DELETED

FIFTH SCHEDULE

REPORTING FORMAT

The Operator shall prepare a report for submission to the Owner and to be made available to the UPJN and the public summarizing the year's activities. The report will comprise the following sections and information:

I Service Coverage

The section will present

(a) The percentage of the population in the Water Supply Area either a direct service connection

(b) The number of new water supply connections made during the period specifying the number of new connections in operation and in total under this OMSA and for any additional connections agreed upon during the reporting period and since Commencement Date

(c) The number of disconnections and reconnections

(d) The total number of water supply connections

II Water Consumption

This section will present

(a) The total amount of water (in m^3) extracted, treated, supplied and sold;

III Unaccounted for Water

This section will present information on Unaccounted for Water computed

(a) As the difference between water supplied and water produced expressed as a percentage of net water supplied;
(b) As the volume of water lost per kilometer of water distribution network.

IV Quality of Service

This section will present information on continuity of service expressed as the Average Hours of water supply per day for the period.

V Financial Performance

This section will present
(a) an audited summary balance sheet prepared in accordance with Generally Accepted Accounting Principles.

(b) an audited income statement prepared in accordance with Generally Accepted Accounting Principles. The income statement will be at a level of detail, which provides the following break downs Revenues (divided on Tariff revenues, Connection fee and Other income) and Recurrent Costs (divided on Staff costs, Repairs and maintenance, Purchase of electricity, Diesel, Chemicals, Interest costs and Other costs).

Appendix 3C

Bill of Quantities Appendix

Technical Standards Appendix
Appendix 3C to the General Conditions
for a Contract
to

Build and Operate & Maintain And Transfer
SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEMES,
DISTT. GHAZIPUR

Validate Print Help

Item Rate BoQ

Tender Inviting Authority: Chief Engineer (Rural), U.P. Jal Nigam, Lucknow

Name of Work: Build and Transfer of Six (06) Single & Multi Village Rural Piped Water Supply Scheme under RWSSP Batch-2, in District Ghazipur of Uttar Pradesh.

Contract No: 265/RWSSP-UPJN/179 Dated: 08.05.2018

Name of the Bidder/						
PRICE SCHEDULE (This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)						
Sl. No.	**Item Description**	**Quantity**	**Units**	**BASIC RATE In Figures To be entered by the Bidder Rs. P**	**TOTAL AMOUNT With Taxes**	**TOTAL AMOUNT In Words**
1	**2**	**3**	**4**	**5**	**6**	**7**
1.00	**Babura Gram Panchayat Piped Water Supply Scheme**					
1.01	**BUILD PHASE (SL. NO. - 1.02 TO SL. NO. - 1.58)**					
1.02	Construction of 1.3 m high and 115mm thick boundary wall with 230 mmx230 mm thick pillar made in Brick masonry in 1 cement and 4 sand mortar, the spacing between two pillar should not be more than 3.0 m c/c and the depth of foundation should not be less than 0.60m, at the site of water works as per departmental type design and drawing, and, as per specifications given in the bid document including supply of all materials, labour T&P etc.for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-1)	85.20	Rmt		**0.00**	INR Zero Only
1.03	Supply and fixing of 3.6 m x 1.20 m MS gate including fabrication and supply of steel and construction of bounary wall pillars of size 1.35mx0.23mx0.23m with ornamental brick work 115mm th. around RCC, as per departmental type design and drawing (Drawing No. D-1) and as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
1.04	Supply and fixing of 1.2m wide MS wicket gate including fabrication and supply of steel and construction of boundary wall pillars etc. as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
1.05	Construction of Brick on edge pavement for approach to water works, as per departmental type design and drawing and as per specifications laid down in the bid document, including supply of all materials , labour, T&P etc.required for proper completion of work as per instructions of Engineer -in -charge.	60.00	Sqm.		**0.00**	INR Zero Only
1.06	Earth filling work for proper leveling of water work site, in accordance with the contour map and Grid map of existing site enclosed (Drawing no.D-1), including leveling, dressing, excavation and filling of earth where necessary and also including all labour, materials, T&P etc.required for proper completion of works and also including carriage of earth from within a distance of about 8 km. from the site of works as per instructions of Engineer -in -charge.	150.00	Cum.		**0.00**	INR Zero Only
1.07	Provision for inside semicircular drain 200mm dia including supply of all materials, labour and T & P etc. complete.	30.00	Rmt		**0.00**	INR Zero Only

1	2	3	4	5	6	7
1.08	Provision for arboriculture for the development of water works	1.00	Job		**0.00**	INR Zero Only
1.09	Construction of Tube Well capable of providing 550 LPM sand free discharge, including MS Pipes, Drilling of bore, supplying, fixing & lowering of housing pipe as per IS : 4270 including M.S. sockets duly welded with M.S. electrodes to have extra strength. Tubewell Assembly containing of MSERW housing pipe, Plain/ Slotted pipe, M.S. reducer, M.S. bail plug, M.S. Clamp, well Cap, M.S. rings, Centre guide, etc of desired size. Development by Air compressor & O.P. Unit. with transportation of all materials, T&P etc required for proper completion of work including testing of water sample as per specification : -Telescopic boring upto total depth of 500 m BGL consisting of drilling including logging of bore well by suitable electrical logger as following : - 500 mm dia. bore from G.L. to 65m BGL. - 450 mm dia. bor from 65m to 500m BGL. -Supplying,fixing and lowering of pipe including supply and shrouding of Lal kuan Pea Gravel 1.6-4.8 mm size for T.W. (as per requirement) as per IS:4097-1988, plain/slotted pipe as following : 200 mm dia 7.1mm thick MSERW plain pipe from GL to 60m BGL . 150 mm dia 7.1mm thick MSERW plain / slotted pipe 60m to 450 m BGL. - Supply of suitable size M.S. Reducer, M.S. bail plug, M.S. clamp, M.S. well cap, M.S. rings, suitable number of centre guide & support girder etc as per requirement. - Development of Tubewell by Air Compressor by minimum 600 PSI / as per requirement and as per specification. - Development of Tubewell by suitable capacity O.P. unit. Note : Depth of Tubewell is tentative however actual depth will depend upon the availability of suitable aquifer to achieve the required sand free discharge.	1.00	Job		**0.00**	INR Zero Only
1.10	Supply and installation of 550 LPM, 50 meter head 12.5 H.P. submersible clear water Pump set (As per IS 8034:1989) including switch gear (cubical panel board, starter, cable, power wiring & earthing etc) necessary tools, main piping & valves, pressure gauge, depth gauge with their fittings, double earthing. Supply and fixing of suitable size chlorinating plant and suitable size electromagnetic online flow meter. Supply and fixing of 2 ton capacity 4.5 m lift chainpully block, Electric resistance rubber sheet of 1x2 m size 12.5 mm thick, complete in all respect as per detailed specifications. (All supply will be done after the approval of Engineer-in-charge..	1.00	No.		**0.00**	INR Zero Only
1.11	Supply of one number Spare Pump set of 550 LPM, 50 meter head 12.5 H.P. submersible clear water (As per IS 8034 : 1989) after approval of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
1.12	6 point wiring of Pump house for light with 2.00 sq.mm PVC insulated multi strand copper conductor cable in rigid PVC condult pipe on surface complete 14 S.W.G. copper earth continuously wire piano type switch and celling rose/angle/baton holder on 3mm thick phenolic laminated back light sheet etc complete in all respect including luminaries with IS amp. switch fuse unit as per instruction of Engineer-in-charge after approval of drawing.	1.00	Job		**0.00**	INR Zero Only
1.13	Provision for LED Light in water work campus with all accessories and fitting.	1.00	Job		**0.00**	INR Zero Only
1.14	Supply, installation & commissioning of suitable capacity Automatic Voltage stabilizer input voltage 200-480±6% or suitable range as per site condition and output voltage 415 ±1%, 3 phase 50 C/S AC for satisfactorily run the above pump set, complete in all respect as per detailed specifications.	1.00	Job		**0.00**	INR Zero Only
1.15	Erection & commissioning of Transmission line of ACSR weasel conductor including all materials i.e. poles, conductors , insulators, required cable, etc from the nearest existing H.T. line Supply & fixing of 11KV/0.4kV, 25 KVA Transformer with Double Pole Sub Station including security charges , Energy Meter, System loading charges , Fixed charges, processing fees etc completed in all respect.	1.00	Job		**0.00**	INR Zero Only

1	2	3	4	5	6	7
1.16	Provide all materials, labour, T&P etc. complete and construct Pump house size (3.6x3.0x3.0)m Chlorinating room size (2.5x1.8x3.0)m as per departmental type design and drawing (drawing no-D-2) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	1.00	Job		**0.00**	INR Zero Only
1.17	Provide all materials, labour, T&P etc. complete and constructed Bye-pass chamber for pump house as per departmental type design and drawing (drawing no.D-3) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	1.00	No.		**0.00**	INR Zero Only
1.18	Supply of all materials labour T&P etc. for complete construction of R.C.C. Over Head Tank of 150 KL capacity with 14 Meter staging above ground level with main components, including cost of soil testing and assuming bearing capacity of soil as 8 MT, with supply of design and drawings. All the water retaining components of OHT shall be casted in M-30 concrete and minimum grade of concrete of foundation and staging should be M-25 with approved cement, coarse sand and stone grit as per I.S. 11682 and I.S.456 Seismic effects and wind load should be taken into consideration as per I.S. 1893 for earthquake resistance and I.S. 875 part-III for wind load on structure and including 1M wide RCC staircase, 1 m wide R.C.C. M30 balcony, M.S. ladder made of 50x50x6 mm angle section and 20mm plain M.S. bars with hand rails of 20mm medium class G.I. pipes, One aluminum ladder inside the tank from top dome to bottom dome, R.C.C. railing with 20mm dia medium class G.I.pipe (in 3 rows) on both sides of stair case, supported on 50x50x6mm M.S. angle section, spaced at intervals not more than 1.5m, Proper ventilator at top dome in circular shape of 1.2 m dia, Water level indicator fabricated with sensor connecting to automation, Lightening conductor as per I.S.S.2309 or its latest amendments of latest electricity rules, consisting of proper elevation rod with 5 or more fork points as prescribed in ISS 2309-1969 and ISS 3013-1966, C.I. manhole of min 60x60cm size with locking arrangement, Supply, fixing, jointing of C.I.D/F Pipes of appropriate size with C.I.D/F specials conforming to IS 8329/2000 as vertical pipes for inlet, outlet, overflow and washout as per latest / relevant I.S. specifications with all jointing materials for proper completion of work, Supply and Fixing of appropriate size manually operated D/F Sluice Valve / Butter Fly Valves as per ISS 700/1969 or its latest amendments class “A” working pressure 10 Kg/cm2, Construction of bed blocks in 1:2:4 PCC with cement, coarse sand and approved stone grit , Construction of washout / overflow chamber and chambers for sluice / butter fly valves as per departmental type design and drawing, Supply of 200 mm dia PVC pipe as per I.S.-4985/2000 for disposal of water from overflow and washout chamber to suitable point outside the water works compound, Painting of all concrete surface and steel pipe works with three coats of approved cement paint and anticorrosive paints.	1.00	Job		**0.00**	INR Zero Only
1.19	Extra for cost variation due Soil bearing capacity from assumed bearing capacity of 8 MT/Sqm.	1.00	Job		**0.00**	INR Zero Only
1.20	Excavation of earth in ordinary soil (loam, clay or sand) for pipe line and rising main trenches including lift upto 1.50 m and lead upto 50 m and refilling watering, ramming of the excavated earth into the trench and also disposal of surplus earth upto 50m from the center of the trenches including supply of all material labour, T&P etc complete as per instructions of Engineer -in -charge.	8063.76	Cum.		**0.00**	INR Zero Only
1.21	Same as above but soil mixed with kankar	3442.18	Cum.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
1.22	Supply of following sizes (D.I. K-9) pipes for rising main conforming to latest/relevant I.S. 8329/2000 Specifications with all jointing materials such as CIS/S or D.F specials conforming to latest /relevant I.S. specifications, suitable for D.I pipes, as per IS-1239 /2000 and IS 8329/2000 or their latest amendment including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches).all complete as per instructions of Engineer -in -charge.					
1.23	100 mm dia	30.00	Rmt		**0.00**	INR Zero Only
1.24	Supply of following sizes pipes for distribution system conforming to latest/ relevant I.S. 4984/1995 Specifications with all jointing materials and specials conforming to latest /relevant I.S. specifications including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches) all complete as per instructions of Engineer -in -charge.					
1.25	90 mm dia HDPE Pipe Class PE-100	15560.00	Rmt		**0.00**	INR Zero Only
1.26	Supply and carting up to site of work of the following dia C.I. butterfly /sluice valves, class I, working pressure 10 Kg/cm2 confirming to IS: 780/1969 or its latest amendments, F.O.R. destination, and lowering them into the already prepared trenches, fixing in position and jointing them with pipelines and testing etc. complete and also including supply of jointing materials etc. complete .including all taxes and insurance, as per instructions of Engineer -in -charge.					
1.27	Sluice valve - 100 mm dia	1.00	Nos.		**0.00**	INR Zero Only
1.28	Sluice valve - 80 mm dia	5.00	Nos.		**0.00**	INR Zero Only
1.29	Scour valve - 80 mm dia	1.00	Nos.		**0.00**	INR Zero Only
1.30	Supply of 20 mm dia screwed down type air valve with gun metal seat conforming to latest/relevent I.S. specifications including all taxes and insurance, carting up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc complete) as per instructions of Engineer -in -charge.	2.00	Nos.		**0.00**	INR Zero Only
1.31	Supply of under ground sluice value type fire hydrant consisting of 80 mm dia sluice valve, 80mm dia tail pieces, 80mm dia duck foot bend and 80 mm dia standard makes iron coupling with cap and etc. complete conforming to latest/relevent I.S.specifications including all taxes and insurance up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc. complete as per instructions of Engineer -in -charge.	4.00	Nos.		**0.00**	INR Zero Only
1.32	Supply and fixing of the following size of Digital Bulk Water Meter Enclosed Type Metallic gears (IS: 2373/1981) for measurement of bulk flow at different Locations (at the entry of gram panchayat) F.O.R. destination including all taxes and 5 year insurance etc. complete as per instructions of Engineer -in -charge.					
1.33	100 mm dia	1.00	No.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
1.34	Supply of all materials, labour, T&P. required and construct masonary type Bulk Water meter / Butterfly valves chamber including supply of M.S. Manhole cover as per departmental type design and drawing (Drawing no.D-4) including all material labour, T& P etc. complete as per instructions of Engineer -in -charge.					
1.35	100 mm dia	1.00	No.		**0.00**	INR Zero Only
1.36	Construction of following type chambers as per department type design and drawing including Heavy duty M.S. Manhole Cover and all materials, labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge.					
1.37	Sluice valve chamber (masonry Type) (drawing no.D-4)	1.00	No.		**0.00**	INR Zero Only
1.38	Sluice valve chamber (surface box Type) (D-13)	5.00	No.		**0.00**	INR Zero Only
1.39	Fire Hydrant(drawing no.D-5) chamber	4.00	No.		**0.00**	INR Zero Only
1.40	Air Valve Chamber (drawing no.D-6)	2.00	No.		**0.00**	INR Zero Only
1.41	Scour Valve Chamber (drawing no.D-4)	1.00	No.		**0.00**	INR Zero Only
1.42	Design and construct Thrust Block made in R.C.C. with cement, coarse sand & 20 mm gauge stone ballast in proportion of 1:1.5:3, for pipe line, including supply of MS reinforcement wrought to required shape as necessary ,its bending, fixing & binding the same with 0.50 mm thick binding wire in position & necessary centering & shuttering including curing and supply of all materials, labour, T & P etc. required for proper completion of the work and as per specifications for RCC work as per instructions of Engineer -in -charge. (drawing no. D-14)	2.00	No.		**0.00**	INR Zero Only
1.43	Provide all materials labour, T&P etc. and construct sigle room staff quarter / office room at water works site identified by the Engineer-in-charge as per department type design and drawing and specifications of civil works laid down in the bid document, including all material labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-7)	1.00	Nos.		**0.00**	INR Zero Only
1.44	Installation of suitable capacity simple T.W. automation system to control operation of the pumping plant with respect to high/low water level in OHT and electromagnetic online flowmeter in delivery line of TW inside the pump house with arrangement for communication of data with GSM and GPRS system to show required parameters including all accessories etc. complete in all respect as per instructions of Engineer -in –charge.	1.00	Nos.		**0.00**	INR Zero Only
1.45	Dismantling of Following type of surfaces including sorting out and stacking of serviceable materials and disposal of unserviceable materials upto a distance of 50m as per instructions of Engineer -in -charge.					
1.46	B.O.E. surface	1690.50	sqm		**0.00**	INR Zero Only
1.47	Bituminous surface	198.03	sqm		**0.00**	INR Zero Only
1.48	C.C. Road	44.07	sqm		**0.00**	INR Zero Only
1.49	Reinstatement of the following type of road surface with old and new materials including supply of all materials, labour, T&P etc. required for proper completion of the work as per instructions of Engineer -in -charge.					
1.50	B.O.E. Surface	1690.50	sqm		**0.00**	INR Zero Only

1	2	3	4	5	6	7
1.51	Bituminous surface	198.03	sqm		**0.00**	INR Zero Only
1.52	C.C. Road	44.07	sqm		**0.00**	INR Zero Only
1.53	Provision for following types of Culvert crossing (drawing no.D-9) as per departmental type design and drawing including shifting of telephone cables etc. along the alignment of pipe line including supply of D.I. pipes and specials, and their laying and jointing testing etc. complete as per instructions of Engineer -in -charge.					
1.54	Nala/Culvert Crossing	5.00	Nos.		**0.00**	INR Zero Only
1.55	Road Crossing	1.00	Nos.		**0.00**	INR Zero Only
1.56	Making house connection from distribution line to outer wall of house, with supply of G.I. pipe (Average 10.0 mtr.) including specials, Brass ferrule, Saddle clamp etc. of suitable size, T&P etc. including excavation, laying and jointing for proper completion of work as per instructions of Engineer-in-charge. (drawing no.D-12).	302.00	Nos.		**0.00**	INR Zero Only
1.57	Provision for trial and run of the scheme for 3 months.	3.00	Month		**0.00**	INR Zero Only
1.58	Construction of single tap pillar type stand post as per type design as per instructions of Engineer -in -charge.	6.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
2.00	**Deochandpur Small Multi Village Piped Water Supply Scheme**					
2.01	**BUILD PHASE (SL. NO. - 2.02 TO SL. NO. - 2.7)**					
2.02	Construction of 1.3 m high and 115mm thick boundary wall with 230 mmx230 mm thick pillar made in Brick masonry in 1 cement and 4 sand mortar, the spacing between two pillar should not be more than 3.0 m c/c and the depth of foundation should not be less than 0.60m, at the site of water works as per departmental type design and drawing, and, as per specifications given in the bid document including supply of all materials, labour T&P etc.for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-1)	225.60	Rmt		**0.00**	INR Zero Only
2.03	Supply and fixing of 3.6 m x 1.20 m MS gate including fabrication and supply of steel and construction of bounary wall pillars of size 1.35mx0.23mx0.23m with ornamental brick work 115mm th. around RCC, as per departmental type design and drawing (Drawing No. D-1) and as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
2.04	Supply and fixing of 1.2m wide MS wicket gate including fabrication and supply of steel and construction of boundary wall pillars etc. as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
2.05	Construction of Brick on edge pavement for approach to water works, as per departmental type design and drawing and as per specifications laid down in the bid document, including supply of all materials , labour, T&P etc.required for proper completion of work as per instructions of Engineer -in -charge.	75.00	Sqm.		**0.00**	INR Zero Only
2.06	Earth filling work for proper leveling of water work site, in accordance with the contour map and Grid map of existing site enclosed (Drawing no.D-1), including leveling, dressing, excavation and filling of earth where necessary and also including all labour, materials, T&P etc.required for proper completion of works and also including carriage of earth from within a distance of about 8 km. from the site of works as per instructions of Engineer -in -charge.	273.90	Cum.		**0.00**	INR Zero Only
2.07	Construction of Tube Well capable of providing 1200 LPM sand free discharge, including MS Pipes, Drilling of bore, supplying, fixing & lowering of housing pipe as per IS : 4270 including M.S. sockets duly welded with M.S. electrodes to have extra strength. Tubewell Assembly containing of MSERW housing pipe, Plain/ Slotted pipe, M.S. reducer, M.S. bail plug, M.S. Clamp, well Cap, M.S. rings, Centre guide, etc of desired size. Development by Air compressor & O.P. Unit. with transportation of all materials, T&P etc required for proper completion of work including testing of water sample as per specification : -Telescopic boring upto total depth of 200 m BGL consisting of drilling including logging of bore well by suitable electrical logger as following : - 625 mm dia. bore from G.L. to 60m BGL. - 450 mm dia. bore from 60m to 200m BGL. -Supplying,fixing and lowering of pipe including supply and shrouding of Lal kuan Pea Gravel 1.6-4.8 mm size for T.W. (as per requirement) as per IS:4097-1988, plain/slotted pipe as following : 300 mm dia 7.1mm thick MSERW plain pipe from GL to 55 m BGL . 150 mm dia 7.1mm thick MSERW plain / slotted pipe 55 m to 180 m BGL. - Supply of suitable size M.S. Reducer, M.S. bail plug, M.S. clamp, M.S. well cap, M.S. rings, suitable number of centre guide & support girder etc as per requirement. - Development of Tubewell by Air Compressor by minimum 350 PSI / as per requirement and as per specification. - Development of Tubewell by suitable capacity O.P. unit. Note : Depth of Tubewell is tentative however actual depth will depend upon the availability of suitable aquifer to achieve the required sand free discharge.	3.00	Job		**0.00**	INR Zero Only

1	2	3	4	5	6	7
2.08	Supply and installation of 1200 LPM, 55 meter head 25 H.P. submersible clear water Pump set (As per IS 8034:1989) including switch gear (cubical panel board, starter, cable, power wiring & earthing etc) necessary tools, main piping & valves, pressure gauge, depth gauge with their fittings, double earthing. Supply and fixing of suitable size chlorinating plant. Supply and fixing of 2 ton capacity 4.5 m lift chainpully block, Electric resistance rubber sheet of 1x2 m size 12.5 mm thick, complete in all respect as per detailed specifications. (All supply will be done after the approval of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
2.09	Supply of one number Spare Pump set of 1200 LPM, 55 meter head 25 H.P. submersible clear water (As per IS 8034 : 1989) after approval of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
2.10	6 point wiring of Pump house for light with 2.00 sq.mm PVC insulated multi strand copper conductor cable in rigid PVC condult pipe on surface complete 14 S.W.G. copper earth continuously wire piano type switch and celling rose/angle/baton holder on 3mm thick phenolic laminated back light sheet etc complete in all respect including luminaries with IS amp. switch fuse unit as per instruction of Engineer-in-charge after approval of drawing.	3.00	Job		**0.00**	INR Zero Only
2.11	Provision for LED Light in water work campus with all accessories and fitting.	1.00	Job		**0.00**	INR Zero Only
2.12	Supply, installation & commissioning of suitable capacity Automatic Voltage stabilizer input voltage 200-500±6% or suitable range as per site condition and output voltage 415 ±1%, 3 phase 50 C/S AC for satisfactorily run the above pump set, complete in all respect as per detailed specifications.	3.00	Job		**0.00**	INR Zero Only
2.13	Erection & commissioning of Transmission line of ACSR weasel conductor including all materials i.e. poles, conductors , insulators, required cable, etc from the nearest existing H.T. line Supply & fixing of 11KV/0.4V, 63 KVA Transformer with Double Pole Sub Station including security charges , Energy Meter, System loading charges , Fixed charges, processing fees etc completed in all respect.	3.00	Job		**0.00**	INR Zero Only
2.14	Provide all materials, labour, T&P etc. complete and construct Pump house size (3.6x3.0x3.0)m Chlorinating room size (2.5x1.8x3.0)m as per departmental type design and drawing (drawing no-D-2) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	3.00	Job		**0.00**	INR Zero Only
2.15	Provide all materials, labour, T&P etc. complete and constructed Bye-pass chamber for pump house as per departmental type design and drawing (drawing no.D-3) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	3.00	No.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
2.16	Supply of all materials labour T&P etc. for complete construction of R.C.C. Over Head Tank of 1000 KL capacity with 20 Meter staging above ground level with main components, including cost of soil testing and assuming bearing capacity of soil as 8 MT, with supply of design and drawings. All the water retaining components of OHT shall be casted in M-30 concrete and minimum grade of concrete of foundation and staging should be M-25 with approved cement, coarse sand and stone grit as per I.S. 11682 and I.S.456 Seismic effects and wind load should be taken into consideration as per I.S. 1893 for earthquake resistance and I.S. 875 part-III for wind load on structure and including 1M wide RCC staircase, 1 m wide R.C.C. M30 balcony, M.S. ladder made of 50x50x6 mm angle section and 20mm plain M.S. bars with hand rails of 20mm medium class G.I. pipes, One aluminum ladder inside the tank from top dome to bottom dome, R.C.C. railing with 20mm dia medium class G.I.pipe (in 3 rows) on both sides of stair case, supported on 50x50x6mm M.S. angle section, spaced at intervals not more than 1.5m, Proper ventilator at top dome in circular shape of 1.2 m dia, Water level indicator fabricated with sensor connecting to automation, Lightening conductor as per I.S.S.2309 or its latest amendments of latest electricity rules, consisting of proper elevation rod with 5 or more fork points as prescribed in ISS 2309-1969 and ISS 3013-1966, C.I. manhole of min 60x60cm size with locking arrangement, Supply, fixing, jointing of C.I.D/F Pipes of appropriate size with C.I.D/F specials conforming to IS 8329/2000 as vertical pipes for inlet, outlet, overflow and washout as per latest / relevant I.S. specifications with all jointing materials for proper completion of work, Supply and Fixing of appropriate size manually operated D/F Sluice Valve / Butter Fly Valves as per ISS 700/1969 or its latest amendments class “A” working pressure 10 Kg/cm2, Construction of bed blocks in 1:2:4 PCC with cement, coarse sand and approved stone grit , Construction of washout / overflow chamber and chambers for sluice / butter fly valves as per departmental type design and drawing, Supply of 200 mm dia PVC pipe as per I.S.-4985/2000 for disposal of water from overflow and washout chamber to suitable point outside the water works compound, Painting of all concrete surface and steel pipe works with three coats of approved cement paint and anticorrosive paints.	1.00	Job		**0.00**	INR Zero Only
2.17	Extra for cost variation due Soil bearing capacity from assumed bearing capacity of 8 MT/Sqm.	1.00	Job		**0.00**	INR Zero Only
2.18	Excavation of earth in ordinary soil (loam, clay or sand) for pipe line and rising main trenches including lift upto 1.50 m and lead upto 50 m and refilling watering, ramming of the excavated earth into the trench and also disposal of surplus earth upto 50m from the center of the trenches including supply of all material labour, T&P etc complete as per instructions of Engineer -in -charge.	50556.40	Cum.		**0.00**	INR Zero Only
2.19	Supply of following sizes (D.I. K-7) pipes for rising main conforming to latest/relevant I.S. 8329/2000 Specifications with all jointing materials such as CIS/S or D.F specials conforming to latest /relevant I.S. specifications, suitable for D.I pipes, as per IS-1239 /2000 and IS 8329/2000 or their latest amendment including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches).all complete as per instructions of Engineer -in -charge.					
2.20	200 mm dia	1465.00	Rmt		**0.00**	INR Zero Only

1	2	3	4	5	6	7
2.21	Supply of following sizes pipes for distribution system conforming to latest/ relevant I.S. 4984/1995 Specifications with all jointing materials and specials conforming to latest /relevant I.S. specifications including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches) all complete as per instructions of Engineer -in -charge.					
2.22	250 mm dia AC Pipe (Class-15 by MAAZA)	1005.00	Rmt		**0.00**	INR Zero Only
2.23	200 mm dia AC Pipe (Class-15 by MAAZA)	2246.00	Rmt		**0.00**	INR Zero Only
2.24	160 mm dia HDPE Pipe Class PE-100, 6Kg/cm2	4304.00	Rmt		**0.00**	INR Zero Only
2.25	140 mm dia HDPE Pipe Class PE-100, 6Kg/cm2	1966.00	Rmt		**0.00**	INR Zero Only
2.26	110 mm dia HDPE Pipe Class PE-100, 6Kg/cm2	5803.00	Rmt		**0.00**	INR Zero Only
2.27	90 mm dia HDPE Pipe Class PE-100, 6Kg/cm2	47733.00	Rmt		**0.00**	INR Zero Only
2.28	Supply and carting up to site of work of the following dia C.I. butterfly /sluice valves, class I, working pressure 10 Kg/cm2 confirming to IS: 780/1969 or its latest amendments, F.O.R. destination, and lowering them into the already prepared trenches, fixing in position and jointing them with pipelines and testing etc. complete and also including supply of jointing materials etc. complete .including all taxes and insurance, as per instructions of Engineer -in -charge.					
2.29	Sluice valve - 250 mm dia	2.00	Nos.		**0.00**	INR Zero Only
2.30	Sluice valve - 200 mm dia	5.00	Nos.		**0.00**	INR Zero Only
2.31	Sluice valve - 150 mm dia	5.00	Nos.		**0.00**	INR Zero Only
2.32	Sluice valve - 125 mm dia	2.00	Nos.		**0.00**	INR Zero Only
2.33	Sluice valve - 80 mm dia	29.00	Nos.		**0.00**	INR Zero Only
2.34	Scour valve - 80 mm dia	2.00	Nos.		**0.00**	INR Zero Only
2.35	Supply of 20 mm dia screwed down type air valve with gun metal seat conforming to latest/relevent I.S. specifications including all taxes and insurance, carting up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc complete) as per instructions of Engineer -in -charge.	4.00	Nos.		**0.00**	INR Zero Only
2.36	Supply of under ground sluice value type fire hydrant consisting of 80 mm dia sluice valve, 80mm dia tail pieces, 80mm dia duck foot bend and 80 mm dia standard makes iron coupling with cap and etc. complete conforming to latest/relevent I.S.specifications including all taxes and insurance up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc. complete as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
2.37	Supply and fixing of the following size of Digital Bulk Water Meter Enclosed Type Metallic gears (IS: 2373/1981) for measurement of bulk flow at different Locations (at the entry of gram panchayat) F.O.R. destination including all taxes and 5 year insurance etc. complete as per instructions of Engineer -in -charge.					
2.38	200 mm dia	2.00	No.		**0.00**	INR Zero Only
2.39	150 mm dia	3.00	No.		**0.00**	INR Zero Only
2.40	Supply of all materials, labour, T&P. required and construct masonary type Bulk Water meter / Butterfly valves chamber including supply of M.S. Manhole cover as per departmental type design and drawing (Drawing no.D-4) including all material labour, T& P etc. complete as per instructions of Engineer -in -charge.					
2.41	200 mm dia	2.00	No.		**0.00**	INR Zero Only
2.42	150 mm dia	3.00	No.		**0.00**	INR Zero Only
2.43	Construction of following type chambers as per department type design and drawing including Heavy duty M.S. Manhole Cover and all materials, labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge.					
2.44	Sluice valve chamber (masonry Type) (drawing no.D-4)	5.00	No.		**0.00**	INR Zero Only
2.45	Sluice valve chamber (surface box Type) (D-13)	38.00	No.		**0.00**	INR Zero Only
2.46	Fire Hydrant(drawing no.D-5) chamber	1.00	No.		**0.00**	INR Zero Only
2.47	Air Valve Chamber (drawing no.D-6)	4.00	No.		**0.00**	INR Zero Only
2.48	Scour Valve Chamber (drawing no.D-4)	2.00	No.		**0.00**	INR Zero Only
2.49	Design and construct Thrust Block made in R.C.C. with cement, coarse sand & 20 mm gauge stone ballast in proportion of 1:1.5:3, for pipe line, including supply of MS reinforcement wrought to required shape as necessary ,its bending, fixing & binding the same with 0.50 mm thick binding wire in position & necessary centering & shuttering including curing and supply of all materials, labour, T & P etc. required for proper completion of the work and as per specifications for RCC work as per instructions of Engineer -in -charge. (drawing no. D-14)	8.00	No.		**0.00**	INR Zero Only
2.50	Provide all materials labour, T&P etc. and construct of two room staff quarter / office room at water works site identified by the Engineer-in-charge as per department type design and drawing and specifications of civil works laid down in the bid document, including all material labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-7)	1.00	Nos.		**0.00**	INR Zero Only
2.51	Installation of suitable capacity simple T.W. automation system to control operation of the pumping plant with respect to high/low water level in OHT and electromagnetic online flowmeter in delivery line of TW inside the pump house with arrangement for communication of data with GSM and GPRS system to show required parameters including all accessories etc. complete in all respect as per instructions of Engineer -in –charge.	1.00	Nos.		**0.00**	INR Zero Only
2.52	Dismantling of Following type of surfaces including sorting out and stacking of serviceable materials and disposal of unserviceable materials upto a distance of 50m as per instructions of Engineer -in -charge.					
2.53	B.O.E. surface	1963.00	sqm		**0.00**	INR Zero Only

1	2	3	4	5	6	7
2.54	Bituminous surface	792.00	sqm		**0.00**	INR Zero Only
2.55	C.C. Road	526.00	sqm		**0.00**	INR Zero Only
2.56	Reinstatement of the following type of road surface with old and new materials including supply of all materials, labour, T&P etc. required for proper completion of the work as per instructions of Engineer -in -charge.					
2.57	B.O.E. Surface (Assuming 25% new brick and 75% old bricks used)	1963.00	sqm		**0.00**	INR Zero Only
2.58	Bituminous surface	792.00	sqm		**0.00**	INR Zero Only
2.59	C.C. Road	526.00	sqm		**0.00**	INR Zero Only
2.60	Provision for following crossing (drawing no.D-9) as per departmental type design and drawing including shifting of telephone cables etc. along the alignment of pipe line including supply of D.I. pipes and specials, and their laying and jointing testing etc. complete as per instructions of Engineer -in -charge.					
2.61	Nala/culvert crossings	10.00	Nos.		**0.00**	INR Zero Only
2.62	Road Crossing through trenchless techniques	3.00	Nos.		**0.00**	INR Zero Only
2.63	Provision for crossing of railway line along the alignment of pipelinewith casing including supply of C.I. tyton pipe and specials etc complete and payment to Railway Department	1.00	No.		**0.00**	INR Zero Only
2.64	Making house connection from distribution line to outer wall of house, with supply of G.I. pipe (Average 10.0 mtr.) including specials, Brass ferrule, Saddle clamp etc. of suitable size, T&P etc. including excavation, laying and jointing for proper completion of work as per instructions of Engineer-in-charge. (drawing no.D-12).	1748.00	Nos.		**0.00**	INR Zero Only
2.65	Provision for trial and run of the scheme for 3 months.	3.00	Month		**0.00**	INR Zero Only
2.66	Construction of single tap pillar type stand post as per type design as per instructions of Engineer -in -charge.	15.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
3.00	**Kathut Small Multi Village Piped Water Supply Scheme, District Ghazipur**					
3.01	**BUILD PHASE (SL. NO. - 3.02 TO SL. NO. - 3.65)**					
3.02	Construction of 1.3 m high and 115mm thick boundary wall with 230 mmx230 mm thick pillar made in Brick masonry in 1 cement and 4 sand mortar, the spacing between two pillar should not be more than 3.0 m c/c and the depth of foundation should not be less than 0.60m, at the site of water works as per departmental type design and drawing, and, as per specifications given in the bid document including supply of all materials, labour T&P etc.for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-1)	185.60	Rmt		**0.00**	INR Zero Only
3.03	Supply and fixing of 3.6 m x 1.20 m MS gate including fabrication and supply of steel and construction of bounary wall pillars of size 1.35mx0.23mx0.23m with ornamental brick work 115mm th. around RCC, as per departmental type design and drawing (Drawing No. D-1) and as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
3.04	Supply and fixing of 1.2m wide MS wicket gate including fabrication and supply of steel and construction of boundary wall pillars etc. as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
3.05	Construction of Brick on edge pavement for approach to water works, as per departmental type design and drawing and as per specifications laid down in the bid document, including supply of all materials , labour, T&P etc.required for proper completion of work as per instructions of Engineer -in -charge.	70.00	Sqm.		**0.00**	INR Zero Only
3.06	Earth filling work for proper leveling of water work site, in accordance with the contour map and Grid map of existing site enclosed (Drawing no.D-1), including leveling, dressing, excavation and filling of earth where necessary and also including all labour, materials, T&P etc.required for proper completion of works and also including carriage of earth from within a distance of about 8 km. from the site of works as per instructions of Engineer -in -charge.	67.50	Cum.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
3.07	Construction of Tube Well capable of providing 1500 LPM sand free discharge, including MS Pipes, Drilling of bore, supplying, fixing & lowering of housing pipe as per IS : 4270 including M.S. sockets duly welded with M.S. electrodes to have extra strength. Tubewell Assembly containing of MSERW housing pipe, Plain/ Slotted pipe, M.S. reducer, M.S. bail plug, M.S. Clamp, well Cap, M.S. rings, Centre guide, etc of desired size. Development by Air compressor & O.P. Unit. with transportation of all materials, T&P etc required for proper completion of work including testing of water sample as per specification : -Telescopic boring upto total depth of 200 m BGL consisting of drilling including logging of bore well by suitable electrical logger as following : - 625 mm dia. bore from G.L. to 60m BGL. - 500 mm dia. bore from 60m to 200m BGL. -Supplying,fixing and lowering of pipe including supply and shrouding of Lal kuan Pea Gravel 1.6-4.8 mm size for T.W. (as per requirement) as per IS:4097-1988, plain/slotted pipe as following : 300 mm dia 7.1mm thick MSERW plain pipe from GL to 55m BGL . 200 mm dia 7.1mm thick MSERW plain / slotted pipe 55m to 180 m BGL. - Supply of suitable size M.S. Reducer, M.S. bail plug, M.S. clamp, M.S. well cap, M.S. rings, suitable number of centre guide & support girder etc as per requirement. - Development of Tubewell by Air Compressor by minimum 350 PSI / as per requirement and as per specification. - Development of Tubewell by 3 Cusec O.P. unit. Note : Depth of Tubewell is tentative however actual depth will depend upon the availability of suitable aquifer to achieve the required sand free discharge.	3.00	Job		**0.00**	INR Zero Only
3.08	Supply and installation of 1500 LPM, 50 meter head 30 H.P. submersible clear water Pump set (As per IS 8034:1989) including switch gear (cubical panel board, starter, cable, power wiring & earthing etc) necessary tools, main piping & valves, pressure gauge, depth gauge with their fittings, double earthing. Supply and fixing of suitable size chlorinating plant. Supply and fixing of 2 ton capacity 4.5 m lift chainpully block, Electric resistance rubber sheet of 1x2 m size 12.5 mm thick, complete in all respect as per detailed specifications. (All supply will be done after the approval of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
3.09	Supply of one number Spare Pump set of 1500 LPM, 50 meter head 30 H.P. submersible clear water (As per IS 8034 : 1989) after approval of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
3.10	6 point wiring of Pump house for light with 2.00 sq.mm PVC insulated multi strand copper conductor cable in rigid PVC condult pipe on surface complete 14 S.W.G. copper earth continuously wire piano type switch and celling rose/angle/baton holder on 3mm thick phenolic laminated back light sheet etc complete in all respect including luminaries with IS amp. switch fuse unit as per instruction of Engineer-in-charge after approval of drawing.	3.00	Job		**0.00**	INR Zero Only
3.11	Supply, installation & commissioning of suitable capacity Automatic Voltage stabilizer input voltage 300-500±6% or suitable range as per site condition and output voltage 415 ±6%, 3 phase 50 C/S AC for satisfactorily run the above pump set, complete in all respect as per detailed specifications.	3.00	Job		**0.00**	INR Zero Only
3.12	Erection & commissioning of Transmission line of ACSR weasel conductor including all materials i.e. poles, conductors , insulators, required cable, etc from the nearest existing H.T. line Supply & fixing of 11KV/0.4V, 63 KVA Transformer with Double Pole Sub Station including security charges , Energy Meter, System loading charges , Fixed charges, processing fees etc completed in all respect.	3.00	Job		**0.00**	INR Zero Only

1	2	3	4	5	6	7
3.13	Provide all materials, labour, T&P etc. complete and construct Pump house size (3.6x3.0x3.0)m Chlorinating room size (2.5x1.8x3.0)m as per departmental type design and drawing (drawing no-D-2) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	3.00	Job		**0.00**	INR Zero Only
3.14	Provide all materials, labour, T&P etc. complete and constructed Bye-pass chamber for pump house as per departmental type design and drawing (drawing no.D-3) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	3.00	No.		**0.00**	INR Zero Only
3.15	Supply of all materials labour T&P etc. for complete construction of R.C.C. Over Head Tank of 1250 KL capacity with 18 Meter staging above ground level with main components, including cost of soil testing and assuming bearing capacity of soil as 8 MT, with supply of design and drawings. All the water retaining components of OHT shall be casted in M-30 concrete and minimum grade of concrete of foundation and staging should be M-25 with approved cement, coarse sand and stone grit as per I.S. 11682 and I.S.456 Seismic effects and wind load should be taken into consideration as per I.S. 1893 for earthquake resistance and I.S. 875 part-III for wind load on structure and including 1M wide RCC staircase, 1 m wide R.C.C. M30 balcony, M.S. ladder made of 50x50x6 mm angle section and 20mm plain M.S. bars with hand rails of 20mm medium class G.I. pipes, One aluminum ladder inside the tank from top dome to bottom dome, R.C.C. railing with 20mm dia medium class G.I.pipe (in 3 rows) on both sides of stair case, supported on 50x50x6mm M.S. angle section, spaced at intervals not more than 1.5m, Proper ventilator at top dome in circular shape of 1.2 m dia, Water level indicator fabricated with sensor connecting to automation, Lightening conductor as per I.S.S.2309 or its latest amendments of latest electricity rules, consisting of proper elevation rod with 5 or more fork points as prescribed in ISS 2309-1969 and ISS 3013-1966, C.I. manhole of min 60x60cm size with locking arrangement, Supply, fixing, jointing of C.I.D/F Pipes of appropriate size with C.I.D/F specials conforming to IS 8329/2000 as vertical pipes for inlet, outlet, overflow and washout as per latest / relevant I.S. specifications with all jointing materials for proper completion of work, Supply and Fixing of appropriate size manually operated D/F Sluice Valve / Butter Fly Valves as per ISS 700/1969 or its latest amendments class “A” working pressure 10 Kg/cm2, Construction of bed blocks in 1:2:4 PCC with cement, coarse sand and approved stone grit , Construction of washout / overflow chamber and chambers for sluice / butter fly valves as per departmental type design and drawing, Supply of 200 mm dia PVC pipe as per I.S.-4985/2000 for disposal of water from overflow and washout chamber to suitable point outside the water works compound, Painting of all concrete surface and steel pipe works with three coats of approved cement paint and anticorrosive paints.	1.00	Job		**0.00**	INR Zero Only
3.16	Extra for cost variation due Soil bearing capacity from assumed bearing capacity of 8 MT/Sqm.	1.00	Job		**0.00**	INR Zero Only
3.17	Excavation of earth in ordinary soil (loam, clay or sand) for pipe line and rising main trenches including lift upto 1.50 m and lead upto 50 m and refilling watering, ramming of the excavated earth into the trench and also disposal of surplus earth upto 50m from the center of the trenches including supply of all material labour, T&P etc complete as per instructions of Engineer -in -charge.	25922.80	Cum.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
3.18	Supply of following sizes (D.I. K-7) pipes for rising main conforming to latest/relevant I.S. 8329/2000 Specifications with all jointing materials such as CIS/S or D.F specials conforming to latest /relevant I.S. specifications, suitable for D.I pipes, as per IS-1239 /2000 and IS 8329/2000 or their latest amendment including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches).all complete as per instructions of Engineer -in -charge.					
3.19	200 mm dia	1305.00	Rmt		**0.00**	INR Zero Only
3.20	Supply of following sizes pipes for distribution system conforming to latest/ relevant I.S. 4984/1995 Specifications with all jointing materials and specials conforming to latest /relevant I.S. specifications including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches) all complete as per instructions of Engineer -in -charge.					
3.21	250 mm dia AC Pipe (Class-15 by MAZA)	981.00	Rmt		**0.00**	INR Zero Only
3.22	200 mm dia AC Pipe (Class-15 by MAZA)	2423.00	Rmt		**0.00**	INR Zero Only
3.23	160 mm dia HDPE Pipe Class PE-100, PN-6	232.00	Rmt		**0.00**	INR Zero Only
3.24	140 mm dia HDPE Pipe Class PE-100, PN-6	2502.00	Rmt		**0.00**	INR Zero Only
3.25	110 mm dia HDPE Pipe Class PE-100, PN-6	1318.00	Rmt		**0.00**	INR Zero Only
3.26	90 mm dia HDPE Pipe Class PE-100, PN-6	23967.00	Rmt		**0.00**	INR Zero Only
3.27	Supply and carting up to site of work of the following dia C.I. butterfly /sluice valves, class I, working pressure 10 Kg/cm2 confirming to IS: 780/1969 or its latest amendments, F.O.R. destination, and lowering them into the already prepared trenches, fixing in position and jointing them with pipelines and testing etc. complete and also including supply of jointing materials etc. complete .including all taxes and insurance, as per instructions of Engineer -in -charge.					
3.28	Sluice valve - 250 mm dia	2.00	Nos.		**0.00**	INR Zero Only
3.29	Sluice valve - 200 mm dia	4.00	Nos.		**0.00**	INR Zero Only
3.30	Sluice valve - 150 mm dia	1.00	Nos.		**0.00**	INR Zero Only
3.31	Sluice valve - 125 mm dia	6.00	Nos.		**0.00**	INR Zero Only
3.32	Sluice valve - 100 mm dia	3.00	Nos.		**0.00**	INR Zero Only
3.33	Sluice valve - 80 mm dia	29.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
3.34	Scour valve - 80 mm dia	1.00	Nos.		**0.00**	INR Zero Only
3.35	Supply of 20 mm dia screwed down type air valve with gun metal seat conforming to latest/relevent I.S. specifications including all taxes and insurance, carting up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc complete) as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
3.36	Supply of under ground sluice value type fire hydrant consisting of 80 mm dia sluice valve, 80mm dia tail pieces, 80mm dia duck foot bend and 80 mm dia standard makes iron coupling with cap and etc. complete conforming to latest/relevent I.S.specifications including all taxes and insurance up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc. complete as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
3.37	Supply and fixing of the following size of Bulk Water Meter Enclosed Type Metallic gears (IS: 2373/1981) for measurement of bulk flow at different Locations (at the entry of gram panchayat) F.O.R. destination including all taxes and 5 year insurance etc. complete as per instructions of Engineer -in -charge.					
3.38	250mm dia	1.00	No.		**0.00**	INR Zero Only
3.39	200 mm dia	1.00	No.		**0.00**	INR Zero Only
3.40	100mm dia	1.00	No.		**0.00**	INR Zero Only
3.41	Supply of all materials, labour, T&P. required and construct masonary type Bulk Water meter / Butterfly valves chamber including supply of M.S. Manhole cover as per departmental type design and drawing (Drawing no.D-4) including all material labour, T& P etc. complete as per instructions of Engineer -in -charge.					
3.42	250mm dia	1.00	No.		**0.00**	INR Zero Only
3.43	200 mm dia	1.00	No.		**0.00**	INR Zero Only
3.44	100mm dia	1.00	No.		**0.00**	INR Zero Only
3.45	Construction of following type chambers as per department type design and drawing including Heavy duty M.S. Manhole Cover and all materials, labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge.					
3.46	Sluice valve chamber (masonry Type) (drawing no.D-4)	6.00	No.		**0.00**	INR Zero Only
3.47	Sluice valve chamber (surface box Type) (D-13)	39.00	No.		**0.00**	INR Zero Only
3.48	Fire Hydrant(drawing no.D-5) chamber	1.00	No.		**0.00**	INR Zero Only
3.49	Air Valve Chamber (drawing no.D-6)	1.00	No.		**0.00**	INR Zero Only
3.50	Scour Valve Chamber (drawing no.D-4)	1.00	No.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
3.51	Design and construct Thrust Block made in R.C.C. with cement, coarse sand & 20 mm gauge stone ballast in proportion of 1:1.5:3, for pipe line, including supply of MS reinforcement wrought to required shape as necessary ,its bending, fixing & binding the same with 0.50 mm thick binding wire in position & necessary centering & shuttering including curing and supply of all materials, labour, T & P etc. required for proper completion of the work and as per specifications for RCC work as per instructions of Engineer -in -charge. (drawing no. D-14)	3.00	Job		**0.00**	INR Zero Only
3.52	Provide all materials labour, T&P etc. and construct double room staff quarter / office room at water works site identified by the Engineer-in-charge as per department type design and drawing and specifications of civil works laid down in the bid document, including all material labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-7)	1.00	Nos.		**0.00**	INR Zero Only
3.53	Installation of simple T.W. automation system to control operation of the pumping plant with respect to high/low water level in OHT and electromagnetic online flowmeter in deliwery line of TW inside the pump house with arrangement for communication of data with GSM and GPRS system to show required parameters including all accessories etc. complete in all respect as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
3.54	Dismantling of Following type of surfaces including sorting out and stacking of serviceable materials and disposal of unserviceable materials upto a distance of 50m as per instructions of Engineer -in -charge.					
3.55	B.O.E. surface	2656.00	sqm		**0.00**	INR Zero Only
3.56	Bituminous surface	893.00	sqm		**0.00**	INR Zero Only
3.57	C.C. Road	1894.00	sqm		**0.00**	INR Zero Only
3.58	Reinstatement of the following type of road surface with old and new materials including supply of all materials, labour, T&P etc. required for proper completion of the work as per instructions of Engineer -in -charge.					
3.59	B.O.E. Surface (Assuming 25% new brick and 75% old bricks used)	2656.00	sqm		**0.00**	INR Zero Only
3.60	Bituminous surface	893.00	sqm		**0.00**	INR Zero Only
3.61	C.C. Road	1894.00	sqm		**0.00**	INR Zero Only
3.62	Provision for Nala, Road & Culvert crossing (drawing no.D-9) as per departmental type design and drawing including shifting of telephone cables etc. along the alignment of pipe line including supply of D.I. pipes and specials, and their laying and jointing testing etc. complete as per instructions of Engineer -in -charge.	10.00	Nos.		**0.00**	INR Zero Only
3.63	Making house connection from distribution line to outer wall of house, with supply of G.I. pipe (Average 10.0 mtr.) including specials, Brass ferrule, Saddle clamp etc. of suitable size, T&P etc. including excavation, laying and jointing for proper completion of work as per instructions of Engineer-in-charge. (drawing no.D-12).	2686.00	Nos.		**0.00**	INR Zero Only
3.64	Provision for trial and run of the scheme for 3 months.	3.00	Month		**0.00**	INR Zero Only
3.65	Construction of single tap pillar type stand post as per type design as per instructions of Engineer -in -charge.	2.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
4.00	**Nagwa Urf Nawapara Small Multi Village Piped Water Supply Scheme, District Ghazipur**					
4.01	**BUILD PHASE (SL. NO. - 4.02 TO SL. NO. - 4.6)**					
4.02	Construction of 1.3 m high and 115mm thick boundary wall with 230 mmx230 mm thick pillar made in Brick masonry in 1 cement and 4 sand mortar, the spacing between two pillar should not be more than 3.0 m c/c and the depth of foundation should not be less than 0.60m, at the site of water works as per departmental type design and drawing, and, as per specifications given in the bid document including supply of all materials, labour T&P etc.for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-1)	105.20	Rmt		**0.00**	INR Zero Only
4.03	Supply and fixing of 3.6 m x 1.20 m MS gate including fabrication and supply of steel and construction of bounary wall pillars of size 1.35mx0.23mx0.23m with ornamental brick work 115mm th. around RCC, as per departmental type design and drawing (Drawing No. D-1) and as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
4.04	Supply and fixing of 1.2m wide MS wicket gate including fabrication and supply of steel and construction of boundary wall pillars etc. as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
4.05	Construction of Brick on edge pavement for approach to water works, as per departmental type design and drawing and as per specifications laid down in the bid document, including supply of all materials , labour, T&P etc.required for proper completion of work as per instructions of Engineer -in -charge.	37.50	Sqm.		**0.00**	INR Zero Only
4.06	Earth filling work for proper leveling of water work site, in accordance with the contour map and Grid map of existing site enclosed (Drawing no.D-1), including leveling, dressing, excavation and filling of earth where necessary and also including all labour, materials, T&P etc.required for proper completion of works and also including carriage of earth from within a distance of about 8 km. from the site of works as per instructions of Engineer -in -charge.	151.20	Cum.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
4.07	Construction of Tube Well capable of providing 1100 LPM sand free discharge, including MS Pipes, Drilling of bore, supplying, fixing & lowering of housing pipe as per IS : 4270 including M.S. sockets duly welded with M.S. electrodes to have extra strength. Tubewell Assembly containing of MSERW housing pipe, Plain/ Slotted pipe, M.S. reducer, M.S. bail plug, M.S. Clamp, well Cap, M.S. rings, Centre guide, etc of desired size. Development by Air compressor & O.P. Unit. with transportation of all materials, T&P etc required for proper completion of work including testing of water sample as per specification : -Telescopic boring upto total depth of 200 m BGL consisting of drilling including logging of bore well by suitable electrical logger as following : - 625 mm dia. bore from G.L. to 60m BGL. - 450 mm dia. bore from 60m to 200m BGL. -Supplying,fixing and lowering of pipe including supply and shrouding of Lal kuan Pea Gravel 1.6-4.8 mm size for T.W. (as per requirement) as per IS:4097-1988, plain/slotted pipe as following : 300 mm dia 7.1mm thick MSERW plain pipe from GL to 55m BGL . 150 mm dia 7.1mm thick MSERW plain / slotted pipe 55m to 180 m BGL. - Supply of suitable size M.S. Reducer, M.S. bail plug, M.S. clamp, M.S. well cap, M.S. rings, suitable number of centre guide & support girder etc as per requirement. - Development of Tubewell by Air Compressor by minimum 350 PSI / as per requirement and as per specification. - Development of Tubewell by 3 Cusec O.P. unit. Note : Depth of Tubewell is tentative however actual depth will depend upon the availability of suitable aquifer to achieve the required sand free discharge.	1.00	Job		**0.00**	INR Zero Only
4.08	Supply and installation of 1100 LPM, 50 meter head 20 H.P. submersible clear water Pump set (As per IS 8034:1989) including switch gear (cubical panel board, starter, cable, power wiring & earthing etc) necessary tools, main piping & valves, pressure gauge, depth gauge with their fittings, double earthing. Supply and fixing of suitable size chlorinating plant. Supply and fixing of 2 ton capacity 4.5 m lift chainpully block. Electric resistance rubber sheet of 1x2 m size 12.5 mm thick, complete in all respect as per detailed specifications. (All supply will be done after the approval of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
4.09	Supply of one number Spare Pump set of 1100 LPM, 50 meter head 20 H.P. submersible clear water (As per IS 8034 : 1989) after approval of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
4.10	6 point wiring of Pump house for light with 2.00 sq.mm PVC insulated multi strand copper conductor cable in rigid PVC condult pipe on surface complete 14 S.W.G. copper earth continuously wire piano type switch and celling rose/angle/baton holder on 3mm thick phenolic laminated back light sheet etc complete in all respect including luminaries with IS amp. switch fuse unit as per instruction of Engineer-in-charge after approval of drawing.	1.00	Job		**0.00**	INR Zero Only
4.11	Supply, installation & commissioning of suitable capacity Automatic Voltage stabilizer input voltage 300-500±6% or suitable range as per site condition and output voltage 415 ±6%, 3 phase 50 C/S AC for satisfactorily run the above pump set, complete in all respect as per detailed specifications.	1.00	Job		**0.00**	INR Zero Only
4.12	Erection & commissioning of Transmission line of ACSR weasel conductor including all materials i.e. poles, conductors , insulators, required cable, etc from the nearest existing H.T. line Supply & fixing of 11KV/0.4V, 63 KVA Transformer with Double Pole Sub Station including security charges , Energy Meter, System loading charges , Fixed charges, processing fees etc completed in all respect.	1.00	Job		**0.00**	INR Zero Only

1	2	3	4	5	6	7
4.13	Provide all materials, labour, T&P etc. complete and construct Pump house size (3.6x3.0x3.0)m Chlorinating room size (2.5x1.8x3.0)m as per departmental type design and drawing (drawing no-D-2) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	1.00	Job		**0.00**	INR Zero Only
4.14	Provide all materials, labour, T&P etc. complete and constructed Bye-pass chamber for pump house as per departmental type design and drawing (drawing no.D-3) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	1.00	No.		**0.00**	INR Zero Only
4.15	Supply of all materials labour T&P etc. for complete construction of R.C.C. Over Head Tank of 300 KL capacity with 16 Meter staging above ground level with main components, including cost of soil testing and assuming bearing capacity of soil as 8 MT, with supply of design and drawings. All the water retaining components of OHT shall be casted in M-30 concrete and minimum grade of concrete of foundation and staging should be M-25 with approved cement, coarse sand and stone grit as per I.S. 11682 and I.S.456 Seismic effects and wind load should be taken into consideration as per I.S. 1893 for earthquake resistance and I.S. 875 part-III for wind load on structure and including 1M wide RCC staircase, 1 m wide R.C.C. M30 balcony, M.S. ladder made of 50x50x6 mm angle section and 20mm plain M.S. bars with hand rails of 20mm medium class G.I. pipes, One aluminum ladder inside the tank from top dome to bottom dome, R.C.C. railing with 20mm dia medium class G.I.pipe (in 3 rows) on both sides of stair case, supported on 50x50x6mm M.S. angle section, spaced at intervals not more than 1.5m, Proper ventilator at top dome in circular shape of 1.2 m dia, Water level indicator fabricated with sensor connecting to automation, Lightening conductor as per I.S.S.2309 or its latest amendments of latest electricity rules, consisting of proper elevation rod with 5 or more fork points as prescribed in ISS 2309-1969 and ISS 3013-1966, C.I. manhole of min 60x60cm size with locking arrangement, Supply, fixing, jointing of C.I.D/F Pipes of appropriate size with C.I.D/F specials conforming to IS 8329/2000 as vertical pipes for inlet, outlet, overflow and washout as per latest / relevant I.S. specifications with all jointing materials for proper completion of work, Supply and Fixing of appropriate size manually operated D/F Sluice Valve / Butter Fly Valves as per ISS 700/1969 or its latest amendments class “A” working pressure 10 Kg/cm2, Construction of bed blocks in 1:2:4 PCC with cement, coarse sand and approved stone grit , Construction of washout / overflow chamber and chambers for sluice / butter fly valves as per departmental type design and drawing, Supply of 200 mm dia PVC pipe as per I.S.-4985/2000 for disposal of water from overflow and washout chamber to suitable point outside the water works compound, Painting of all concrete surface and steel pipe works with three coats of approved cement paint and anticorrosive paints.	1.00	Job		**0.00**	INR Zero Only
4.16	Extra for cost variation due Soil bearing capacity from assumed bearing capacity of 8 MT/Sqm.	1.00	Job		**0.00**	INR Zero Only
4.17	Excavation of earth in ordinary soil (loam, clay or sand) for pipe line and rising main trenches including lift upto 1.50 m and lead upto 50 m and refilling watering, ramming of the excavated earth into the trench and also disposal of surplus earth upto 50m from the center of the trenches including supply of all material labour, T&P etc complete as per instructions of Engineer -in -charge.	10726.19	Cum.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
4.18	Supply of following sizes (D.I. K-9) pipes for rising main conforming to latest/relevant I.S. 8329/2000 Specifications with all jointing materials such as CIS/S or D.F specials conforming to latest /relevant I.S. specifications, suitable for D.I pipes, as per IS-1239 /2000 and IS 8329/2000 or their latest amendment including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches).all complete as per instructions of Engineer -in -charge.					
4.19	150 mm dia	35.00	Rmt		**0.00**	INR Zero Only
4.20	Supply of following sizes pipes for distribution system conforming to latest/ relevant I.S. 4984/1995 Specifications with all jointing materials and specials conforming to latest /relevant I.S. specifications including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches) all complete as per instructions of Engineer -in -charge.					
4.21	200 mm dia AC Pipe (Class-15 by MAZA)	1803.00	Rmt		**0.00**	INR Zero Only
4.22	140 mm dia HDPE Pipe Class PE-100, PN-6	203.00	Rmt		**0.00**	INR Zero Only
4.23	110 mm dia HDPE Pipe Class PE-100, PN-6	116.00	Rmt		**0.00**	INR Zero Only
4.24	90 mm dia HDPE Pipe Class PE-100, PN-6	11570.00	Rmt		**0.00**	INR Zero Only
4.25	Supply and carting up to site of work of the following dia C.I. butterfly /sluice valves, class I, working pressure 10 Kg/cm2 confirming to IS: 780/1969 or its latest amendments, F.O.R. destination, and lowering them into the already prepared trenches, fixing in position and jointing them with pipelines and testing etc. complete and also including supply of jointing materials etc. complete .including all taxes and insurance, as per instructions of Engineer -in -charge.					
4.26	Sluice valve - 200 mm dia	1.00	Nos.		**0.00**	INR Zero Only
4.27	Sluice valve - 150 mm dia	1.00	Nos.		**0.00**	INR Zero Only
4.28	Sluice valve - 125 mm dia	1.00	Nos.		**0.00**	INR Zero Only
4.29	Sluice valve - 100 mm dia	1.00	Nos.		**0.00**	INR Zero Only
4.30	Sluice valve - 80 mm dia	17.00	Nos.		**0.00**	INR Zero Only
4.31	Scour valve - 80 mm dia	2.00	Nos.		**0.00**	INR Zero Only
4.32	Supply of 20 mm dia screwed down type air valve with gun metal seat conforming to latest/relevent I.S. specifications including all taxes and insurance, carting up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc complete) as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
4.33	Supply of under ground sluice value type fire hydrant consisting of 80 mm dia sluice valve, 80mm dia tail pieces, 80mm dia duck foot bend and 80 mm dia standard makes iron coupling with cap and etc. complete conforming to latest/relevent I.S.specifications including all taxes and insurance up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc. complete as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
4.34	Supply and fixing of the following size of Bulk Water Meter Enclosed Type Metallic gears (IS: 2373/1981) for measurement of bulk flow at different Locations (at the entry of gram panchayat) F.O.R. destination including all taxes and 5 year insurance etc. complete as per instructions of Engineer -in -charge.					
4.35	150 mm dia	1.00	No.		**0.00**	INR Zero Only
4.36	100mm dia	1.00	No.		**0.00**	INR Zero Only
4.37	Supply of all materials, labour, T&P. required and construct masonary type Bulk Water meter / Butterfly valves chamber including supply of M.S. Manhole cover as per departmental type design and drawing (Drawing no.D-4) including all material labour, T& P etc. complete as per instructions of Engineer -in -charge.					
4.38	150 mm dia	1.00	No.		**0.00**	INR Zero Only
4.39	100mm dia	1.00	No.		**0.00**	INR Zero Only
4.40	Construction of following type chambers as per department type design and drawing including Heavy duty M.S. Manhole Cover and all materials, labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge.					
4.41	Sluice valve chamber (masonry Type) (drawing no.D-4)	2.00	No.		**0.00**	INR Zero Only
4.42	Sluice valve chamber (surface box Type) (D-13)	19.00	No.		**0.00**	INR Zero Only
4.43	Fire Hydrant(drawing no.D-5) chamber	1.00	No.		**0.00**	INR Zero Only
4.44	Air Valve Chamber (drawing no.D-6)	1.00	No.		**0.00**	INR Zero Only
4.45	Scour Valve Chamber (drawing no.D-4)	2.00	No.		**0.00**	INR Zero Only
4.46	Design and construct Thrust Block made in R.C.C. with cement, coarse sand & 20 mm gauge stone ballast in proportion of 1:1.5:3, for pipe line, including supply of MS reinforcement wrought to required shape as necessary ,its bending, fixing & binding the same with 0.50 mm thick binding wire in position & necessary centering & shuttering including curing and supply of all materials, labour, T & P etc. required for proper completion of the work and as per specifications for RCC work as per instructions of Engineer -in -charge. (drawing no. D-14)	1.00	Job		**0.00**	INR Zero Only
4.47	Provide all materials labour, T&P etc. and construct double room staff quarter / office room at water works site identified by the Engineer-in-charge as per department type design and drawing and specifications of civil works laid down in the bid document, including all material labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-7)	1.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
4.48	Installation of simple T.W. automation system to control operation of the pumping plant with respect to high/low water level in OHT and electromagnetic online flowmeter in deliwery line of TW inside the pump house with arrangement for communication of data with GSM and GPRS system to show required parameters including all accessories etc. complete in all respect as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
4.49	Dismantling of Following type of surfaces including sorting out and stacking of serviceable materials and disposal of unserviceable materials upto a distance of 50m as per instructions of Engineer -in -charge.					
4.50	B.O.E. surface	819.00	sqm		**0.00**	INR Zero Only
4.51	Bituminous surface	297.10	sqm		**0.00**	INR Zero Only
4.52	C.C. Road	332.00	sqm		**0.00**	INR Zero Only
4.53	Reinstatement of the following type of road surface with old and new materials including supply of all materials, labour, T&P etc. required for proper completion of the work as per instructions of Engineer -in -charge.					
4.54	B.O.E. Surface (Assuming 25% new brick and 75% old bricks used)	819.00	sqm		**0.00**	INR Zero Only
4.55	Bituminous surface	297.10	sqm		**0.00**	INR Zero Only
4.56	C.C. Road	332.00	sqm		**0.00**	INR Zero Only
4.57	Provision for Nala, Road & Culvert crossing (drawing no.D-9) as per departmental type design and drawing including shifting of telephone cables etc. along the alignment of pipe line including supply of D.I. pipes and specials, and their laying and jointing testing etc. complete as per instructions of Engineer -in -charge.	8.00	Nos.		**0.00**	INR Zero Only
4.58	Making house connection from distribution line to outer wall of house, with supply of G.I. pipe (Average 10.0 mtr.) including specials, Brass ferrule, Saddle clamp etc. of suitable size, T&P etc. including excavation, laying and jointing for proper completion of work as per instructions of Engineer-in-charge. (drawing no.D-12).	462.00	Nos.		**0.00**	INR Zero Only
4.59	Provision for trial and run of the scheme for 3 months.	3.00	Month		**0.00**	INR Zero Only
4.60	Construction of single tap pillar type stand post as per type design as per instructions of Engineer -in -charge.	2.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
5.00	**Malsa Kalan Small Multi Village Piped Water Supply Scheme**					
5.01	**BUILD PHASE (SL. NO. - 3.02 TO SL. NO. - 3.76)**					
5.02	Construction of 1.3 m high and 115mm thick boundary wall with 230 mmx230 mm thick pillar made in Brick masonry in 1 cement and 4 sand mortar, the spacing between two pillar should not be more than 3.0 m c/c and the depth of foundation should not be less than 0.60m, at the site of water works as per departmental type design and drawing, and, as per specifications given in the bid document including supply of all materials, labour T&P etc.for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-1)	225.60	Rmt		**0.00**	INR Zero Only
5.03	Supply and fixing of 3.6 m x 1.20 m MS gate including fabrication and supply of steel and construction of bounary wall pillars of size 1.35mx0.23mx0.23m with ornamental brick work 115mm th. around RCC, as per departmental type design and drawing (Drawing No. D-1) and as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
5.04	Supply and fixing of 1.2m wide MS wicket gate including fabrication and supply of steel and construction of boundary wall pillars etc. as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
5.05	Construction of Brick on edge pavement for approach to water works, as per departmental type design and drawing and as per specifications laid down in the bid document, including supply of all materials , labour, T&P etc.required for proper completion of work as per instructions of Engineer -in -charge.	87.50	Sqm.		**0.00**	INR Zero Only
5.06	Earth filling work for proper leveling of water work site, in accordance with the contour map and Grid map of existing site enclosed (Drawing no.D-1), including leveling, dressing, excavation and filling of earth where necessary and also including all labour, materials, T&P etc.required for proper completion of works and also including carriage of earth from within a distance of about 8 km. from the site of works as per instructions of Engineer -in -charge.	160.00	Cum.		**0.00**	INR Zero Only
5.07	Construction of Tube Well capable of providing 1400 LPM sand free discharge, including MS Pipes, Drilling of bore, supplying, fixing & lowering of housing pipe as per IS : 4270 including M.S. sockets duly welded with M.S. electrodes to have extra strength. Tubewell Assembly containing of MSERW housing pipe, Plain/ Slotted pipe, M.S. reducer, M.S. bail plug, M.S. Clamp, well Cap, M.S. rings, Centre guide, etc of desired size. Development by Air compressor & O.P. Unit. with transportation of all materials, T&P etc required for proper completion of work including testing of water sample as per specification : -Telescopic boring upto total depth of 200 m BGL consisting of drilling including logging of bore well by suitable electrical logger as following : - 625 mm dia. bore from G.L. to 60m BGL. - 500 mm dia. bore from 60m to 200m BGL. -Supplying,fixing and lowering of pipe including supply and shrouding of Lal kuan Pea Gravel 1.6-4.8 mm size for T.W. (as per requirement) as per IS:4097-1988, plain/slotted pipe as following : 300 mm dia 7.1mm thick MSERW plain pipe from GL to 55 m BGL . 150 mm dia 7.1mm thick MSERW plain / slotted pipe 55 m to 180 m BGL. - Supply of suitable size M.S. Reducer, M.S. bail plug, M.S. clamp, M.S. well cap, M.S. rings, suitable number of centre guide & support girder etc as per requirement. - Development of Tubewell by Air Compressor by minimum 350 PSI / as per requirement and as per specification. - Development of Tubewell by suitable capacity O.P. unit. Note : Depth of Tubewell is tentative however actual depth will depend upon the availability of suitable aquifer to achieve the required sand free discharge.	3.00	Job		**0.00**	INR Zero Only

1	2	3	4	5	6	7
5.08	Supply and installation of 1400 LPM, 55 meter head 30 H.P. submersible clear water Pump set (As per IS 8034:1989) including switch gear (cubical panel board, starter, cable, power wiring & earthing etc) necessary tools, main piping & valves, pressure gauge, depth gauge with their fittings, double earthing. Supply and fixing of suitable size chlorinating plant. Supply and fixing of 2 ton capacity 4.5 m lift chainpully block, Electric resistance rubber sheet of 1x2 m size 12.5 mm thick, complete in all respect as per detailed specifications. (All supply will be done after the approval of Engineer-in-charge.	3.00	No.		**0.00**	INR Zero Only
5.09	Supply of one number Spare Pump set of 1400 LPM, 55 meter head 30H.P. submersible clear water (As per IS 8034 : 1989) after approval of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
5.10	6 point wiring of Pump house for light with 2.00 sq.mm PVC insulated multi strand copper conductor cable in rigid PVC condult pipe on surface complete 14 S.W.G. copper earth continuously wire piano type switch and celling rose/angle/baton holder on 3mm thick phenolic laminated back light sheet etc complete in all respect including luminaries with IS amp. switch fuse unit as per instruction of Engineer-in-charge after approval of drawing.	3.00	Job		**0.00**	INR Zero Only
5.11	Provision for LED Light in water work campus with all accessories and fitting.	1.00	Job		**0.00**	INR Zero Only
5.12	Supply, installation & commissioning of suitable capacity Automatic Voltage stabilizer input voltage 200-500±6% or suitable range as per site condition and output voltage 415 ±1%, 3 phase 50 C/S AC for satisfactorily run the above pump set, complete in all respect as per detailed specifications.	3.00	Job		**0.00**	INR Zero Only
5.13	Erection & commissioning of Transmission line of ACSR weasel conductor including all materials i.e. poles, conductors , insulators, required cable, etc from the nearest existing H.T. line Supply & fixing of 11KV/0.4V, 63 KVA Transformer with Double Pole Sub Station including security charges , Energy Meter, System loading charges , Fixed charges, processing fees etc completed in all respect.	3.00	Job		**0.00**	INR Zero Only
5.14	Provide all materials, labour, T&P etc. complete and construct Pump house size (3.6x3.0x3.0)m Chlorinating room size (2.5x1.8x3.0)m as per departmental type design and drawing (drawing no-D-2) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	3.00	Job		**0.00**	INR Zero Only
5.15	Provide all materials, labour, T&P etc. complete and constructed Bye-pass chamber for pump house as per departmental type design and drawing (drawing no.D-3) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	3.00	No.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
5.16	Supply of all materials labour T&P etc. for complete construction of R.C.C. Over Head Tank of 1200 KL capacity with 20 Meter staging above ground level with main components, including cost of soil testing and assuming bearing capacity of soil as 8 MT, with supply of design and drawings. All the water retaining components of OHT shall be casted in M-30 concrete and minimum grade of concrete of foundation and staging should be M-25 with approved cement, coarse sand and stone grit as per I.S. 11682 and I.S.456 Seismic effects and wind load should be taken into consideration as per I.S. 1893 for earthquake resistance and I.S. 875 part-III for wind load on structure and including 1M wide RCC staircase, 1 m wide R.C.C. M30 balcony, M.S. ladder made of 50x50x6 mm angle section and 20mm plain M.S. bars with hand rails of 20mm medium class G.I. pipes, One aluminum ladder inside the tank from top dome to bottom dome, R.C.C. railing with 20mm dia medium class G.I.pipe (in 3 rows) on both sides of stair case, supported on 50x50x6mm M.S. angle section, spaced at intervals not more than 1.5m, Proper ventilator at top dome in circular shape of 1.2 m dia, Water level indicator fabricated with sensor connecting to automation, Lightening conductor as per I.S.S.2309 or its latest amendments of latest electricity rules, consisting of proper elevation rod with 5 or more fork points as prescribed in ISS 2309-1969 and ISS 3013-1966, C.I. manhole of min 60x60cm size with locking arrangement, Supply, fixing, jointing of C.I.D/F Pipes of appropriate size with C.I.D/F specials conforming to IS 8329/2000 as vertical pipes for inlet, outlet, overflow and washout as per latest / relevant I.S. specifications with all jointing materials for proper completion of work, Supply and Fixing of appropriate size manually operated D/F Sluice Valve / Butter Fly Valves as per ISS 700/1969 or its latest amendments class “A” working pressure 10 Kg/cm2, Construction of bed blocks in 1:2:4 PCC with cement, coarse sand and approved stone grit , Construction of washout / overflow chamber and chambers for sluice / butter fly valves as per departmental type design and drawing, Supply of 200 mm dia PVC pipe as per I.S.-4985/2000 for disposal of water from overflow and washout chamber to suitable point outside the water works compound, Painting of all concrete surface and steel pipe works with three coats of approved cement paint and anticorrosive paints.	1.00	Job		**0.00**	INR Zero Only
5.17	Extra for cost variation due Soil bearing capacity from assumed bearing capacity of 8 MT/Sqm.	1.00	Job		**0.00**	INR Zero Only
5.18	Excavation of earth in ordinary soil (loam, clay or sand) for pipe line and rising main trenches including lift upto 1.50 m and lead upto 50 m and refilling watering, ramming of the excavated earth into the trench and also disposal of surplus earth upto 50m from the center of the trenches including supply of all material labour, T&P etc complete as per instructions of Engineer -in -charge.	38465.80	Cum.		**0.00**	INR Zero Only
5.19	Supply of following sizes (D.I. K-7) pipes for rising main conforming to latest/relevant I.S. 8329/2000 Specifications with all jointing materials such as CIS/S or D.F specials conforming to latest /relevant I.S. specifications, suitable for D.I pipes, as per IS-1239 /2000 and IS 8329/2000 or their latest amendment including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches).all complete as per instructions of Engineer -in -charge.					
5.20	200 mm dia	1305.00	Rmt		**0.00**	INR Zero Only

1	2	3	4	5	6	7
5.21	Supply of following sizes pipes for distribution system conforming to latest/ relevant I.S. 4984/1995 Specifications with all jointing materials and specials conforming to latest /relevant I.S. specifications including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches) all complete as per instructions of Engineer -in -charge.					
5.22	300 mm dia DI Pipe	990.00	Rmt		**0.00**	INR Zero Only
5.23	250 mm dia AC Pipe (Class-15 by MAAZA)	1050.00	Rmt		**0.00**	INR Zero Only
5.24	200 mm dia AC Pipe (Class-15 by MAAZA)	7096.00	Rmt		**0.00**	INR Zero Only
5.25	160 mm dia HDPE Pipe Class PE-100, 6Kg/cm2	1485.00	Rmt		**0.00**	INR Zero Only
5.26	140 mm dia HDPE Pipe Class PE-100, 6Kg/cm2	2891.00	Rmt		**0.00**	INR Zero Only
5.27	110 mm dia HDPE Pipe Class PE-100, 6Kg/cm2	1288.00	Rmt		**0.00**	INR Zero Only
5.28	90 mm dia HDPE Pipe Class PE-100, 6Kg/cm2	31065.00	Rmt		**0.00**	INR Zero Only
5.29	Supply and carting up to site of work of the following dia C.I. butterfly /sluice valves, class I, working pressure 10 Kg/cm2 confirming to IS: 780/1969 or its latest amendments, F.O.R. destination, and lowering them into the already prepared trenches, fixing in position and jointing them with pipelines and testing etc. complete and also including supply of jointing materials etc. complete .including all taxes and insurance, as per instructions of Engineer -in -charge.					
5.30	Sluice valve - 300 mm dia	1.00	Nos.		**0.00**	INR Zero Only
5.31	Sluice valve - 250 mm dia	1.00	Nos.		**0.00**	INR Zero Only
5.32	Sluice valve - 200 mm dia	7.00	Nos.		**0.00**	INR Zero Only
5.33	Sluice valve - 150 mm dia	4.00	Nos.		**0.00**	INR Zero Only
5.34	Sluice valve - 125 mm dia	6.00	Nos.		**0.00**	INR Zero Only
5.35	Sluice valve - 100 mm dia	1.00	Nos.		**0.00**	INR Zero Only
5.36	Sluice valve - 80 mm dia	26.00	Nos.		**0.00**	INR Zero Only
5.37	Scour valve - 80 mm dia	1.00	Nos.		**0.00**	INR Zero Only
5.38	Supply of 20 mm dia screwed down type air valve with gun metal seat conforming to latest/relevent I.S. specifications including all taxes and insurance, carting up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc complete) as per instructions of Engineer -in -charge.	2.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
5.39	Supply of under ground sluice value type fire hydrant consisting of 80 mm dia sluice valve, 80mm dia tail pieces, 80mm dia duck foot bend and 80 mm dia standard makes iron coupling with cap and etc. complete conforming to latest/relevent I.S.specifications including all taxes and insurance up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc. complete as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
5.40	Supply and fixing of the following size of Digital Bulk Water Meter Enclosed Type Metallic gears (IS: 2373/1981) for measurement of bulk flow at different Locations (at the entry of gram panchayat) F.O.R. destination including all taxes and 5 year insurance etc. complete as per instructions of Engineer -in -charge.					
5.41	300 mm dia	1.00	No.		**0.00**	INR Zero Only
5.42	250 mm dia	1.00	No.		**0.00**	INR Zero Only
5.43	200 mm dia	2.00	No.		**0.00**	INR Zero Only
5.44	125 mm dia	1.00	No.		**0.00**	INR Zero Only
5.45	Supply of all materials, labour, T&P. required and construct masonary type Bulk Water meter / Butterfly valves chamber including supply of M.S. Manhole cover as per departmental type design and drawing (Drawing no.D-4) including all material labour, T& P etc. complete as per instructions of Engineer -in -charge.					
5.46	300 mm dia	1.00	No.		**0.00**	INR Zero Only
5.47	250 mm dia	1.00	No.		**0.00**	INR Zero Only
5.48	200 mm dia	2.00	No.		**0.00**	INR Zero Only
5.49	125 mm dia	1.00	No.		**0.00**	INR Zero Only
5.50	Construction of following type chambers as per department type design and drawing including Heavy duty M.S. Manhole Cover and all materials, labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge.					
5.51	Sluice valve chamber (masonry Type) (drawing no.D-4)	7.00	No.		**0.00**	INR Zero Only
5.52	Sluice valve chamber (surface box Type) (D-13)	39.00	No.		**0.00**	INR Zero Only
5.53	Fire Hydrant(drawing no.D-5) chamber	1.00	No.		**0.00**	INR Zero Only
5.54	Air Valve Chamber (drawing no.D-6)	2.00	No.		**0.00**	INR Zero Only
5.55	Scour Valve Chamber (drawing no.D-4)	1.00	No.		**0.00**	INR Zero Only
5.56	Design and construct Thrust Block made in R.C.C. with cement, coarse sand & 20 mm gauge stone ballast in proportion of 1:1.5:3, for pipe line, including supply of MS reinforcement wrought to required shape as necessary ,its bending, fixing & binding the same with 0.50 mm thick binding wire in position & necessary centering & shuttering including curing and supply of all materials, labour, T & P etc. required for proper completion of the work and as per specifications for RCC work as per instructions of Engineer -in -charge. (drawing no. D-14)	6.00	No.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
5.57	Provide all materials labour, T&P etc. and construct of single room staff quarter / office room at water works site identified by the Engineer-in-charge as per department type design and drawing and specifications of civil works laid down in the bid document, including all material labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-7)	1.00	Nos.		**0.00**	INR Zero Only
5.58	Installation of suitable capacity simple T.W. automation system to control operation of the pumping plant with respect to high/low water level in OHT and electromagnetic online flowmeter in delivery line of TW inside the pump house with arrangement for communication of data with GSM and GPRS system to show required parameters including all accessories etc. complete in all respect as per instructions of Engineer -in –charge.	1.00	Nos.		**0.00**	INR Zero Only
5.59	Dismantling of Following type of surfaces including sorting out and stacking of serviceable materials and disposal of unserviceable materials upto a distance of 50m as per instructions of Engineer -in -charge.					
5.60	B.O.E. surface	3899.00	sqm		**0.00**	INR Zero Only
5.61	Bituminous surface	750.00	sqm		**0.00**	INR Zero Only
5.62	C.C. Road	519.00	sqm		**0.00**	INR Zero Only
5.63	Reinstatement of the following type of road surface with old and new materials including supply of all materials, labour, T&P etc. required for proper completion of the work as per instructions of Engineer -in -charge.					
5.64	B.O.E. Surface (Assuming 25% new brick and 75% old bricks used)	3899.00	sqm		**0.00**	INR Zero Only
5.65	Bituminous surface	750.00	sqm		**0.00**	INR Zero Only
5.66	C.C. Road	519.00	sqm		**0.00**	INR Zero Only
5.67	Provision for following crossing (drawing no.D-9) as per departmental type design and drawing including shifting of telephone cables etc. along the alignment of pipe line including supply of D.I. pipes and specials, and their laying and jointing testing etc. complete as per instructions of Engineer -in -charge.					
5.68	Nala/culvert crossings	15.00	Nos.		**0.00**	INR Zero Only
5.69	Road Crossing through trenchless techniques	4.00	Nos.		**0.00**	INR Zero Only
5.70	Making house connection from distribution line to outer wall of house, with supply of G.I. pipe (Average 10.0 mtr.) including specials, Brass ferrule, Saddle clamp etc. of suitable size, T&P etc. including excavation, laying and jointing for proper completion of work as per instructions of Engineer-in-charge. (drawing no.D-12).	2137.00	Nos.		**0.00**	INR Zero Only
5.71	Provision for trial and run of the scheme for 3 months.	3.00	Month		**0.00**	INR Zero Only
5.72	Construction of single tap pillar type stand post as per type design as per instructions of Engineer -in -charge.	10.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
6.00	**Tiwaripur Small Multi Village Piped Water Supply Scheme, District Ghazipur**					
6.01	**BUILD PHASE (SL. NO. - 6.02 TO SL. NO. - 6.61)**					
6.02	Construction of 1.3 m high and 115mm thick boundary wall with 230 mmx230 mm thick pillar made in Brick masonry in 1 cement and 4 sand mortar, the spacing between two pillar should not be more than 3.0 m c/c and the depth of foundation should not be less than 0.60m, at the site of water works as per departmental type design and drawing, and, as per specifications given in the bid document including supply of all materials, labour T&P etc.for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-1)	140.40	Rmt		**0.00**	INR Zero Only
6.03	Supply and fixing of 3.6 m x 1.20 m MS gate including fabrication and supply of steel and construction of bounary wall pillars of size 1.35mx0.23mx0.23m with ornamental brick work 115mm th. around RCC, as per departmental type design and drawing (Drawing No. D-1) and as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	2.00	No.		**0.00**	INR Zero Only
6.04	Supply and fixing of 1.2m wide MS wicket gate including fabrication and supply of steel and construction of boundary wall pillars etc. as per specifications laid down in the bid document, including supply of all material, labour,T&P etc.required for proper completion of work as per instructions of Engineer-in-charge.	2.00	No.		**0.00**	INR Zero Only
6.05	Construction of Brick on edge pavement for approach to water works, as per departmental type design and drawing and as per specifications laid down in the bid document, including supply of all materials , labour, T&P etc.required for proper completion of work as per instructions of Engineer -in -charge.	50.00	Sqm.		**0.00**	INR Zero Only
6.06	Earth filling work for proper leveling of water work site, in accordance with the contour map and Grid map of existing site enclosed (Drawing no.D-1), including leveling, dressing, excavation and filling of earth where necessary and also including all labour, materials, T&P etc.required for proper completion of works and also including carriage of earth from within a distance of about 8 km. from the site of works as per instructions of Engineer -in -charge.	517.50	Cum.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
6.07	Construction of Tube Well capable of providing 1500 LPM sand free discharge, including MS Pipes, Drilling of bore, supplying, fixing & lowering of housing pipe as per IS : 4270 including M.S. sockets duly welded with M.S. electrodes to have extra strength. Tubewell Assembly containing of MSERW housing pipe, Plain/ Slotted pipe, M.S. reducer, M.S. bail plug, M.S. Clamp, well Cap, M.S. rings, Centre guide, etc of desired size. Development by Air compressor & O.P. Unit. with transportation of all materials, T&P etc required for proper completion of work including testing of water sample as per specification : -Telescopic boring upto total depth of 200 m BGL consisting of drilling including logging of bore well by suitable electrical logger as following : - 625 mm dia. bore from G.L. to 60m BGL. - 500 mm dia. bore from 60m to 200m BGL. -Supplying,fixing and lowering of pipe including supply and shrouding of Lal kuan Pea Gravel 1.6-4.8 mm size for T.W. (as per requirement) as per IS:4097-1988, plain/slotted pipe as following : 300 mm dia 7.1mm thick MSERW plain pipe from GL to 55m BGL . 200 mm dia 7.1mm thick MSERW plain / slotted pipe 55m to 180 m BGL. - Supply of suitable size M.S. Reducer, M.S. bail plug, M.S. clamp, M.S. well cap, M.S. rings, suitable number of centre guide & support girder etc as per requirement. - Development of Tubewell by Air Compressor by minimum 350 PSI / as per requirement and as per specification. - Development of Tubewell by 3 Cusec O.P. unit. Note : Depth of Tubewell is tentative however actual depth will depend upon the availability of suitable aquifer to achieve the required sand free discharge.	2.00	Job		**0.00**	INR Zero Only
6.08	Supply and installation of 1500 LPM, 50 meter head 30 H.P. submersible clear water Pump set (As per IS 8034:1989) including switch gear (cubical panel board, starter, cable, power wiring & earthing etc) necessary tools, main piping & valves, pressure gauge, depth gauge with their fittings, double earthing. Supply and fixing of suitable size chlorinating plant. Supply and fixing of 2 ton capacity 4.5 m lift chainpully block, Electric resistance rubber sheet of 1x2 m size 12.5 mm thick, complete in all respect as per detailed specifications. (All supply will be done after the approval of Engineer-in-charge.	2.00	No.		**0.00**	INR Zero Only
6.09	Supply of one number Spare Pump set of 1500 LPM, 50 meter head 30 H.P. submersible clear water (As per IS 8034 : 1989) after approval of Engineer-in-charge.	1.00	No.		**0.00**	INR Zero Only
6.10	6 point wiring of Pump house for light with 2.00 sq.mm PVC insulated multi strand copper conductor cable in rigid PVC condult pipe on surface complete 14 S.W.G. copper earth continuously wire piano type switch and celling rose/angle/baton holder on 3mm thick phenolic laminated back light sheet etc complete in all respect including luminaries with IS amp. switch fuse unit as per instruction of Engineer-in-charge after approval of drawing.	2.00	Job		**0.00**	INR Zero Only
6.11	Supply, installation & commissioning of suitable capacity Automatic Voltage stabilizer input voltage 300-500±6% or suitable range as per site condition and output voltage 415 ±6%, 3 phase 50 C/S AC for satisfactorily run the above pump set, complete in all respect as per detailed specifications.	2.00	Job		**0.00**	INR Zero Only
6.12	Erection & commissioning of Transmission line of ACSR weasel conductor including all materials i.e. poles, conductors , insulators, required cable, etc from the nearest existing H.T. line Supply & fixing of 11KV/0.4V, 63 KVA Transformer with Double Pole Sub Station including security charges , Energy Meter, System loading charges , Fixed charges, processing fees etc completed in all respect.	2.00	Job		**0.00**	INR Zero Only

1	2	3	4	5	6	7
6.13	Provide all materials, labour, T&P etc. complete and construct Pump house size (3.6x3.0x3.0)m Chlorinating room size (2.5x1.8x3.0)m as per departmental type design and drawing (drawing no-D-2) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	2.00	Job		**0.00**	INR Zero Only
6.14	Provide all materials, labour, T&P etc. complete and constructed Bye-pass chamber for pump house as per departmental type design and drawing (drawing no.D-3) and as per the specifications for civil work given in the bid document, including supply of all material, labour and T&P etc complete as per instructions of Engineer -in -charge.	2.00	No.		**0.00**	INR Zero Only
6.15	Supply of all materials labour T&P etc. for complete construction of R.C.C. Over Head Tank of 900 KL capacity with 18 Meter staging above ground level with main components, including cost of soil testing and assuming bearing capacity of soil as 8 MT, with supply of design and drawings. All the water retaining components of OHT shall be casted in M-30 concrete and minimum grade of concrete of foundation and staging should be M-25 with approved cement, coarse sand and stone grit as per I.S. 11682 and I.S.456 Seismic effects and wind load should be taken into consideration as per I.S. 1893 for earthquake resistance and I.S. 875 part-III for wind load on structure and including 1M wide RCC staircase, 1 m wide R.C.C. M30 balcony, M.S. ladder made of 50x50x6 mm angle section and 20mm plain M.S. bars with hand rails of 20mm medium class G.I. pipes, One aluminum ladder inside the tank from top dome to bottom dome, R.C.C. railing with 20mm dia medium class G.I.pipe (in 3 rows) on both sides of stair case, supported on 50x50x6mm M.S. angle section, spaced at intervals not more than 1.5m, Proper ventilator at top dome in circular shape of 1.2 m dia, Water level indicator fabricated with sensor connecting to automation, Lightening conductor as per I.S.S.2309 or its latest amendments of latest electricity rules, consisting of proper elevation rod with 5 or more fork points as prescribed in ISS 2309-1969 and ISS 3013-1966, C.I. manhole of min 60x60cm size with locking arrangement, Supply, fixing, jointing of C.I.D/F Pipes of appropriate size with C.I.D/F specials conforming to IS 8329/2000 as vertical pipes for inlet, outlet, overflow and washout as per latest / relevant I.S. specifications with all jointing materials for proper completion of work, Supply and Fixing of appropriate size manually operated D/F Sluice Valve / Butter Fly Valves as per ISS 700/1969 or its latest amendments class “A” working pressure 10 Kg/cm2, Construction of bed blocks in 1:2:4 PCC with cement, coarse sand and approved stone grit , Construction of washout / overflow chamber and chambers for sluice / butter fly valves as per departmental type design and drawing, Supply of 200 mm dia PVC pipe as per I.S.-4985/2000 for disposal of water from overflow and washout chamber to suitable point outside the water works compound, Painting of all concrete surface and steel pipe works with three coats of approved cement paint and anticorrosive paints.	1.00	Job		**0.00**	INR Zero Only
6.16	Extra for cost variation due Soil bearing capacity from assumed bearing capacity of 8 MT/Sqm.	1.00	Job		**0.00**	INR Zero Only
6.17	Excavation of earth in ordinary soil (loam, clay or sand) for pipe line and rising main trenches including lift upto 1.50 m and lead upto 50 m and refilling watering, ramming of the excavated earth into the trench and also disposal of surplus earth upto 50m from the center of the trenches including supply of all material labour, T&P etc complete as per instructions of Engineer -in -charge.	25128.20	Cum.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
6.18	Supply of following sizes (D.I. K-7) pipes for rising main conforming to latest/relevant I.S. 8329/2000 Specifications with all jointing materials such as CIS/S or D.F specials conforming to latest /relevant I.S. specifications, suitable for D.I pipes, as per IS-1239 /2000 and IS 8329/2000 or their latest amendment including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches).all complete as per instructions of Engineer -in -charge.					
6.19	200 mm dia	395.00	Rmt		**0.00**	INR Zero Only
6.20	Supply of following sizes pipes for distribution system conforming to latest/ relevant I.S. 4984/1995 Specifications with all jointing materials and specials conforming to latest /relevant I.S. specifications including F.O.R. destination and all taxes and insurance etc. with loading, unloading and Carting up to site of work, also including specials for these pipes and lowering them into the trenches and laying true to alignment and gradient and jointing etc. complete (including testing of pipe lines and cutting of pipes for making up the length but excluding the cost of trenches) all complete as per instructions of Engineer -in -charge.					
6.21	200 mm dia AC Pipe (Class-15 by MAZA)	4444.00	Rmt		**0.00**	INR Zero Only
6.22	160 mm dia HDPE Pipe Class PE-100, PN-6	515.00	Rmt		**0.00**	INR Zero Only
6.23	140 mm dia HDPE Pipe Class PE-100, PN-6	1408.00	Rmt		**0.00**	INR Zero Only
6.24	110 mm dia HDPE Pipe Class PE-100, PN-6	2466.00	Rmt		**0.00**	INR Zero Only
6.25	90 mm dia HDPE Pipe Class PE-100, PN-6	22466.00	Rmt		**0.00**	INR Zero Only
6.26	Supply and carting up to site of work of the following dia C.I. butterfly /sluice valves, class I, working pressure 10 Kg/cm2 confirming to IS: 780/1969 or its latest amendments, F.O.R. destination, and lowering them into the already prepared trenches, fixing in position and jointing them with pipelines and testing etc. complete and also including supply of jointing materials etc. complete .including all taxes and insurance, as per instructions of Engineer -in -charge.					
6.27	Sluice valve - 200 mm dia	5.00	Nos.		**0.00**	INR Zero Only
6.28	Sluice valve - 150 mm dia	1.00	Nos.		**0.00**	INR Zero Only
6.29	Sluice valve - 125 mm dia	2.00	Nos.		**0.00**	INR Zero Only
6.30	Sluice valve - 100 mm dia	5.00	Nos.		**0.00**	INR Zero Only
6.31	Sluice valve - 80 mm dia	14.00	Nos.		**0.00**	INR Zero Only
6.32	Scour valve - 80 mm dia	1.00	Nos.		**0.00**	INR Zero Only

1	2	3	4	5	6	7
6.33	Supply of 20 mm dia screwed down type air valve with gun metal seat conforming to latest/relevent I.S. specifications including all taxes and insurance, carting up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc complete) as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
6.34	Supply of under ground sluice value type fire hydrant consisting of 80 mm dia sluice valve, 80mm dia tail pieces, 80mm dia duck foot bend and 80 mm dia standard makes iron coupling with cap and etc. complete conforming to latest/relevent I.S.specifications including all taxes and insurance up to site of work and lowering them into the trenches, fixing in position and jointing them with pipelines and testing etc. complete (including supply of jointing materials etc. complete as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
6.35	Supply and fixing of the following size of Bulk Water Meter Enclosed Type Metallic gears (IS: 2373/1981) for measurement of bulk flow at different Locations (at the entry of gram panchayat) F.O.R. destination including all taxes and 5 year insurance etc. complete as per instructions of Engineer -in -charge.					
6.36	200 mm dia	2.00	No.		**0.00**	INR Zero Only
6.37	150mm dia	1.00	No.		**0.00**	INR Zero Only
6.38	Supply of all materials, labour, T&P. required and construct masonary type Bulk Water meter / Butterfly valves chamber including supply of M.S. Manhole cover as per departmental type design and drawing (Drawing no.D-4) including all material labour, T& P etc. complete as per instructions of Engineer -in -charge.					
6.39	200 mm dia	2.00	No.		**0.00**	INR Zero Only
6.40	150mm dia	1.00	No.		**0.00**	INR Zero Only
6.41	Construction of following type chambers as per department type design and drawing including Heavy duty M.S. Manhole Cover and all materials, labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge.					
6.42	Sluice valve chamber (masonry Type) (drawing no.D-4)	5.00	No.		**0.00**	INR Zero Only
6.43	Sluice valve chamber (surface box Type) (D-13)	22.00	No.		**0.00**	INR Zero Only
6.44	Fire Hydrant(drawing no.D-5) chamber	1.00	No.		**0.00**	INR Zero Only
6.45	Air Valve Chamber (drawing no.D-6)	1.00	No.		**0.00**	INR Zero Only
6.46	Scour Valve Chamber (drawing no.D-4)	1.00	No.		**0.00**	INR Zero Only
6.47	Design and construct Thrust Block made in R.C.C. with cement, coarse sand & 20 mm gauge stone ballast in proportion of 1:1.5:3, for pipe line, including supply of MS reinforcement wrought to required shape as necessary ,its bending, fixing & binding the same with 0.50 mm thick binding wire in position & necessary centering & shuttering including curing and supply of all materials, labour, T & P etc. required for proper completion of the work and as per specifications for RCC work as per instructions of Engineer -in -charge. (drawing no. D-14)	5.00	Job		**0.00**	INR Zero Only

1	2	3	4	5	6	7
6.48	Provide all materials labour, T&P etc. and construct double room staff quarter / office room at water works site identified by the Engineer-in-charge as per department type design and drawing and specifications of civil works laid down in the bid document, including all material labour, T&P etc complete for proper completion of work as per instructions of Engineer -in -charge. (Drawing No.D-7)	1.00	Nos.		**0.00**	INR Zero Only
6.49	Installation of simple T.W. automation system to control operation of the pumping plant with respect to high/low water level in OHT and electromagnetic online flowmeter in deliwery line of TW inside the pump house with arrangement for communication of data with GSM and GPRS system to show required parameters including all accessories etc. complete in all respect as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
6.50	Dismantling of Following type of surfaces including sorting out and stacking of serviceable materials and disposal of unserviceable materials upto a distance of 50m as per instructions of Engineer -in -charge.					
6.51	B.O.E. surface	1953.00	sqm		**0.00**	INR Zero Only
6.52	Bituminous surface	991.00	sqm		**0.00**	INR Zero Only
6.53	C.C. Road	293.00	sqm		**0.00**	INR Zero Only
6.54	Reinstatement of the following type of road surface with old and new materials including supply of all materials, labour, T&P etc. required for proper completion of the work as per instructions of Engineer -in -charge.					
6.55	B.O.E. Surface (Assuming 25% new brick and 75% old bricks used)	1953.00	sqm		**0.00**	INR Zero Only
6.56	Bituminous surface	991.00	sqm		**0.00**	INR Zero Only
6.57	C.C. Road	293.00	sqm		**0.00**	INR Zero Only
6.58	Provision for Nala, Road & Culvert crossing (drawing no.D-9) as per departmental type design and drawing including shifting of telephone cables etc. along the alignment of pipe line including supply of D.I. pipes and specials, and their laying and jointing testing etc. complete as per instructions of Engineer -in -charge.	20.00	Nos.		**0.00**	INR Zero Only
6.59	Making house connection from distribution line to outer wall of house, with supply of G.I. pipe (Average 10.0 mtr.) including specials, Brass ferrule, Saddle clamp etc. of suitable size, T&P etc. including excavation, laying and jointing for proper completion of work as per instructions of Engineer-in-charge. (drawing no.D-12).	1658.00	Nos.		**0.00**	INR Zero Only
6.60	Provision for trial and run of the scheme for 3 months.	3.00	Month		**0.00**	INR Zero Only
6.61	Construction of single tap pillar type stand post as per type design as per instructions of Engineer -in -charge.	1.00	Nos.		**0.00**	INR Zero Only
Total in Figures					**0.00**	INR Zero Only
Quoted Rate in Words		**INR Zero Only**				

Appendix 4

Drawings

a) Key plan showing scheme area marking habitations, important roads, prominent structures and all Major components of the proposed project to a specific scale.

b) Site plan showing the location of tube well, pump house, pumping main, Water tank. Power transformer/ solar power plant to a specific scale with boundary wall.

c) Standard type designs/ drawings for various units proposed in the scheme, including HSCs, valve chambers, thrust block and office cum care taker quarter etc.

APPENDIX 4 TO THE GENERAL CONDITIONS
FOR A CONTRACT
TO
BUILD AND OPERATE & MAINTAIN AND TRANSFER
SINGLE/MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, DISTT. GHAZIPUR

DPR TECHNICAL DETAILS APPENDIX

Salient feature, technical note, drawings of type design and index map attached

UNIT ESTIMATE FOR BOUNDRY WALL			
(Analysis For 10 Rmt)			
Sl. No.	Description of work	Qty.	Unit
1	Excavation in foundation in ordinary soil (loam, clay or sand) including lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.	3.60	m^3
2	Concrete with 40 mm gauge ballast, sand and cement in proportion (12 : 6 :1) in foundations and floors including supply off all materials, labour T and P etc. required for proper completion of the work.	0.90	m^3
3	I class brick work in 1:6 cement and local sand mortar in foundation and plinth including supply of all materials labour, T& p etc. required for proper completion of the work		
		2.76	m^3
4	Providing 75mm thick caping of RCC in ration 1:4:8 (1cement, 4 coarse sand and 8 part of 10mm thick stone grit)		
		0.17	m^3
5	20 mm thick damp proof course with cement and approved course sand in 1:2 including 5% water proofing materials of in the proportion as specified for proper completion of the work and including curing and shuttering as necessary.	2.30	m^2
6	As in item 3 above but in 1:4 superstructure including necessary cutting and moulding of bricks as required and also including honey comb brick work thickness of wall not to be less than 1/2 brick wall.		
		1.64	m^3
7	12 mm thick plaster in 1:6 with cement and local sand mortar over brick work minimum thickness not to be less than 10 mm, including supply of all materials, labour, T. & P. etc. Required for proper completion of the work.		
		36.16	m2
8	Finishing wall with waterproof Cement paint of approved make and quality over one priming coat on new work with two coats, to give an even shade. Including preparation of surface &supply of all materials labour T&P etc. required for proper completion of the work.	36.16	m^2
9	Providing wall putty on new surface with approved quality material of Berger/ JK / Birla or similar make 2 coats. (quantity same as item no. 7)	36.16	m^2
10	Site clearance &other unforeseen item.	1	Job

UNIT ESTIMATE OF PUMP HOUSE CUM CHLORINATING ROOM

(Size of Pump House - 3.6 x 3.0 x 3.0m)
(Size of Chlorinating Room - 1.8 x 1.20 x 3.0m)

Sl. No.	Item	Qty.	Unit
1	2	3	4
1	Excavation of earth in foundation in ordinarysoil with lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.	23.88	cum
2a	100 mm thick concrete with 40 mm gauge, brick ballast, local sand and cement in proportion of 12 : 6 :1 in foundations including supply off all materials, labour T and P etc. required for proper completion of the work.	5.75	cum
2b	Providing in floor in base concrete with 40 mm gauge ballast, sand and cement in proportion of 8 : 4 :1 in flooring including supply off all materials, labour T and P etc. required for proper completion of the work.	0.48	cum
3	Ist class brick work in 1:1:5 cement, coarse sand and local sand mortar in foundation and plinth including supply of all materials labour, T& p etc. required for proper completion of the work	10.94	cum
4	20 mm thick damp proof course with cement and approved course sand 1:2 including 5% water proofing materials of in the proportion as specified by the manufacturer including supply of all materials, labour, T&P etc required for proper completion of the work, including curing and shuttering as necessary.	5.75	sqm
5(a)	Ist class brick work in 1:1:5 cement, coarse sand & local sand mortor in superstructure including supply of all materials, labour, T&P etc required for proper completion of the work.	13.00	cum
5(b)	Same as Item No. 5 a (Half Brick works)	1.50	cum
6	R.C.C work in with cement, coarse sand and 20mm gauge approved stone ballast in proportion of (1:1.5:3) excluding supply of reinforcement and its bending, but including its fixing and binding the same with 0.50mm thick binding wire(to be supplied by the contractor) and including necessary centering and shuttering, supply of all materials, labour, T & P etc. required for proper completion of the work.		
(a)	Same as Item 6 but in Lintel.	0.30	cum
(b)	Same as Item 6 but in sunshade.	0.45	cum
(c)	Same as Item 6 but in beam.	0.32	cum
(d)	Same as Item 6 but in slabs.	4.50	cum
7	Cement concrete with 20 mm gauge approved stone ballast, coarse sand and cement in the proportion of 4:2:1 including supply of all materials labour, T & P etc. required for proper completion of the work in bed block for lintel, hold fast etc. with proper shuttering.	0.50	cum
8	Mild steel or iron work in R.C.C. work wrought to required shape as necessary including bending for proper completion of work including supply of steel & wastage.	378.00	kg.
9(a)	Supply & fixing of M.S. angle iron, door, chaukhat of 40 mm x 40 mm x 6 mm size with hold fasts including simple moulding, welding work and also supply of all materials, labour, T&P etc. required for proper completion of the work as per direction of Engineer-in-charge.	0.45	qtl
(b)	Supply & fixing of the Z-section M.S. window with grill as per departmental drawing including supply and fitting of handle locking arrangement etc. complete.	2.25	qtl
10	Provide 20 mm thick plaster 1:2 in cement and coarse sand over R.C.C roof including cleaning and washing the dust or any other foreign matter including supply of all material labour, T&P etc. required for proper completion of work.	23.00	sqm.
11	12 mm thick 1:1:5 plaster with cement, coarse sand & local sand, mortar over brick work minimum thickness not be less than 10 mm including supply of all materials, labour, T&P etc required for proper completion of work.	100.00	sqm
(a)	Same as Item No. 11 but over rough face.	90.00	sqm
(b)	Same as above item No. 11 but in proportion 1:4 with cement and local sand mortar on celling.	25.00	sqm

Sl. No.	Item	Qty.	Unit
1	2	3	4
(c)	20 mm thick cement plaster in dado or skirting in (1:2) consisting of cement and coarse sand laid in panels, finished with 3mm floating cost of neat cement or 1:5 cement and marble dust including supply of all materials labour T & P etc. required for proper completion of work.	3.00	sqm
12	25 mm thick 1:2:4 P.C.C. floor with cement and coarse sand & 20 mm gauge approved stone ballast laid on panels finished with 3 mm floating coat of neat cement and 7.5 cm thick base and concrete consisting of cement and local sand and Ist class brick ballast 4 cm gauge in proportion of 1:6:2 and removing any over lapping of mortar in the joints of the panels if any and giving them uniform finish including supply of all materials, labour, T&P etc required for proper completion of the work.	22.00	sqm
13	Supply and fixing 32 mm thick ISI marked flush door including supply and fixing and adjustment of hinges bolts locks, handles, springs and other fitting but excluding supply and painting of fittings.	4.60	sqm
(b)	Supply and fixing of 4 mm thick glass panes in panel of Z section M.S. Iron windows including supply of M.S. Clip and I.S.I. Mark putty etc. as required for proper completion of the work.	6.30	sqm
14	Painting or varnishing new iron work with one coat of priming and two coats of approved paint varnish including supply of all materials, Labour and T & P etc required for proper completion of the work.	22.00	sqm
15	Supply & fixing of rolled steel joists 200 mm x 100 mm size including its. Painting with approved paint and also paint of primer.	0.90	qt
16	20 mm wide drip coarse with cement mortar in proportion of 1:3 with cement and local sand .	15.00	RM
17	25mm thick 1:2:4 P.C.C apron (600 mm wide) with cement coarse sand and 20mm gauge approved stone ballast laid on panels finished with 3mm floating coat of neat cement and 7.5 cm thick base and concrete consisting of cement and local sand and 1st class brick ballast 4cm gauge in the proportion of 1:6:12 and removing any over lapping of mortar at the joints of panels if any and giving them uniform finish including supply of all materials, labour , T & P etc. required for proper completion of the work.	16.80	sqm
18	Construction of 100 mm wide PCC drain in proportion of 1:2:4 cement, coarse sand & 12 to 20 mm stone grit over base concrete in proportion of 1:4:8 cement, local sand & 40 mm gauge brick ballast including supply of all materials, labour, T&P etc. required for proper completion of the work .	28.00	RM
19	Earth filling in plinth including supply of necessary quantity of sand from a distance not exceeding 10 Km. from the site of work and including watering, dressing etc. required to include the cost of materials , labour, T &P etc required for proper completion of the work.	12.58	RM
20	Supply and fixing of rain water 110 mm PVC pipe with bend and clamp etc all complete.	7.50	RM
21 (a)	Distempering (three coat) with oil bound distemper of approved brand and manufacture & of required shade on undecorated wall surface to give an given shade over & including a priming coat with cement primer of approved brand after throughly brushing the surface free from morter droppings & other foreign matters & also including preparing the surface even with plaster of paris or approved synthetic & sand papered smooth including cost of all material (Inner plaster area)	115.00	sqm
21 (b)	Finishing walls with premium acrylic smooth exterior paint with silcon additives of required shade (DSR 13.47.1) (outer plaster area)	100.00	sqm
22	Supply and fixing of cement, Jali 30x45 cm at the floor level in the Chloronome for proper ventilation.	2.00	No.
23	Provide 3 mm thick floating coat of neat cement over the previously made plaster e.g. by pass chamber etc.	10.00	sqm
24	Providing 150 cm long 25 mm dia P.V.C. Pipe spout with slant cutting at ends and fixing the same with rich cement and coarse sand mortar in sunshade.	6.00	Nos.
25	Supply and fixing 25x3 mm thick glass strips in floor sand aprons panels in 1:3 cement and coarse sand mortar.	6.00	Nos.
(a)	25 x 3mm	16.80	R.M.

Sl. No.	Item	Qty.	Unit
1	2	3	4
(b)	40 x 3mm	30.00	R.M.
26	Construction of Byepass chamber	1.00	No.
27	Providing wall putty on new surface with approved quality material of Berger/ JK / Birla or similar make 2 coats. (quantity same as item no. 21a+21b)	215.00	m^2

UNIT ESTIMATE FOR 3.60M.WIDE GATE WITH PILLAR

Sl. No.	Description of work	Qtty.	Unit
1	Excavation in foundation in ordinary soil (loam, clay or sand) including lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.		
	For pillar	1.46	m^3
	For wall	0.11	m^3
		1.57	**m^3**
2	Concrete with 40 mm gauge brick ballast, local sand and cement in proportion (12 : 6 :1) in foundations and floors including supply off all materials, labour T and P etc. required for proper completion of the work.		
		0.26	**m^3**
3	Mild steel or iron work in plain work such as R.C.C. or R.B. work (when not included, in over all rates) ,wrought to required shape as necessary including bending for proper completion of the work including supply of steel and wastage.		
		101.64	**kg.**
4	R.C.C work with cement, coarse sand and 20mm gauge approved stone ballast in proportion of 1:2:4 in lintels of doors and windows, slab & chhajja excluding supply of reinforcement and its bending, but including its fixing and binding the same with 0.50mm thick binding wire(to be supplied by the contractor) and including centering and shuttering, supply of all materials, labour, T & P etc. required for proper completion of the work.		
		0.56	**m^3**
5	I class brick work in 1:4 cement and local sand mortar in **foundation and plinth** including supply of all materials labour, T& p etc. required for proper completion of the .work		
		0.21	**m^3**
5a	same as item no. 5 but in S/S in half brick wall		
		0.24	**m^3**
5b	same as item no. 5a but in 1:6 in one brick wall	**0.23**	**m^3**
6	20 mm thick damp proof course with cement and approved course sand in 1:2 including 5% water proofing materials of in the proportion as specified for proper complition of the work and including curing and shuttering as necessary.		
		0.16	**m^2**
7	12 mm thick plaster in 1:6 with cement and local sand mortar over brick work minimum thickness not to be less than 10 mm, including supply of all materials, labour, T. & P.etc. Required for proper completion of the work.		
		14.86	**m^2**
8	Suuply & fixing of 40 mm dia G.I. pipe into gate piller.1.30 m long.	**2.60**	**R. M.**
9	M.S. work in small sizes and secetion for gate including drilling holes, reveting or welding including labour T. P. etc required for proper completon of work.		
	size - 3.60*1.20	**1.60**	**Qt.**
10	Supply and fixing of expended metal on iron gate of approved quality including supply of nuts,bolts & ribates, labour, T&P etc. required for proper completion of work.		
		4.32	**m^2**
11	Supply and fixing of ground glass pans of 40cm.x28cm. Size.	**2**	**each**
12	Painting or varnishing new iron work in small areas or new wood work with one coat priming and one coat of approved paint or varnish including supply of all materials, Labour and T & P etc required for proper completion of the work.		
		2.16	**m^2**
13	Finishing wall with waterproof Cement paint of approved make and quality over one priming coat on new work with two coats, to give an even shade. Including prepration of surface &supply of all matrials labour T&P etc. required for proper completion of the work.		
	Same as item no 7	**14.86**	**m^2**
14	Providing wall putty on new surface with approved quality material of Berger/ JK / Birla or similar make 2 coats. (quantity same as item no. 13)	**14.86**	**m^2**

UNIT ESTIMATE FOR SINGLE ROOM STAFF QUARTER ONE SET OF TWO STAFF QUARTER (TYPE - 1)			
S.N	Description of work	Qtty.	Unit
1	Excavation in foundation in ordinary soil (loam, clay or sand) including lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.		
		48.21	m^3
2	Concrete with 40 mm gauge brick ballast, local sand and cement in proportion (12 : 6 :1) in foundations and floors including supply off all materials, labour T and P etc. required for proper completion of the work.		
		9.91	m^3
2a	Providing in floor in base concrete with 40 mm gauge ballast, sand and cement in proportion of 8 : 4 :1 in flooring including supply off all materials, labour T and P etc. required for proper completion of the work.	1.65	m^3
3a	I class brick work in 1:6 cement and local sand mortar in foundation and plinth including supply of all materials labour, T& p etc. required for proper completion of the work.		
		34.12	m^3
3b	As in item 3a above but in superstructure including necessary cutting and moulding of bricks as required and also including honey comb brick work thickness of wall not to be less than 1 brick.		
		60.02	m^3
3c	As in item 3a above but in 1:4 superstructure including necessary cutting and moulding of bricks as required and also including honey comb brick work thickness of wall not to be less than 1/2 brick wall.(court yard)		
		3.21	m^3
4	25 mm thick damp proof course with cement, approved course sand and 12 mm. stone grit in 1:1.5:3 including 5% water proofing materials of in the proportion as specified for proper complition of the work and including curing and shuttering as necessary.		
		21.56	m^2
5	R.C.C work with cement, coarse sand and 20mm gauge approved stone ballast in proportion of 1:2:4 in lintels of doors and windows,slab&chhaja excluding supply of reinforcement and its bending, but including its fixing and binding the same with 0.50mm thick binding wire(to be supplied by the contractor) and including centering and shuttering, supply of all materials, labour, T & P etc. required for proper completion of the work.		
	SLAB	8.12	m^3
	BEAM/LINTAL - Verandha	1.16	m^3
	CHHAJJA - Verandha	1.75	m^3
6	Mild steel or iron work in plain work such as R.C.C. or R.B. work (when not included, in over all rates) ,wrought to required shape as necessary incluiding bending for proper complition of the work incluiding supply of steel and wastage.	871.00	kg.
7	Cement concrete with 20 mm gauge approved stone ballast,coarse sand and cement in the propotion of 4:2:1 including supply of all materials labour, T & P etc. required for proper completion of the work.		
	for fixing of hold fast	0.79	m^3
8	Supply &fixing of angle iron of size 40*40*6mm door chaukhat including fixing of holdfast &125 mm size heavey duty hinges etc. complete.		
	0.75*2.10 - 8no. & 0.9*2.10-6no.	270.00	kg.
9	Supply &fixing of angle iron of size 40*40*6mm window chaukhat with grill including fixing of holdfast & 100 mm size heavey duty hinges etc. complete.		
	1.20 * 1.50 - 4no,1.20 * 1.10 - 2no., 0.50*1.50 - 2no.	470.00	kg.
10	Supply and fixing of 35 mm thick plywood door shutter including AL drop tower bolt,handle,silencer & stoper etc. complete.All the accessaries should be heavey duty & approved make & quality.		
		14.49	m^2
11	Supply and fix 35mm thick sheesham wood fully Panelled windows shutters including supply and fixing of wooden cleats and stops and fixing adjustments of hinges bolts locks handles spring and other fittings		
		19.29	m^2
12	Supply and fix 35mm thick sheesham wood fully panelled windows shutters excluding supply and fixing of wooden cleats and stops and fixing adjustments of hinges bolts locks handles spring and other fittings.		
		1.50	m^2
13	Supply &Fixing of oxidized iron fitting for door& window.		
	Same as item no. 10+11+12	35.28	m^2
14	Providing and fix M.S squire bar ventilators over opening including supply of all materials, labour, T&P etc. required for proper completion of work.		
	300*300mm 3Kg Each	18	Kg

S.N	Description of work	Qtty.	Unit
15	12 mm thick plaster in 1:6 with cement and local sand mortar over brick work minimum thickness not to be less than 10 mm, including supply of all materials, labour, T. & P.etc. Required for proper completion of the work.		
		186.30	m^2
15a	12 mm thick plaster in 1:6 with cement and local sand mortar over rough face of one brick work minimum thickness not to be less than 10 mm, including supply of all materials, labour, T. & P.etc. Required for proper completion of the work.		
		325.81	m^2
15b	20mmthick cement plaster in dado or skirting in (1:2) consisting of cement and coarse sand laid in panels finished with 3mm floating coat of neat cement or 1:5 cement and marble dust including supply of all materials labour T & P etc required for proper completion of the work.		
		37.16	m^2
16	11.5 cm string or drip-coarse in1:6 cement and local sand mortor		
		43.31	m
17	Earth filling in plinth including supply of necessary quantity of sand from A distance not exceeding 10 km. from the site of work and including watering, dressing, etc. Rate to include the cost of all materials, labour, T and P etc required for proper completion of the work.		
		32.71	m^3
18	25mm thick 1:2:4 plain cement concrete floor with cement coarse sand and 20mm gauge stone ballast laid in panels finished with 3mm floating coat of neat cement or cement and marble dust in ratio 1:5 as specified over and including 75mm thick base concrete consisting of cement local sand and 1st class brick ballast 40mm gauge in the proportion of 1:4:8 and removing any overlapping or mortar at the joints of panels if any and giving them uniform finish including supply of all materials labour and T and P etc. required for proper completion of the work.		
		62.62	m^2
18 - a	25mm thick 1:2:4 plain cement concrete floor with cement coarse sand and 20mm gauge stone ballast laid in panels finished with 3mm floating coat of neat cement or cement and marble dust in ratio 1:5 as specified.(without base concrete.)		
		1.02	m^2
19	First class brick floor laid in cement & local sand mortor (1:6). Pointing with 1:2 cement mortor over 75 mm thick base concrete in (1:4:8) cement, local sand & 40 mm gauge bric ballast.		
		53.97	m^2
20	Supply & lay complete 40 mm. thick Insulation layer of sand & clay over R.C.C. roof.		
		62.62	m^2
21	Concrete with 40 mm gauge brick ballast, white lime &surkhi in proportion of 100:18:36 in roof -trracing including supply off all materials, labour T and P etc. required for proper completion of the work.		
	Same as item no. 19	4.70	m^3
22	Painting or varnishing on new iron work in small areas or new wood work with one coat priming and two coat of approved paint or varnish including supply of all materials, Labour and T & P etc required for proper completion of the work.		
		95.16	m^2
23	White washing three coat including supply of all materials labour and T and P etc. required for proper completion of the work.		
		409.48	m^2
24	Finishing wall with waterproof cement paint of approved make and quality over one priming coat on new work with two coats, to give an even shade. Including prepration of surface &supply of all matrials labour T&P etc. required for proper completion of the work.		
	Same as no. 14	186.30	m^2
25	Provide and fix 100mm dia.A.C. down pipe complete with rose heads bands with eye hole and groutings etc fixed to walls with suitable clamps .		
		22.20	m.
26	For electrification work in to building	10% of sub total	
27	For sanitation work in to building	10% of sub total	
28	Anti termit treatment	62.62	m^2
29	Providing wall putty on new surface with approved quality material of Berger/ JK / Birla or similar make 2 coats. (quantity same as item no. 22+23)	504.64	m^2

UNIT ESTIMATE FOR S.V.CHAMBER (MASONERY TYPE)

Sl. No.	Description of work	Qtty.	Unit
1	2	3	4
1	Excavation in foundation in ordinarysoil (loam, clay or sand) including lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.		
		3.38	m^3
2	Concrete with 40 mm gauge brick ballast, local sand and cement in proportion (12 : 6 :1) in foundations and floors including supply off all materials, labour T and P etc. required for proper completion of the work.		
		0.23	m^3
3	I class brick work in 1:6 cement and local sand mortar in **foundation and plinth** including supply of all materials labour, T& p etc. required for proper completion of the .work		
		1.58	m^3
4	25mm thick 1:2:4 plain cement concrete floor with cement coarse sand and 20mm gauge stone ballast laid in panels finished with 3mm floating coat of neat cement or cement and marble dust in ratio 1:5 as specified over and including 75mm thick base concrete consisting of cement local sand and 1st class brick ballast 40mm gauge in the proportion of 1:4:8 and removing any overlapping or mortar at the joints of panels if any and giving them uniform finish including supply of all materials labour and T and P etc. required for proper completion of the work.		
		1.00	m^2
5	20mmthick cement plaster in dado or skirting in (1:2) consisting of cement and coarse sand laid in panels finished with 3mm floating coat of neat cement or 1:5 cement and marble dust including supply of all materials labour T & P etc. required for proper completion of the work.		
		5.60	m^2
6	R.C.C work with cement, coarse sand and 20mm gauge approved stone ballast in proportion of 1:2:4 in lintels of doors and windows, slab & chhajja excluding supply of reinforcement and its bending, but including its fixing and binding the same with 0.50mm thick binding wire(to be supplied by the contractor) and including centering and shuttering, supply of all materials, labour, T & P etc. required for proper completion of the work.		
		0.28	m^3
7	Mild steel or iron work in plain work such as R.C.C. or R.B. work (when not included, in over all rates) ,wrought to required shape as necessary incluiding bending for proper complition of the work incluiding supply of steel and wastage.		
		18.72	kg.
8	Supply and fixing 600mm f heaveyduty man hole cover.	1	no.

UNIT ESTIMATE FOR SLUICE VALVE CHAMBER SURFACE BOX TYPE

Sl. No.	Description of work	No.	Qtty.	Unit
1	Excavation in foundation in ordinarysoil (loam, clay or sand) including lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.			
		1	0.07	m^3
2	Concrete with 40 mm gauge brick ballast, local sand and cement in proportion (8 : 4 :1) in foundations and floors including supply off all materials, labour T and P etc. required for proper completion of the work.			
		1	0.02	m^3
3	Cement concrete with 20 mm gauge approved stone ballast,coarse sand and cement in the propotion of 4:2:1 including supply of all materials labour, T & P etc. required for proper completion of the work.			
		1	0.05	m^3
4	Supply and fixing of C.I. Surface box 150*150 mm.			
		1	1	no.

UNIT ESTIMATE FOR SINGLE TAP PILLAR TYPE STAND POST

Sl. No.	Description of work	No.	Qtty.	Unit
1	2	3	7	8
1	Excavation in foundation in ordinarysoil (loam, clay or sand) including lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.			
		1	0.17	m^3
2	Concrete with 40 mm gauge stone ballast, local sand and cement in proportion (8 : 4 :1) in foundations and floors including supply off all materials, labour T and P etc. required for proper completion of the work.			
		1	0.13	m^3
3	Cement concrete with 20 mm gauge approved stone ballast,coarse sand and cement in the propotion of 4:2:1 including supply of all materials labour, T & P etc. required for proper completion of the work.			
			0.065	m^3
4	40 mm thick 1:2:4 plain cement concrete floor with cement coarse sand and 20 mm gauge stone ballast laid in panels finished with 3mm floating coat of neat cement or cement and marble dust in ratio 1:5 as specified.(without base concrete.)including supply of all materials labour, T & P etc. required for proper completion of the work.			
		1	1.00	m^2
5	Making PCC. drain in 1:2:4 in cement concrete with cement, coarse sand and 20 mm gauge stone ballast finished with 3mm floating coat of neat cement or cement and marble dust in ratio 1:5 as specified. including supply of all materials labour, T & P etc. required for proper completion of the work.			
	A - Excavation - 1*1.00*0.40*0.1 = 0.04 @ Rs. 70.26 = 2.81		0.04	Cum
	B - PCC. 1:4:8 (40mm.gauge stone grit) - 1*1.00*0.40*0.075 = 0.03 @		0.03	Cum
	C - PCC.1:2:4 (20mm gauge stone grit) - 1*0.30*0.15 = 0.045,(-) 1/2*22/7*0.5*0.5*1.00 = .004 net qty. = 0.041@		0.041	Cum
	D - Dado plaster in 1:2 = 0.25+0.16+0.25 = 0.67 @		0.67	Sqm
6	Provide and lay of 15mm dia nominal size G.I. pipe with specials. Including trenching supply of all materials labour, T & P etc. required for proper completion of the work.			
	A - Excavation - 1*1*0.30*0.30 = 0.09 cum.@		0.09	Cum
	B - Supply of 15 mm dia Medium class G.I. Pipe =1*10.00 = 10.00m.@		10.00	m
	C - Supply of G.I.spesials (10% cost of item no.6B) =		10%	
	D - laying of G.I. pipe = 1*10.00 = 10.00m.@ =		10.00	m
7	Meaking ferrule connection for S.P. Including trenching, fixing of clamp , ferrule& bailing out of water, sludge. including supply of all materials labour, T & P etc. required for proper completion of the work.			
		1	1	each
8	Provide and fixing of 15mm dia C.I.bib cock	1	1	no.
9	Provide and fixing of 15mm dia wheel valve	1	1	no.

UNIT ESTIMATE FOR AIR VALVE CHAMBER - 350MM X 350 MM X 500 MM SIZE

Sl. No	Description of work	No.	Qty.	Unit
1	2	3	7	8
1	Excavation in foundation in ordinarysoil (loam, clay or sand) including lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.			
		1	0.59	m^3
2	Concrete with 40 mm gauge brick ballast, local sand and cement in proportion (8 : 4 :1) in foundations and floors including supply off all materials, labour T and P etc. required for proper completion of the work.			
		1	0.068	m^3
3	I class brick work in 1:6 cement and local sand mortar in **foundation and plinth** including supply of all materials labour, T& p etc. required for proper completion of the .work			
			0.267	m^3
4	20 mm thick cement plaster in dado or skirting in (1:2) consisting of cement and coarse sand laid in panels finished with 3mm floating coat of neat cement or 1:5 cement and marble dust including supply of all materials labour T & P etc required for proper completion of the work.			
		4	0.7	m^2
5	Supply fixing of 350 mm dia perforated man hole cover with locking arrangement.	1	1	No
6	Cement concrete with 20 mm gauge approved stone ballast, coarse sand and cement in the proportion of 4:2:1 for grouting man hole cover including supply of all materials labour, T & P etc. required for proper completion of the work. For grouting			
		1	0.061	m^3
7	40 mm thick 1:2:4 plain cement concrete floor with cement coarse sand and 20mm gauge stone ballast laid in panels finished with 3mm floating coat of neat cement or cement and marble dust in ratio 1:5 as specified.(without base concrete.)			
		1	0.123	m^2

UNIT ESTIMATE FOR FIRE HYDRENT CHAMBER - 750MM X 450 MM X 1000 MM SIZE			
Sl. No.	Description of work	Qtty.	Unit
1	2	3	4
1	Excavation in foundation in ordinarysoil (loam, clay or sand) including lift up to 1.5m and lead up to 50m. Filling, watering and ramming of excavated earth into the trenches or into the space between the building and the sides of foundation trenches or into the plinth and disposal of surplus earth up to a distance of 50m. from the centre of the foundation trenches.		
		1.3585	m^3
2	Concrete with 40 mm gauge brick ballast, local sand and cement in proportion (8 : 4 :1) in foundations and floors including supply off all materials, labour T and P etc. required for proper completion of the work.		
		0.092625	m^3
3	I class brick work in 1:6 cement and local sand mortar in **foundation and plinth** including supply of all materials labour, T& p etc. required for proper completion of the .work		
		0.7636	m^3
4	25mm thick 1:2:4 plain cement concrete floor with cement coarse sand and 20mm gauge stone ballast laid in panels finished with 3mm floating coat of neat cement or cement and marble dust in ratio 1:5 as specified.(without base concrete.)		
		0.3375	m^2
5	20mmthick cement plaster in dado or skirting in (1:2) consisting of cement and coarse sand laid in panels finished with 3mm floating coat of neat cement or 1:5 cement and marble dust including supply of all materials labour T & P etc. required for proper completion of the work.		
		2.40	m^2
6	Supply fixing of 450 mm dia perforated man hole cover with locking arrangement.	1	No
7	R.C.C work with cement, coarse sand and 20mm gauge approved stone ballast in proportion of 1:2:4 in lintels of doors and windows, slab& chhajja excluding supply of reinforcement and its bending, but including its fixing and binding the same with 0.50mm thick binding wire(to be supplied by the contractor) and including centering and shuttering, supply of all materials, labour, T & P etc. required for proper completion of the work.		
		0.165165	m^3
8	Mild steel or iron work in plain work such as R.C.C. or R.B. work (when not included, in over all rates) ,wrought to required shape as necessary incluiding bending for proper complition of the work incluiding supply of steel and wastage.		
	12 mm,dia	7.75	kg.

UNIT ESTIMATE OF CROSSING OF CULVERT

(FOR 3.5 M WIDE)

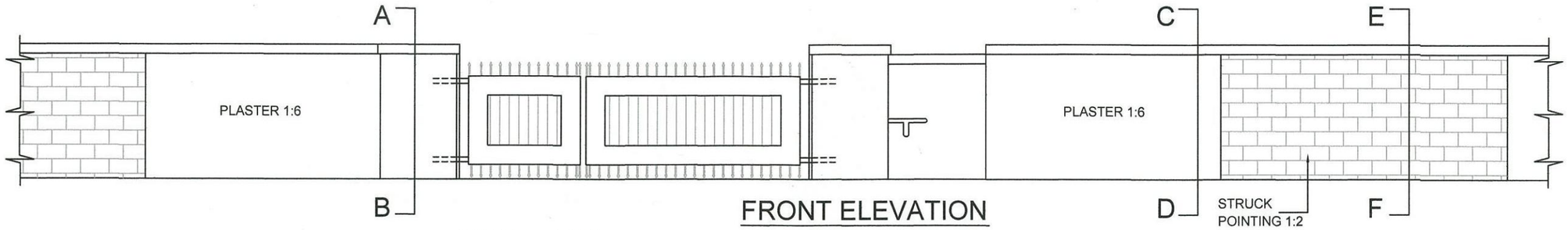
Sl. No.	Discription	Qtty.	Unit
1	2	3	4
1	Excavation for pipe line in ordinar soil (loam clay or and) including lift upto 1.5 m and lead upto 50 m. filling, watering and ramming of excavated earth in between the building and sides of the foundation trenches or into the plinth and disposal of surplus earth upto a distance of 50m.	2.30	cum
2	Supply Of 150 mm dia DI K-7 pipe for encasing.	5.5	m
3	Supply of 150 mm dia DI K-7 specials conforming to relevant ISS suitable for above DI K-7 pipes F.O.R. destination including all taxes and insurance.	10% of item r	
4	Carting from the store (up to 8 kms) the 150 mm dia DI pipe and specials to the site of work lowering them into trenches and laying true to alignment and gradient including the supply of jointing jointing materials such as nut &bolts, rubber insertion, white lead etc. complete but excluding cost of trenching cutting of pipes etc. for making of lengths but including making joints.	5.5	m
5	Insertion of distribution pipe into the encasing pipe including supply of T&P.	6.5	m
6	Provision for baricating etc.	10	m
7	Labour for traffic diversion.	3	no.
8	Cement concrete with 20 mm gauge stone ballast, local sand and cement in proportion (4:2:1) including supply of all materials, labour, T&P etc required for proper completion of work.	1.11	
	deduct for pipe	0.11	
		1.0	m^3

UNIT ESTIMATE OF HOUSE CONNECTION FOR 10 M LENGTH

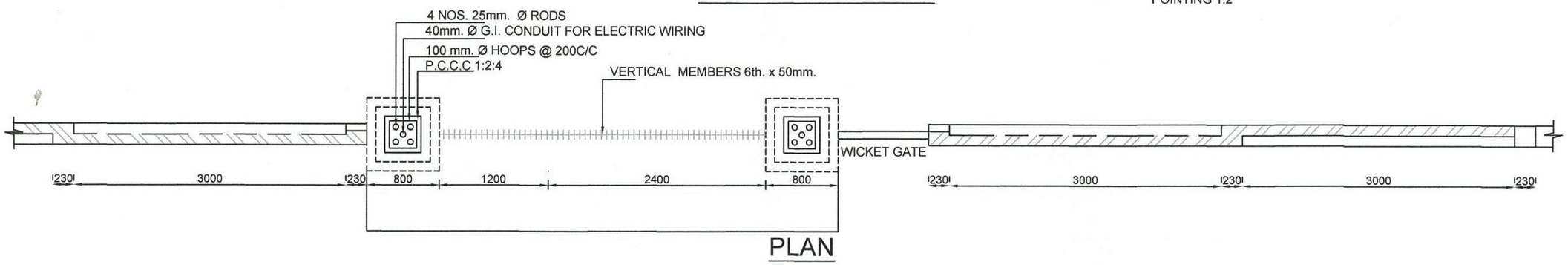
Sl. No.	Discription of works	Qtty.	Unit
1	2	3	4
1	EXCAVATION OF EARTH IN ORDINARY SOIL (LOAM, CLAY, SAND) WITH LIFT UP TO 1.5 M AND LEAD UP TO 50 M AND INCLUDING FILLING BACK, WATERING AND RAMMING OF EXCAVATED EARTH IN BETWEEN THE BUILDING AND SIDES OF THE FOUNDATION TRENCHES OR IN TO THE PLINTH AND DISPOSAL OF SURPLUS EARTH UP TO DISTANCE OF 50 METRE FROM THE CENTRE OF THE FOUNDATION TRENCHES .	4.23	m3
2	SUPPLY AND FIXING OF PVC SADDLE INCLUDING SUPPLY OF ALL MATRIALS, LABOUR, T&P ETC REQUIRED FOR PROPER COMPLETION OF WORK.	1	NO.
3	SUPPLY & FIXING OF BRASS FERRULE 6MM SIZE IN EXISTING MAIN INCLUDING UPPLY OF ALL MATERIALS, LABOUR, T&P ETC REQUIRED FOR PROPER COMPLETION OF WORK.	1	NO.
4	SUPPLY OF HDPE PIPE GRADE PE-100, 20 MM DIA HEAVY QUALITY INCLUDING ALL TAXES ETC COMPLETE.	8	M
5	LAYING AND JOINTING OF HDPE PIPE PE-100,20 MM DIA HEAVY QUALITY PIPE INCLUDING ALL SPECIALS ETC COMPLETE.	8	M
6	SUPPLY OF G.I. PIPE , 20 MM DIA MEDIUM QUALITY INCLUDING ALL TAXES ETC COMPLETE.	2	M
7	LAYING AND JOINTING OF G.I. PIPE 20 MM DIA MEDIUM QUALITY PIPE INCLUDING ALL SPECIALS ETC COMPLETE.	2	M
8	SUPPLY & FIXING OF BRASS BIB COCK, INCLUDING ALL MATERIALS, LABOUR T&P ETC ALL COMPLETE.	1	NO.
	SUPPLY & FIXING OF 20 MM DIA G.I. SOCKET	2	NO.
9	SUPPLY & FIXING OF 20 MM DIA G.I. ELBOW	4	NO.
	SUPPLY & FIXING OF 20 MM X 75MM LONG DIA G.I. NIPPLE	1	NO.
10	SUPPLY & FIXING OF 20 MM DIA G.I. UNION SOCKET	1	NO.
11	SUPPLY & FIXING OF 20 MM DIA PP ADOPTER	1	NO.
12	MAKING ARRANGEMENT FOR FIXING THE TAP WITH A RIGID SUPPORT IF AVAILABLE ELSE FIXING BY PASSING SUPPLY PIPE THROUGH THE 100MM DIA PVC PIPE AND CONCRETEING IT OVER, AS PER DIRECTION GIVEN BY ENGINEER IN CHARGE.	1	NO.

TYPE DRAWINGS

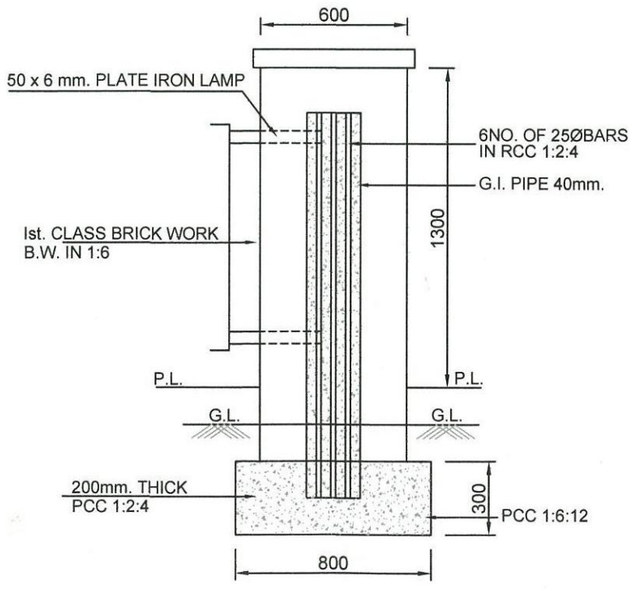
D-1 TO D-14



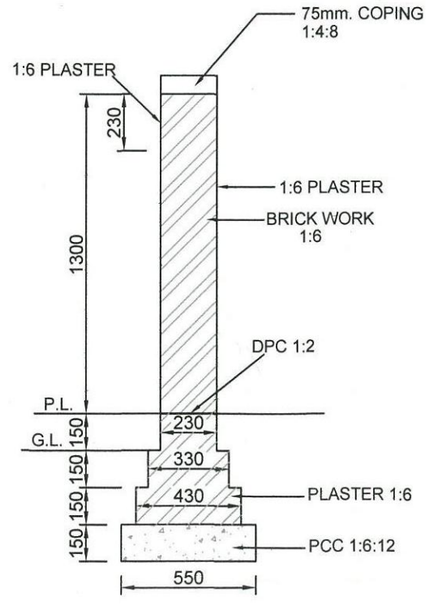
FRONT ELEVATION



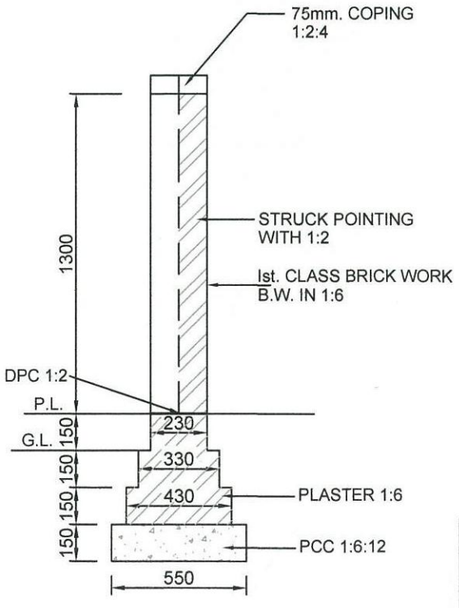
PLAN



SECTION A-B



SECTION C-D



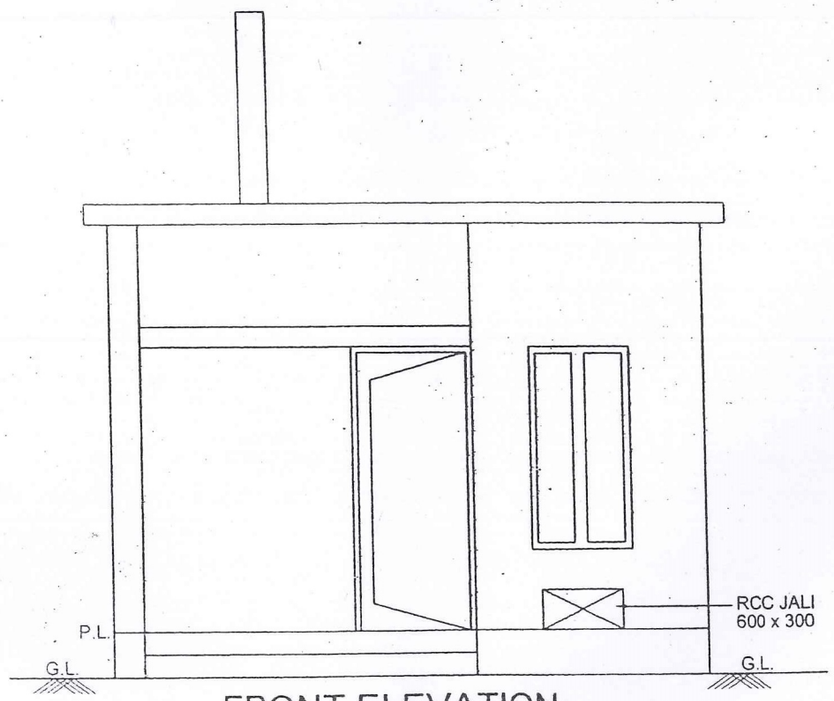
SECTION E-F

DRAWING D-1

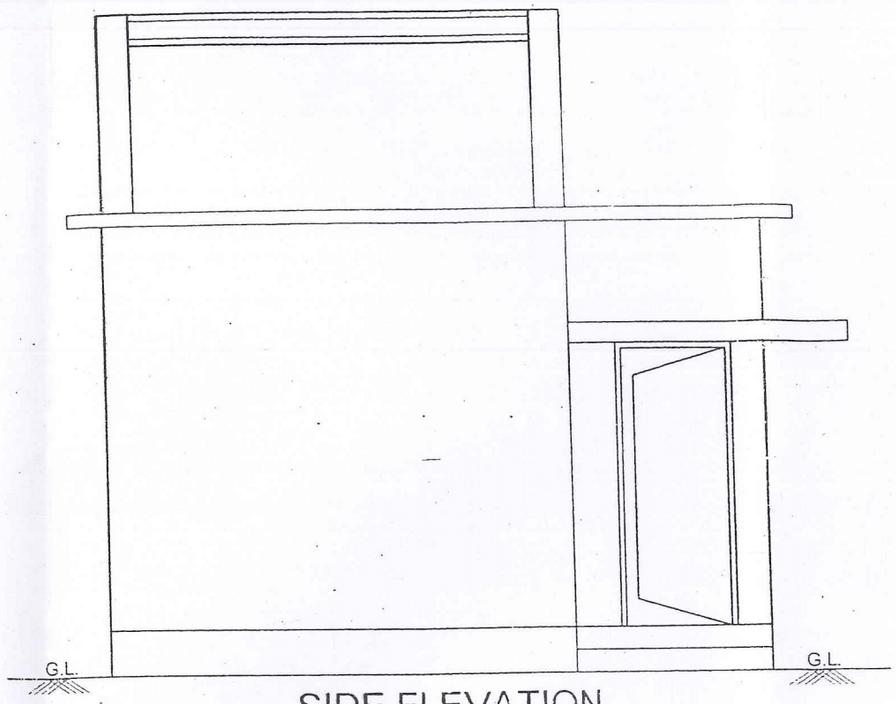
U. P. JAL NIGAM

TYPE DESIGN OF 3600 mm. WIDE GATE AND BOUNDARY WALL

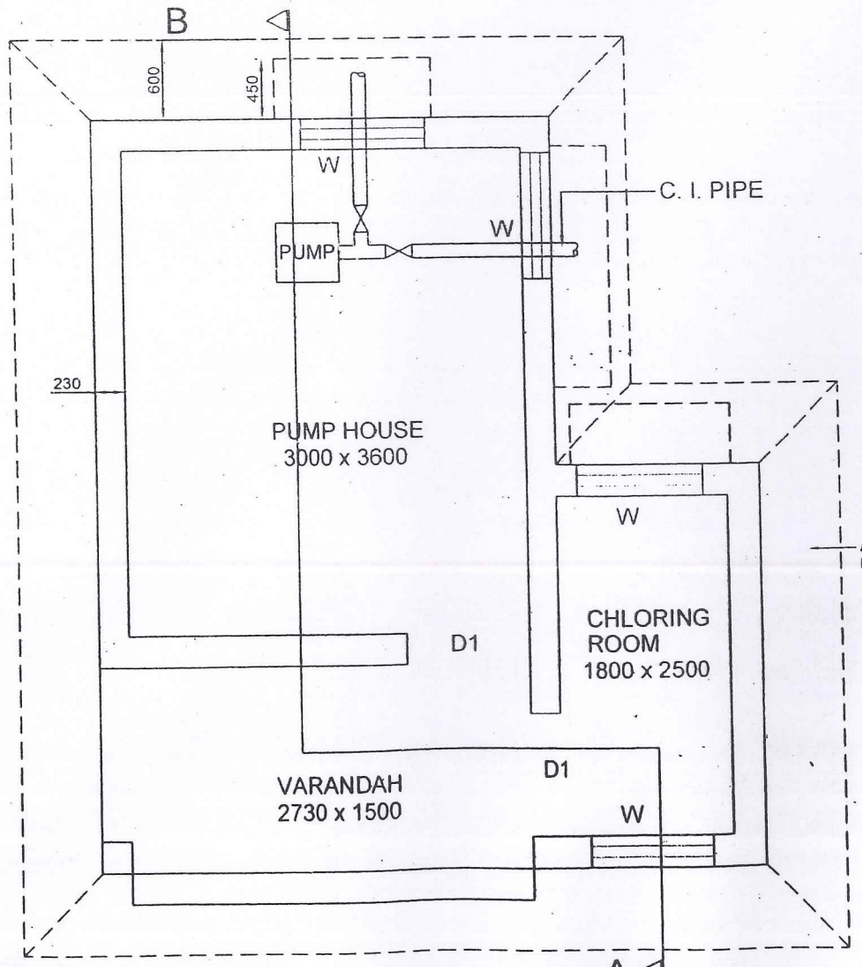
J.E. A.E. E.E.



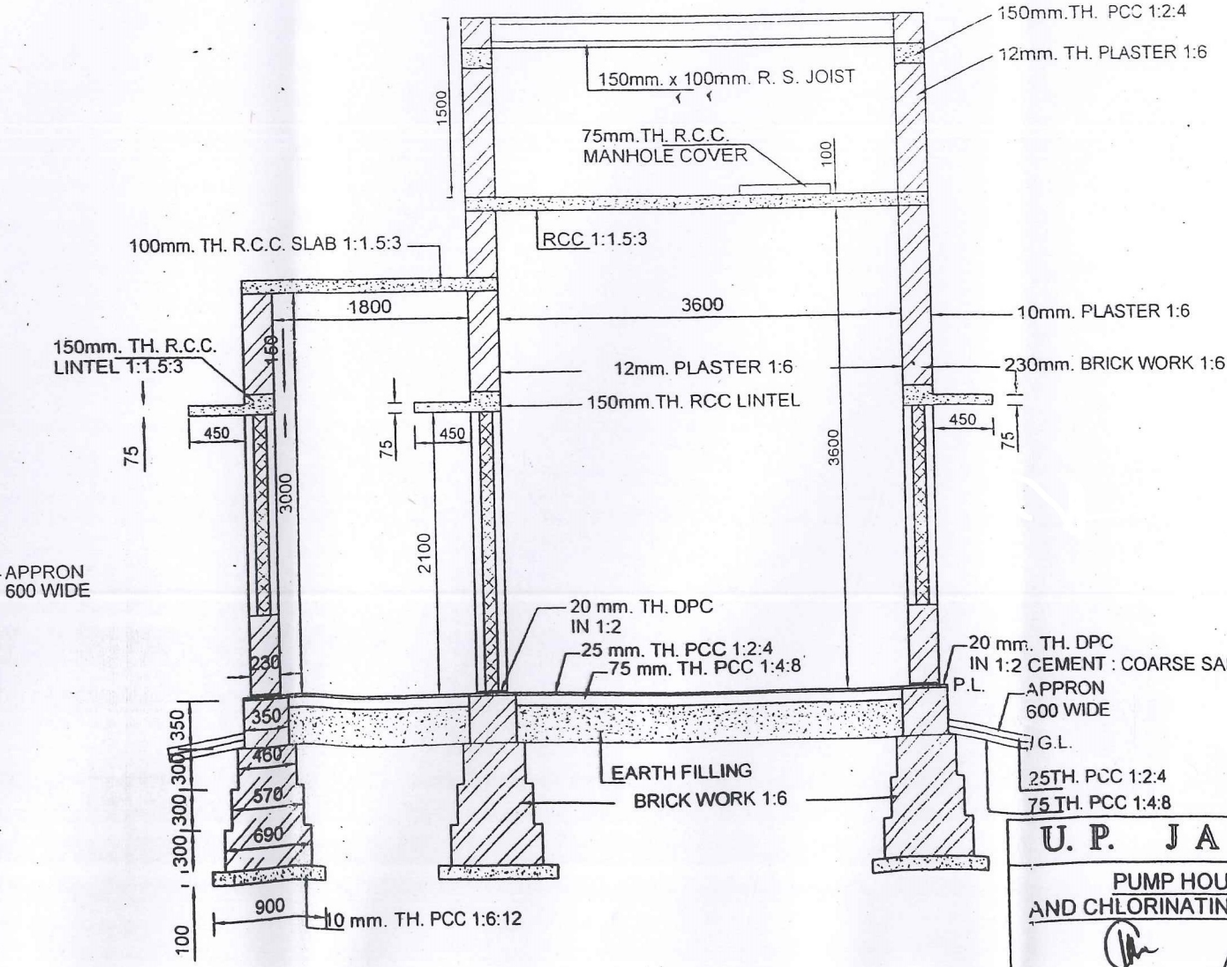
FRONT ELEVATION



SIDE ELEVATION



PLAN



SECTION AT A-B

DRAWING D-2

ALL DIMENSION ARE IN mm.

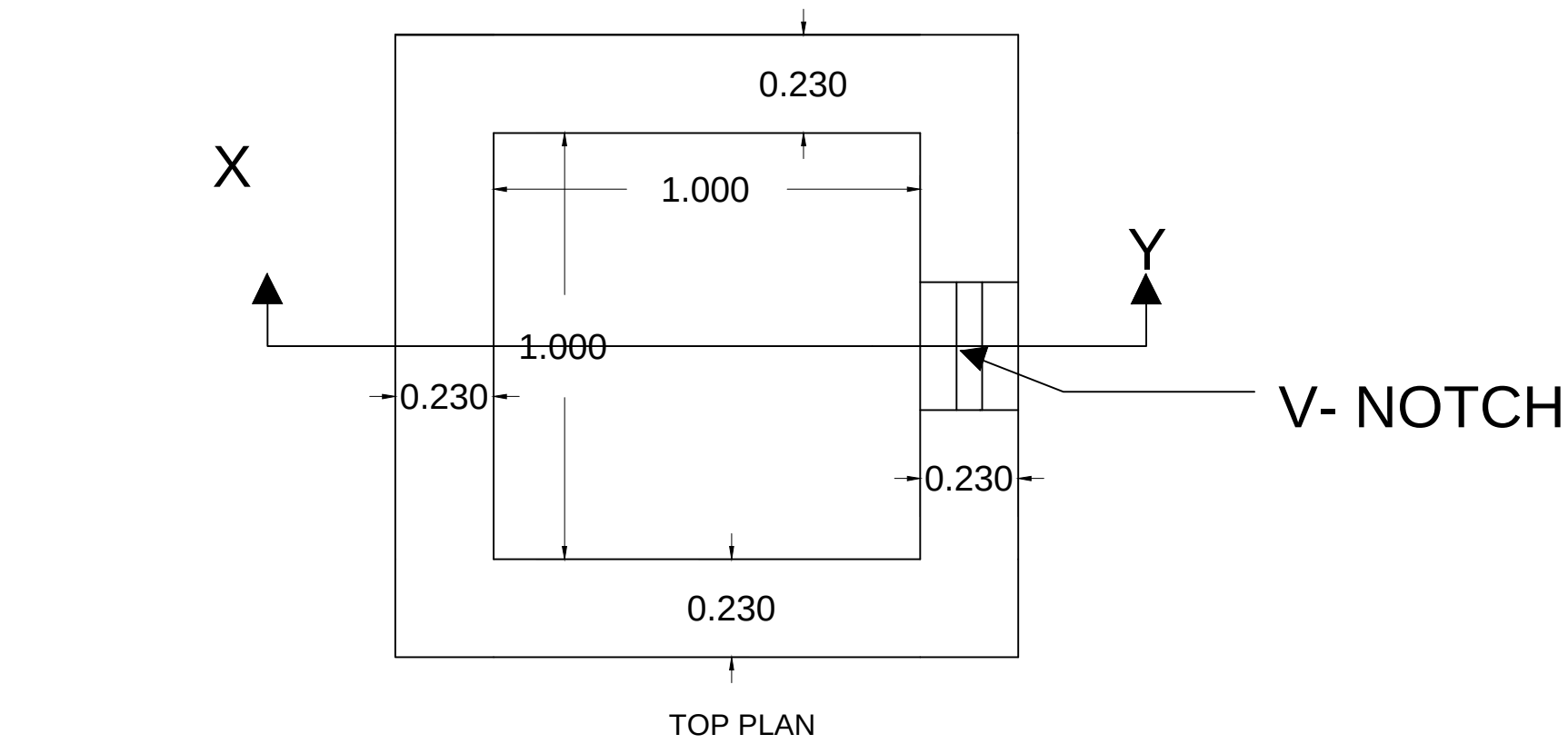
SCHEDULE OF DOOR WINDOW
DOOR D1 - 900 x 2100
WINDOW W - 900 x 1500

U. P. JAL NIGAM

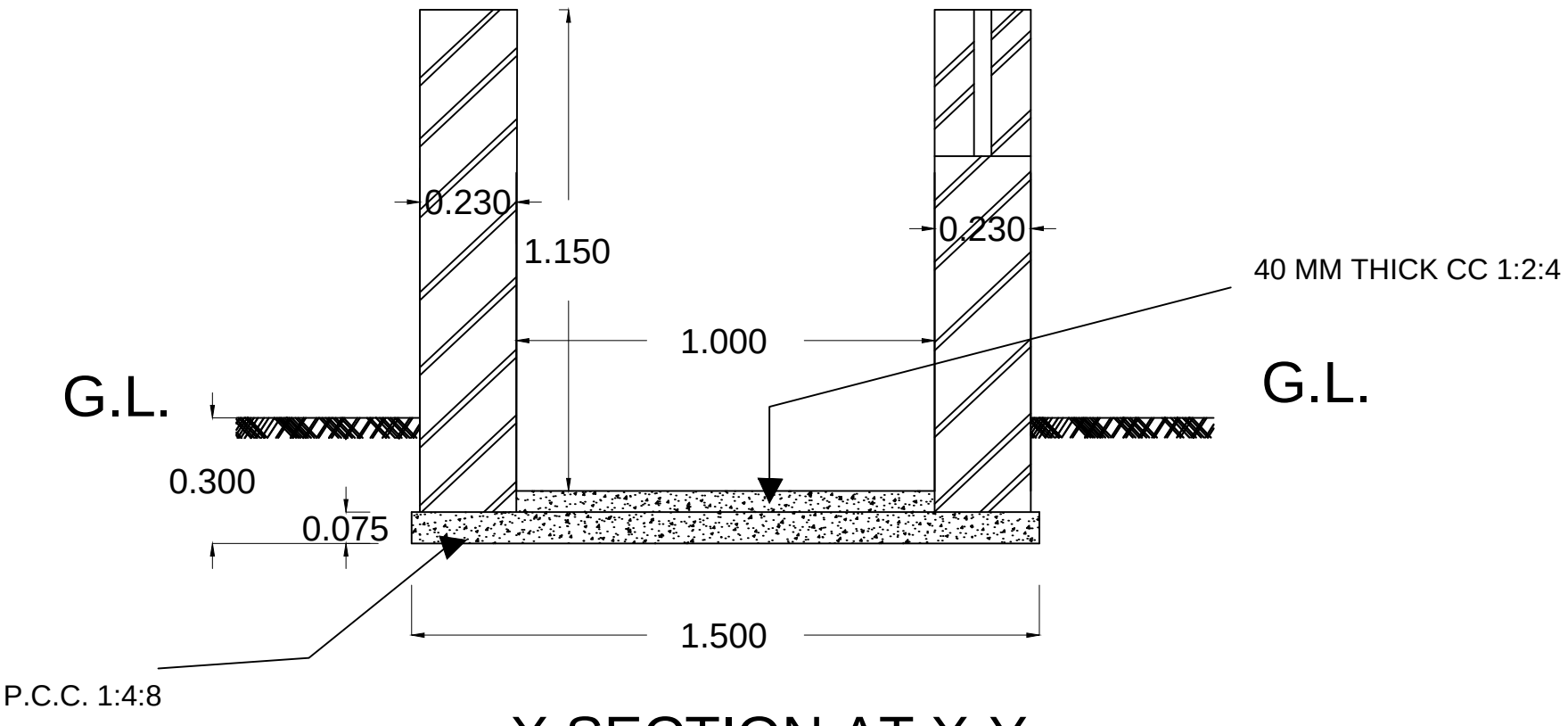
PUMP HOUSE 3600 x 3600x3000
AND CHLORINATINS ROOM 2500 x 1300 x 3000

J.E. A.E. E.E.

BYE PASS CHAMBER
(1150MM X 1000MM X 1000MM)

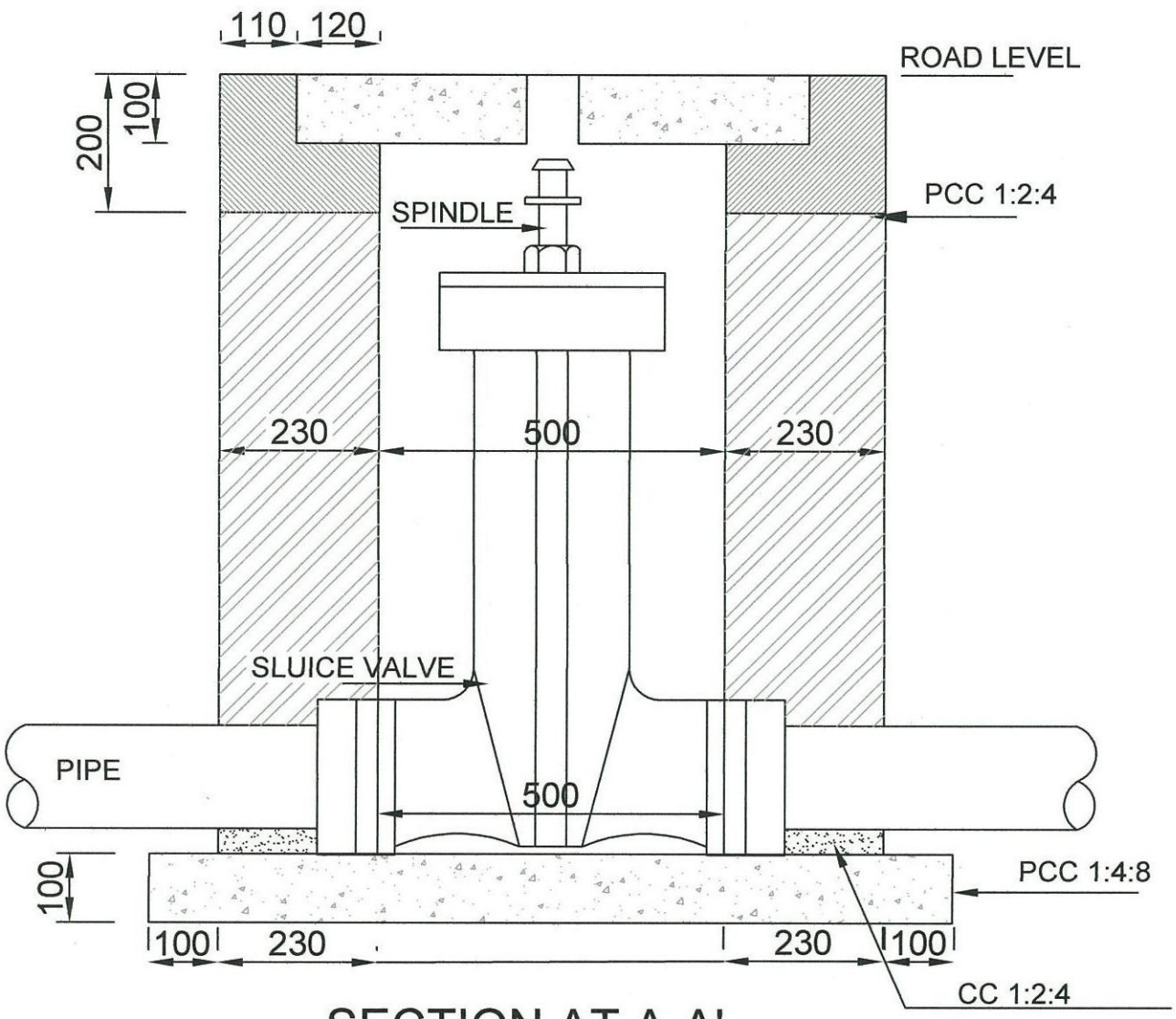


TOP PLAN

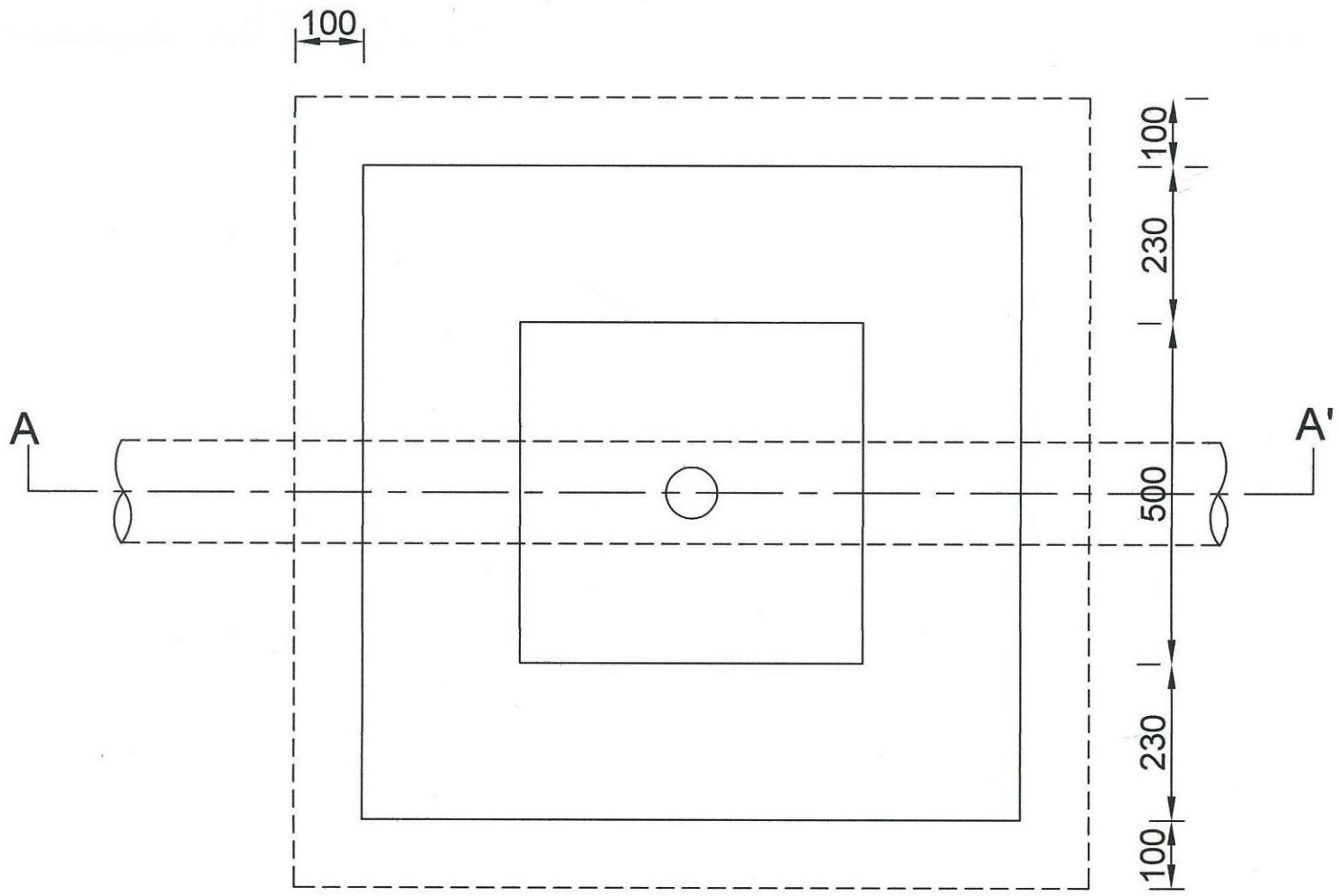


X SECTION AT X-Y

DRAWING D-3



SECTION AT A-A'



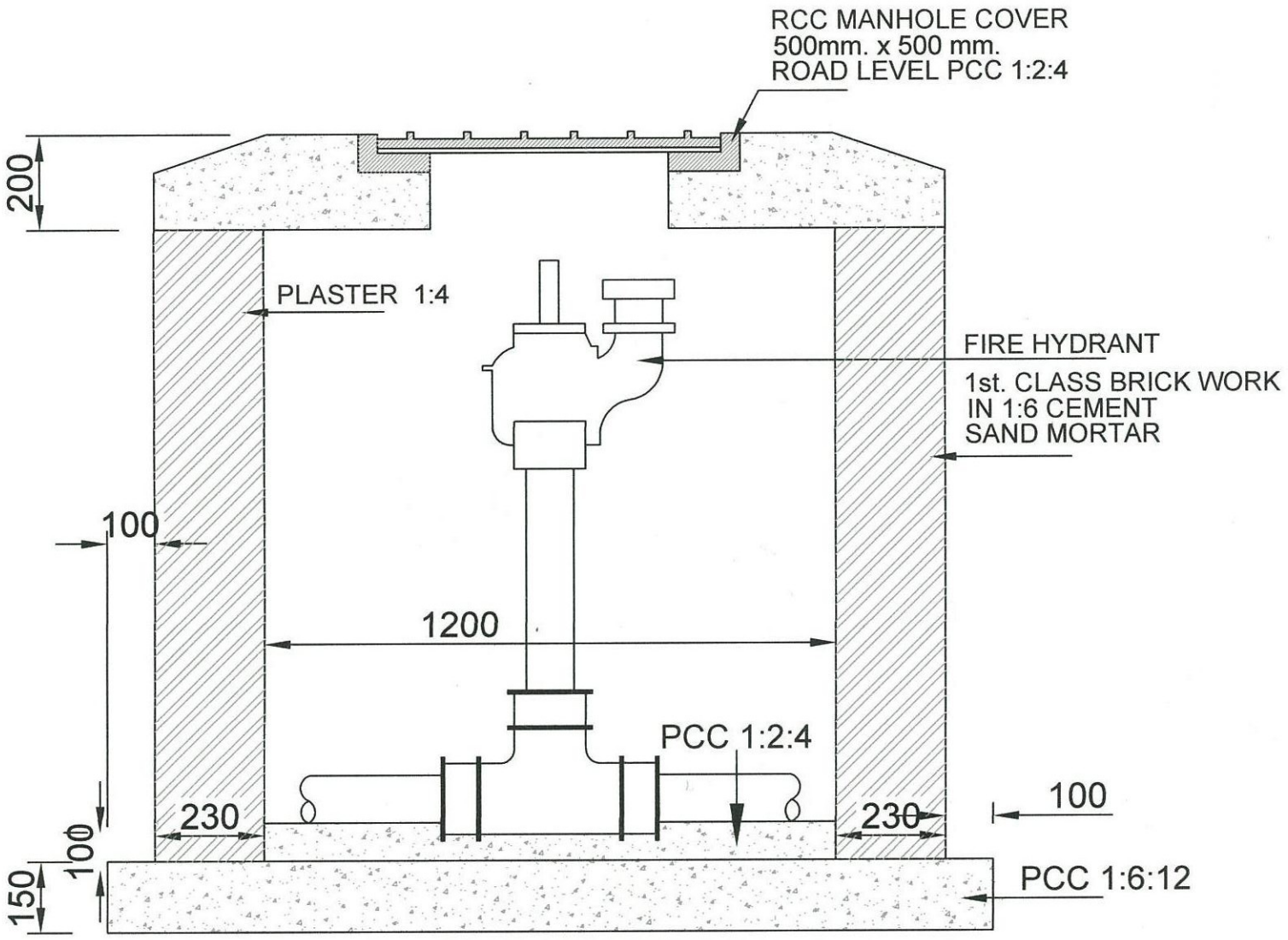
PLAN

DRAWING D-4

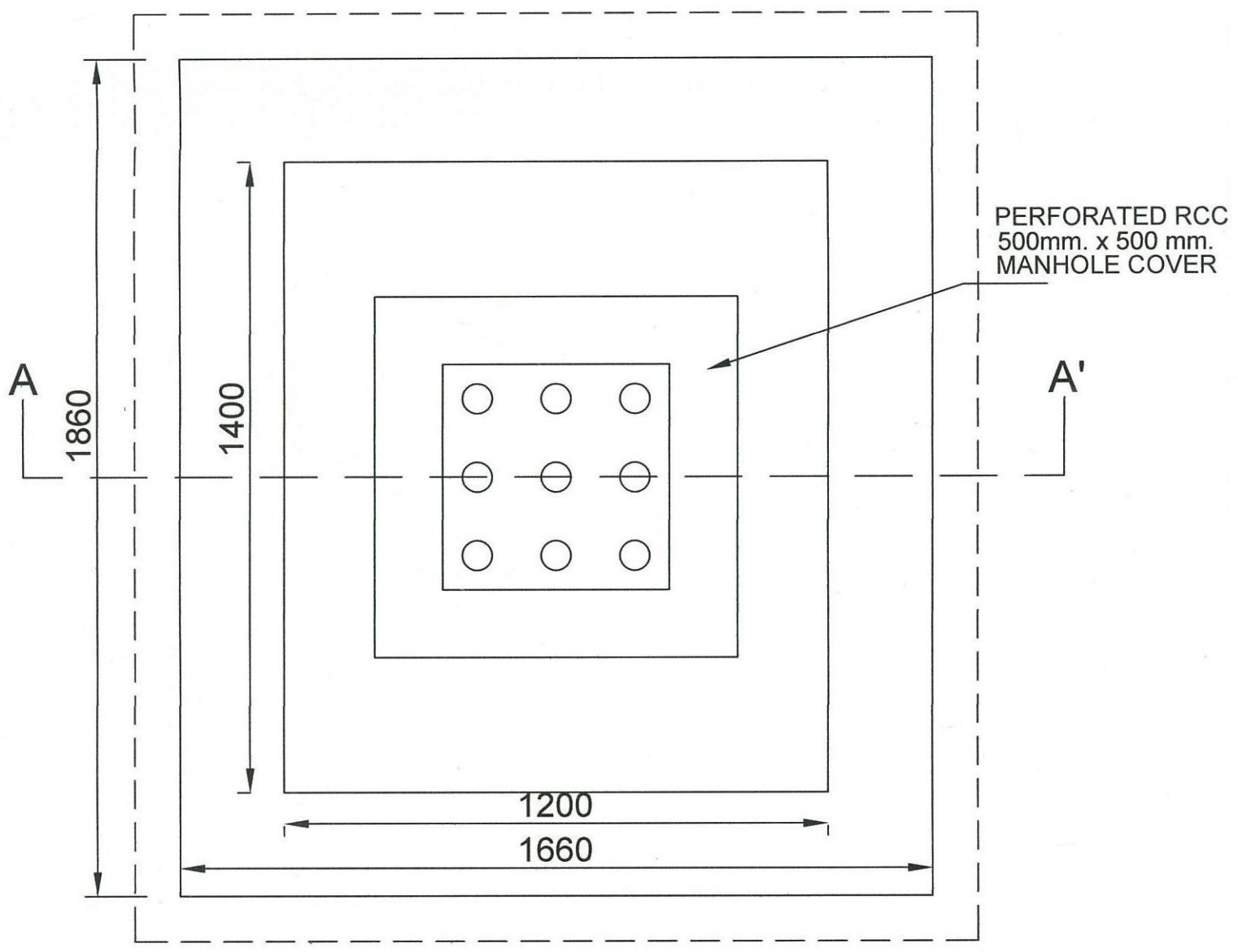
U. P. JAL NIGAM

TYPE DESIGN :

MASONARY TYPE SLUICE VALVE CHAMBER



SECTION AT A-A'



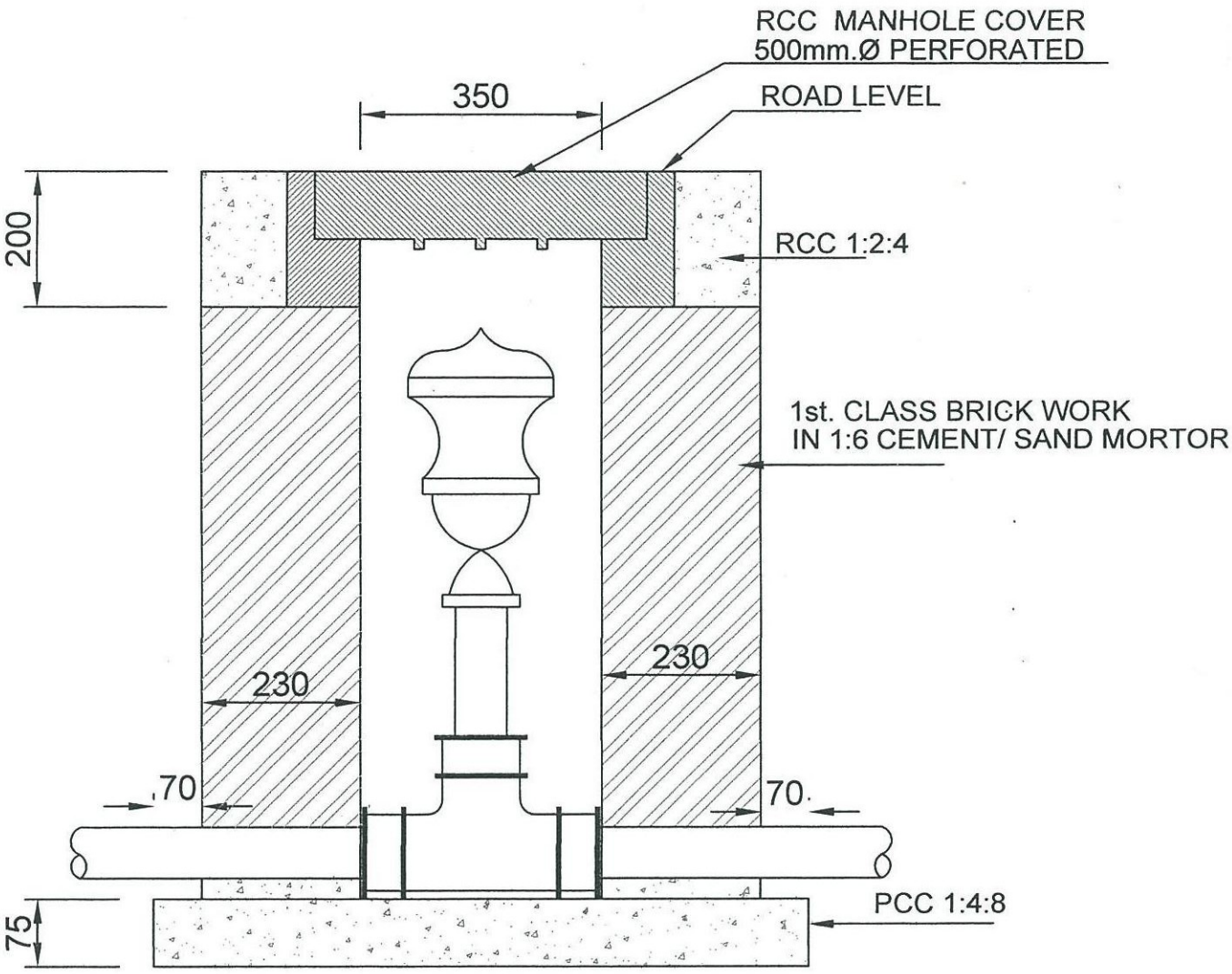
PLAN

DRAWING D-5

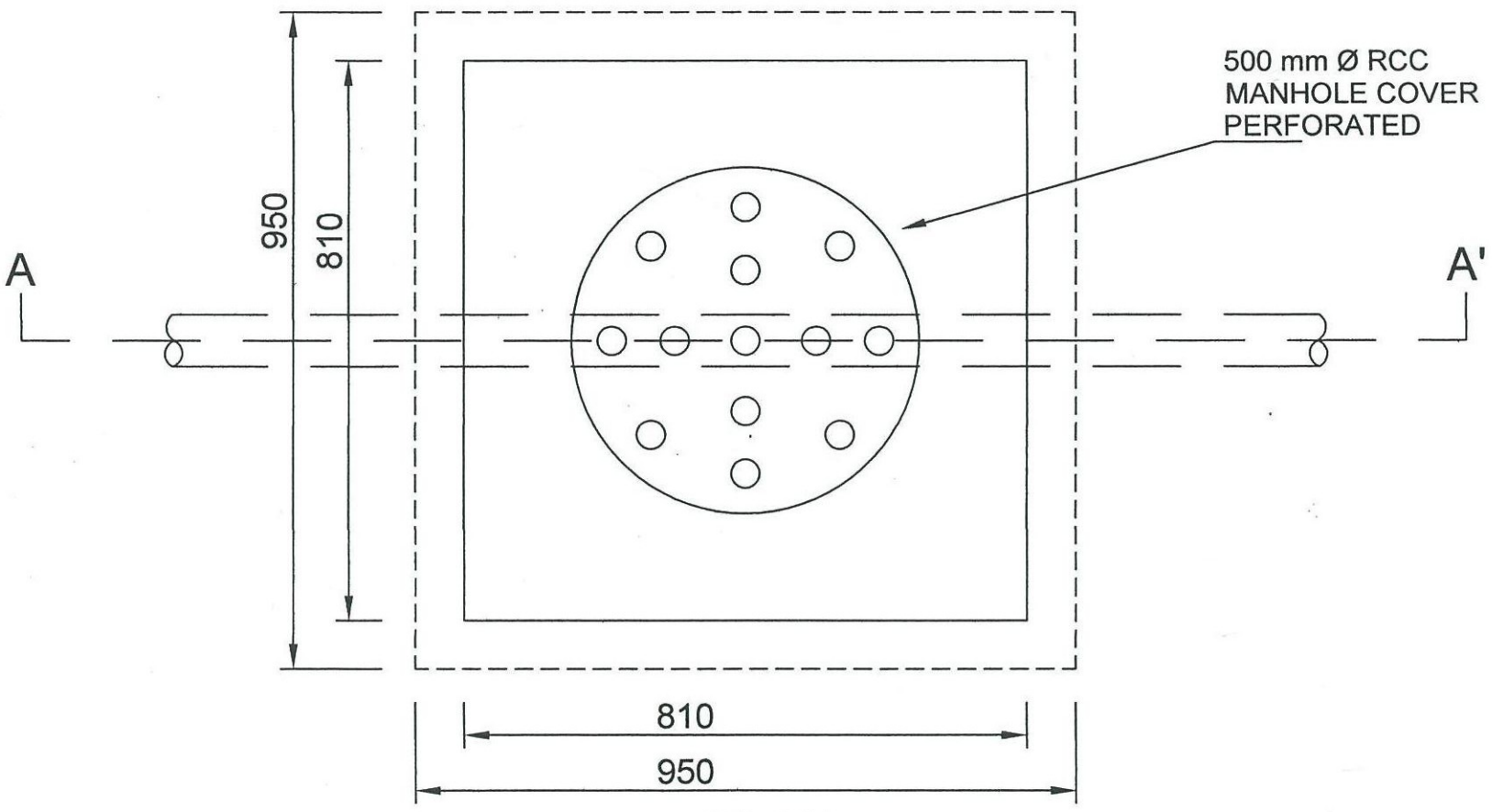
U. P. JAL NIGAM

TYPE DESIGN :

CHAMBER FOR FIRE HYDRANT



SECTION AT A-A'



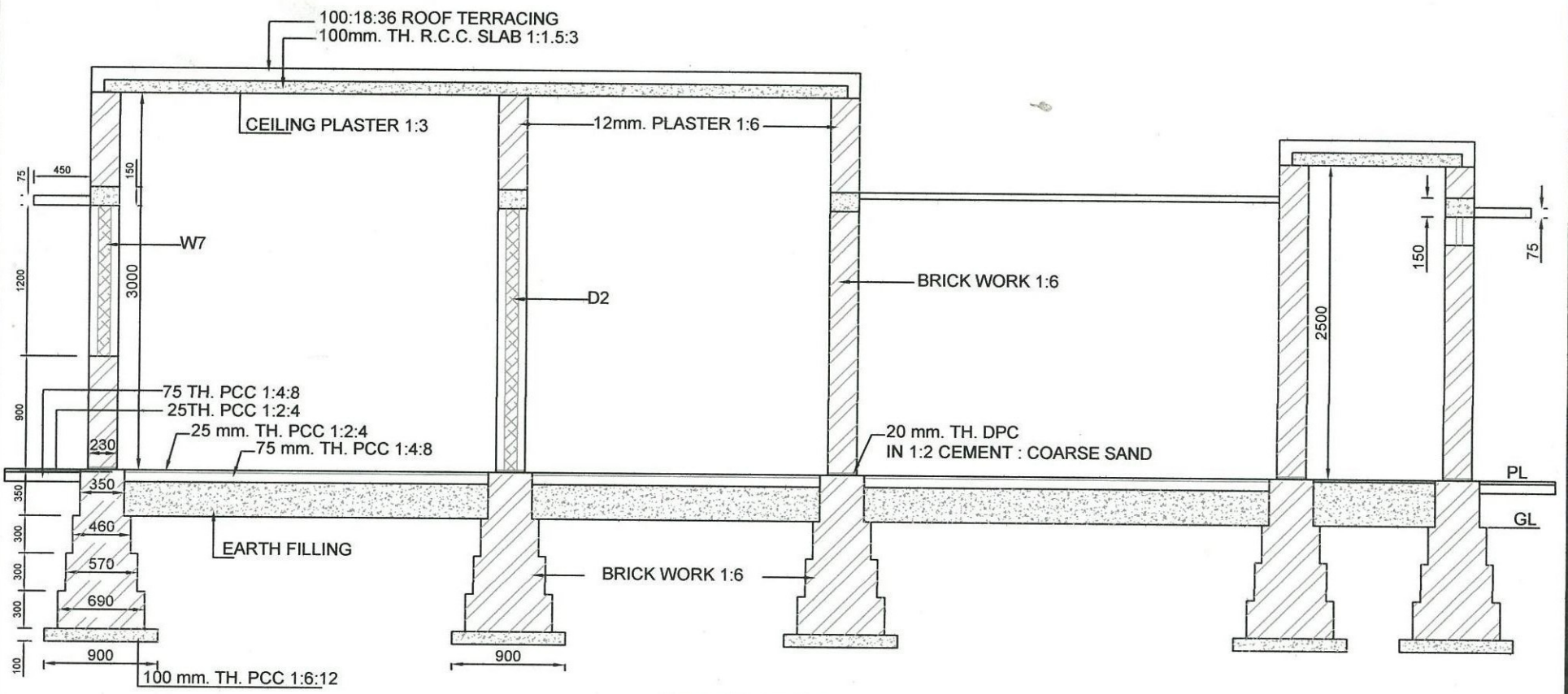
PLAN

DRAWING D-6

U. P. JAL NIGAM

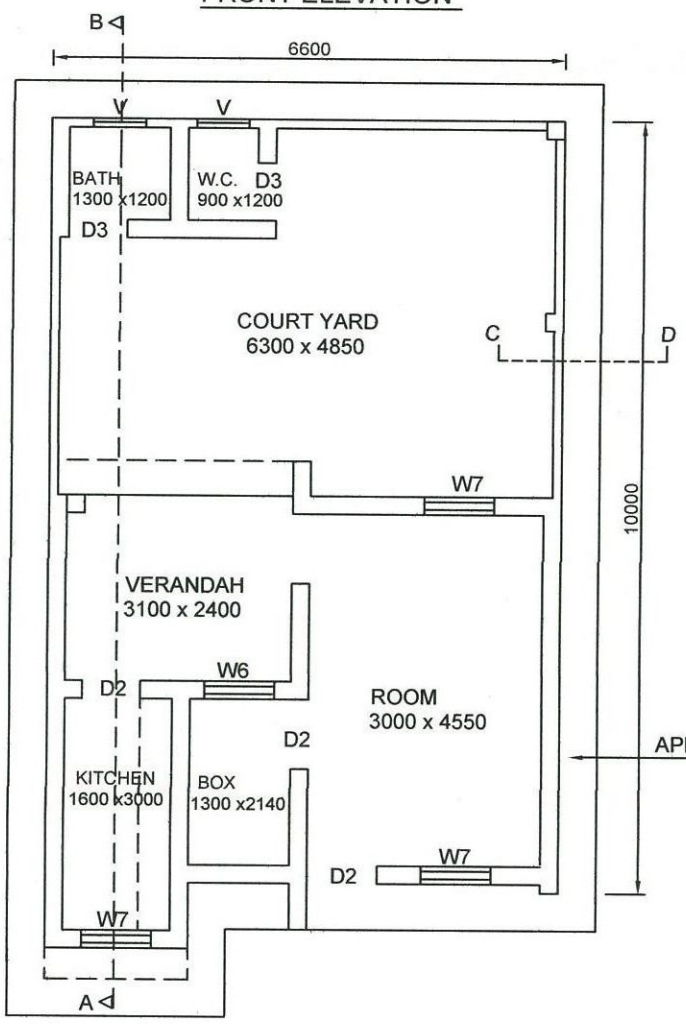
TYPE DESIGN :

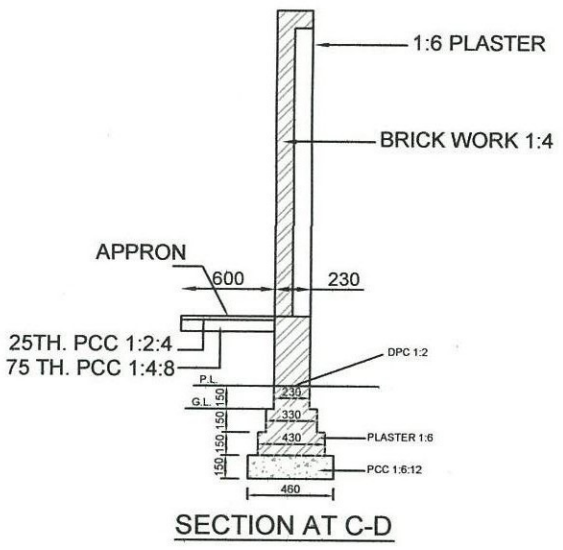
CHAMBER FOR AIR VALVE



SECTION AT A-B

FRONT ELEVATION





SECTION AT C-D

SCHEDULE OF DOOR WINDOW			
TYPE	WIDTH	HEIGTH	DESCRIPTION
D2	900	2000	SINGLE SHUTTER
D3	800	2000	SINGLE SHUTTER
W6	800	1200	SINGLE SHUTTER
W7	900	1200	SINGLE SHUTTER

GROUND FLOOR PLAN - OFFICE

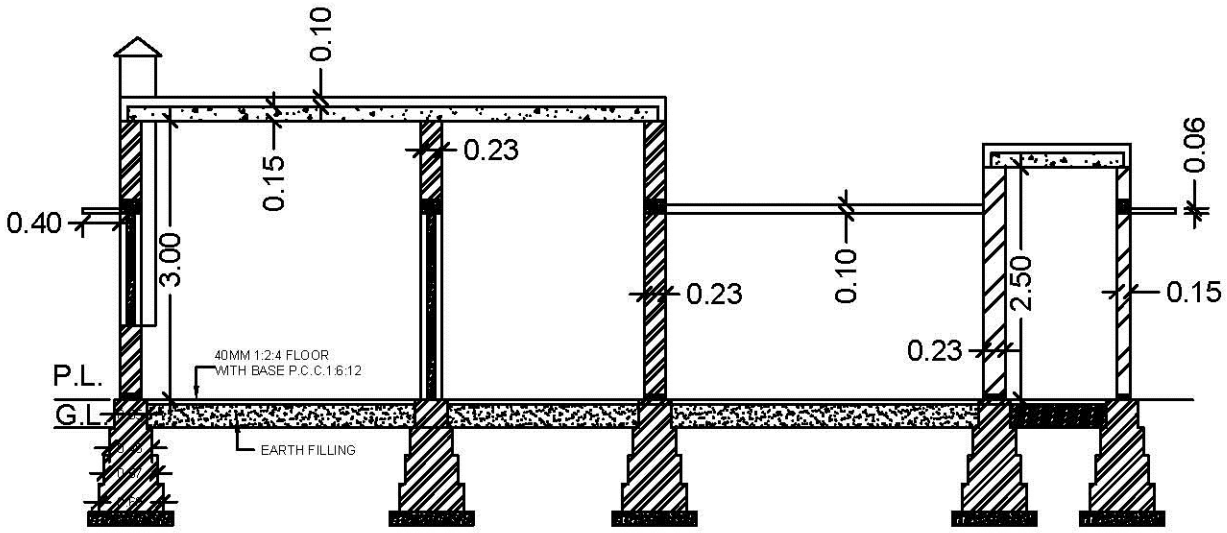
DRAWING D-7

NOTES -

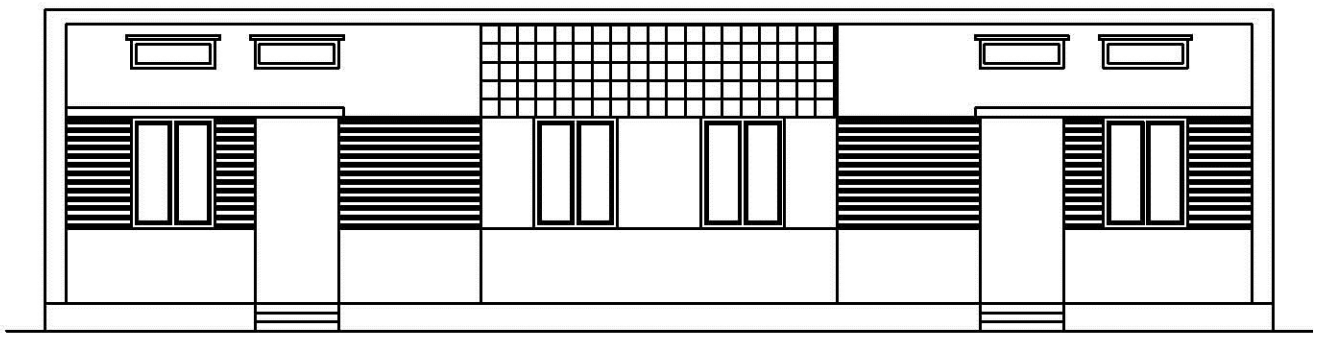
1. ALL DIMENSION ARE IN mm.
2. THE DETAIL DRAWING OF ALL R.C.C. WORK SHELL BE PREPARED AT THE TIME OF CONSTRUCTION . FOUNDATION AS PER SITE. CONDITION OF SOIL, TO EXAMINE, IN CASE MAKE AMENDMENTS IN STRUCTURAL DETAILS IN CONSULTATION WITH COMPETENT AUTHORITY.
3. ALL WORKS TO BE CARRIED OUT AS PER SCHEDULE SPECIFICATION BRICK WORK IN FOUNDATION IN 1:6.
4. SKIRTING AS SPECIFIED IN ALL ROOM VERANDAH & LAWN ETC. WHERE EVER REQUIRED.
5. SHELVES & ALMIRAH TO BE PROVIDE IN CONSULTATION WITH AUTHORITIES CONCERNED BUT TO BE KEPT IN LEVEL OF DOOR & WINDOW.
6. PLINTH LEVEL AS PER SITE.
7. FOUNDATION PCC IN 1:6:12

U. P. JAL NIGAM

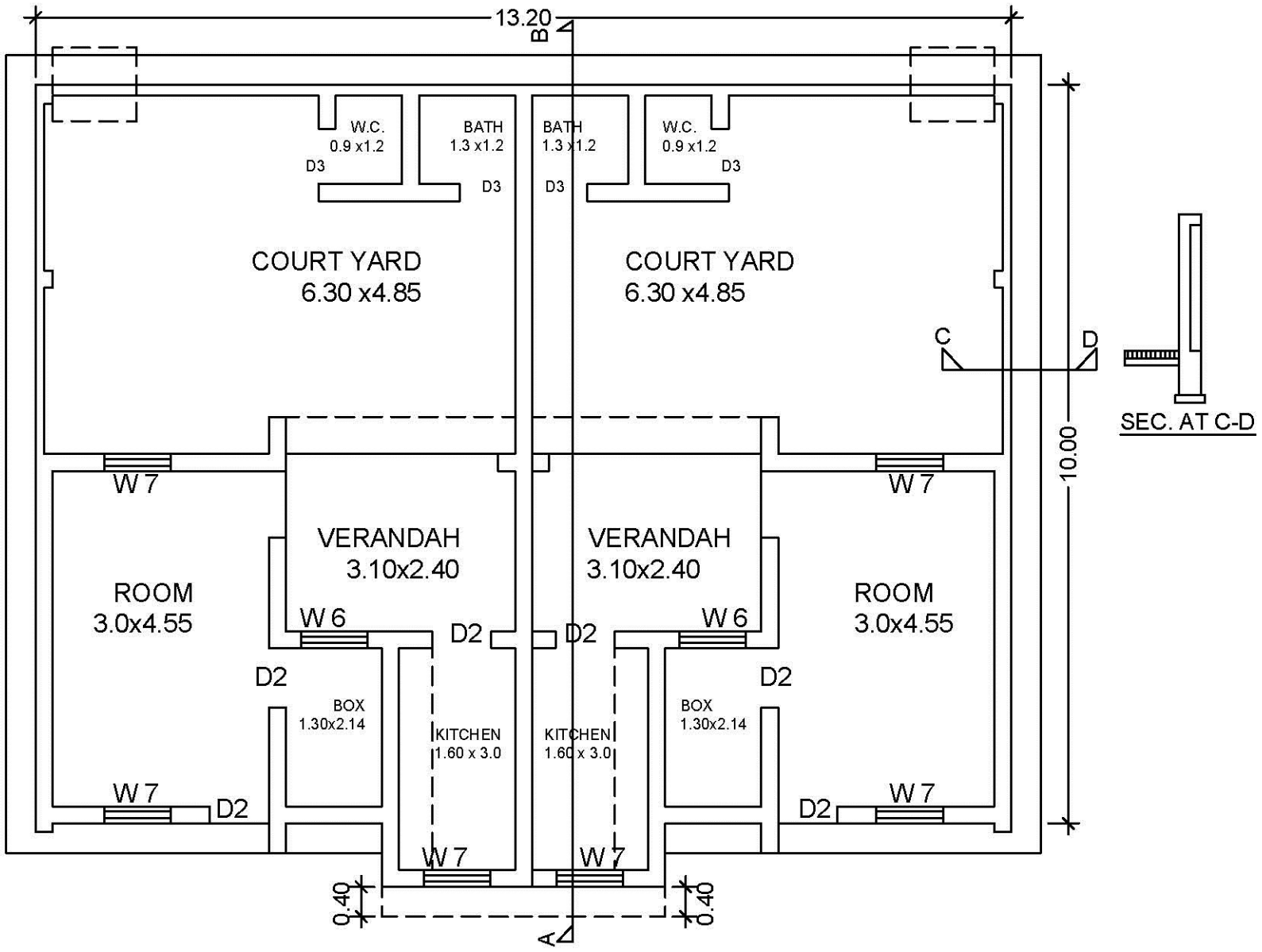
J.E. A.E. E.E.



SECTION AT A-B



FRONT ELEVATION



GROUND FLOOR PLAN

NOTE-

1- THE DETAIL DRAWING OF ALL R.B. 7 R.C.C. WORK SHALL BE PREPARED AT THE TIME OF CONSTRUCTION FOUNDATION TO SITE CONDITION OF SOIL - TO EXAMIN IN CASE MAKE AMENDMENTS IN STRUCURAL DETAILS IN CONSTRUCTION WITH COMPLETAUTHORITIES.
2- ALL WORK TO BE CARRIED OUT AS PER SHEDULE SPECIFECTION BRICK WORK IN FOUNDATION IN DOORS & WINDOWS DOMB OF 20.0CM 8 BORE FLOOR BELOW ROOF IN 1:6 & REST IN MUD MORTER.
3- SKRITING AS SPECIFIED TO ALL ROOM VERANDAH & LAWN ETC. WHERE OCCURE.
4- ALL LINTELED & EXTERNAL WALL TREATMENT TO BE AS SPECIFIED.
5- SHELVES & ALMIROH TO BE PROVIDE IN CONSULTATION WITH AUTHORTIES CONSERNED BUT TO BE KEPT IN LEVEL OF DOOR & WINDOW.
6- PLINTH LEVEL TO SITE THE SITE.
7- LIME CONCRETE IN FOUNDATION & UNDER FLOOR SHOULD BE USED IN CEMENT.
8- FOR RURAL W/S P.R.A.I. TYPE LATRINES PROVIDE INSTED OF WATER FLUSHED LATRINES.

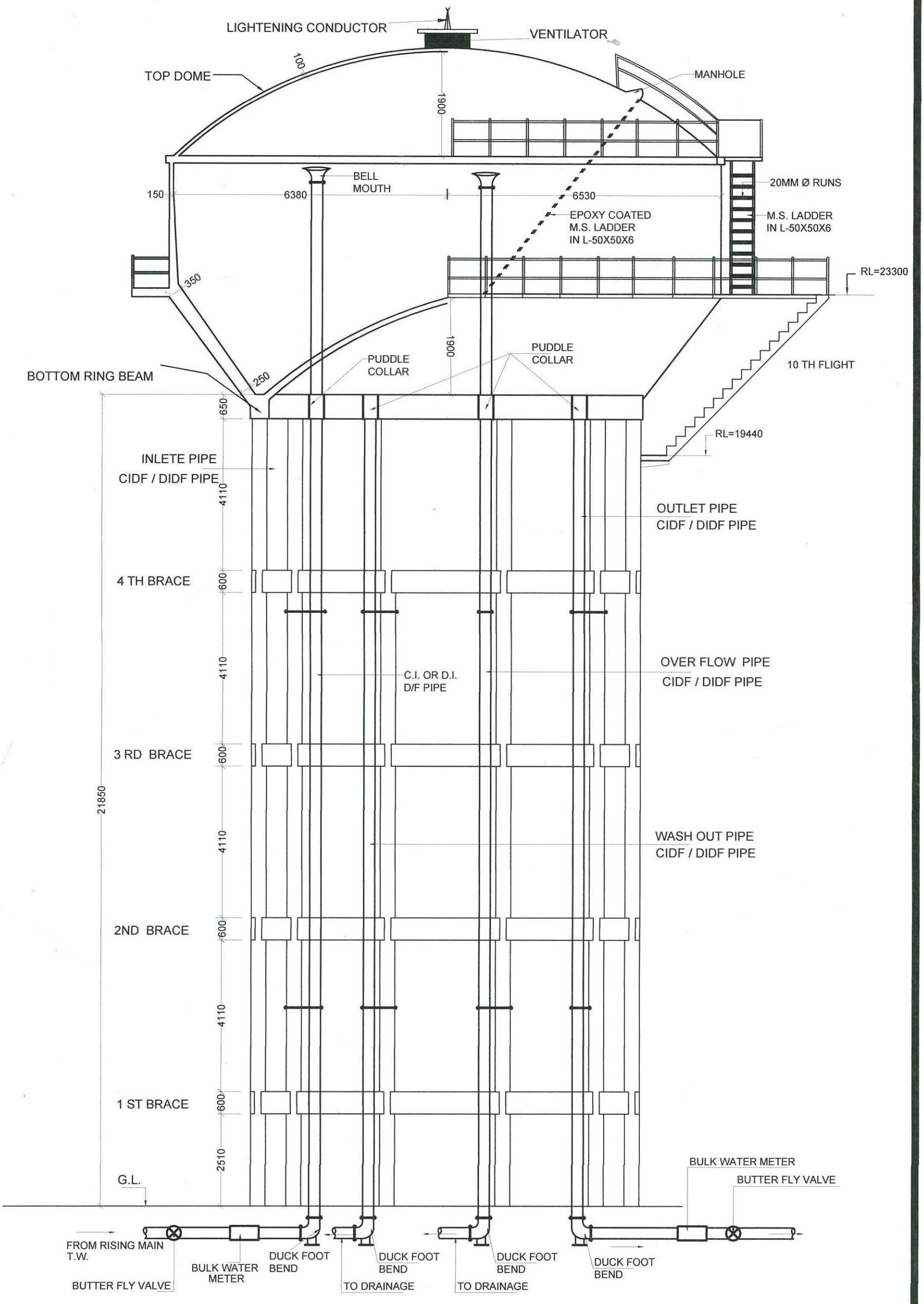
DRAWING D-7(2)

SCHEDULE OF DOOR & WINDOW				
TYPE	WIDTH	HEIGHT	DESCRIPTION	REMARK
D2	0.90	2.00	DOUBLE SHUTTER	
D3	0.80	2.00	SINGLE SHUTT.	
W6	0.80	1.20	DOUBLE SHUTTER	
W7	0.90	1.20	DO	

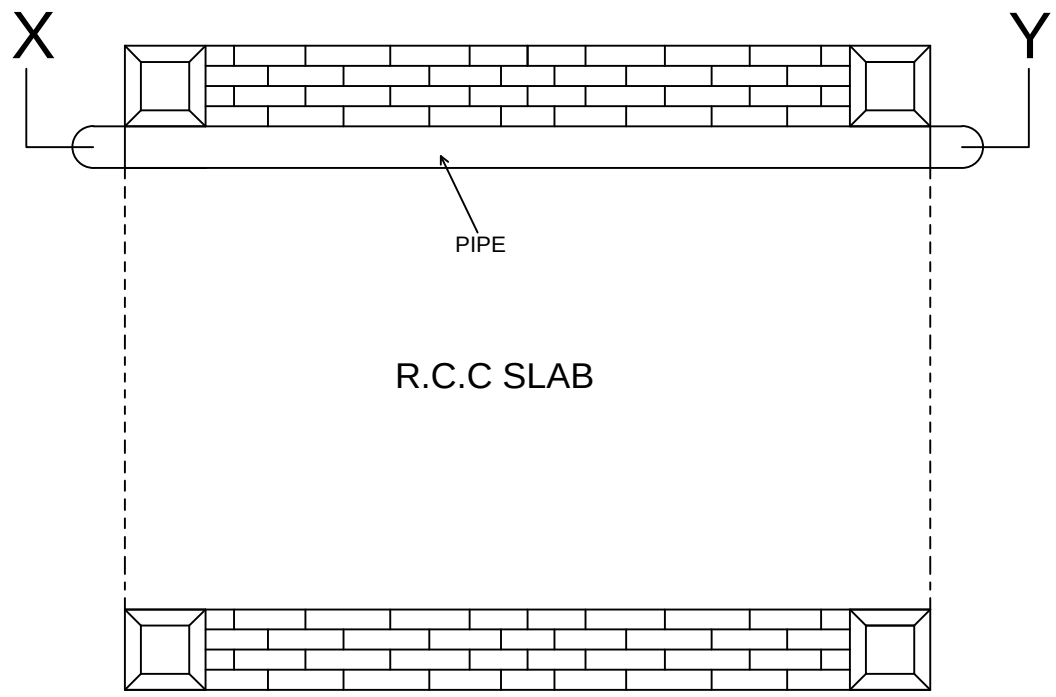
EXECUTIVE ENGINEER,

D/M J.E. A.E. E.E.

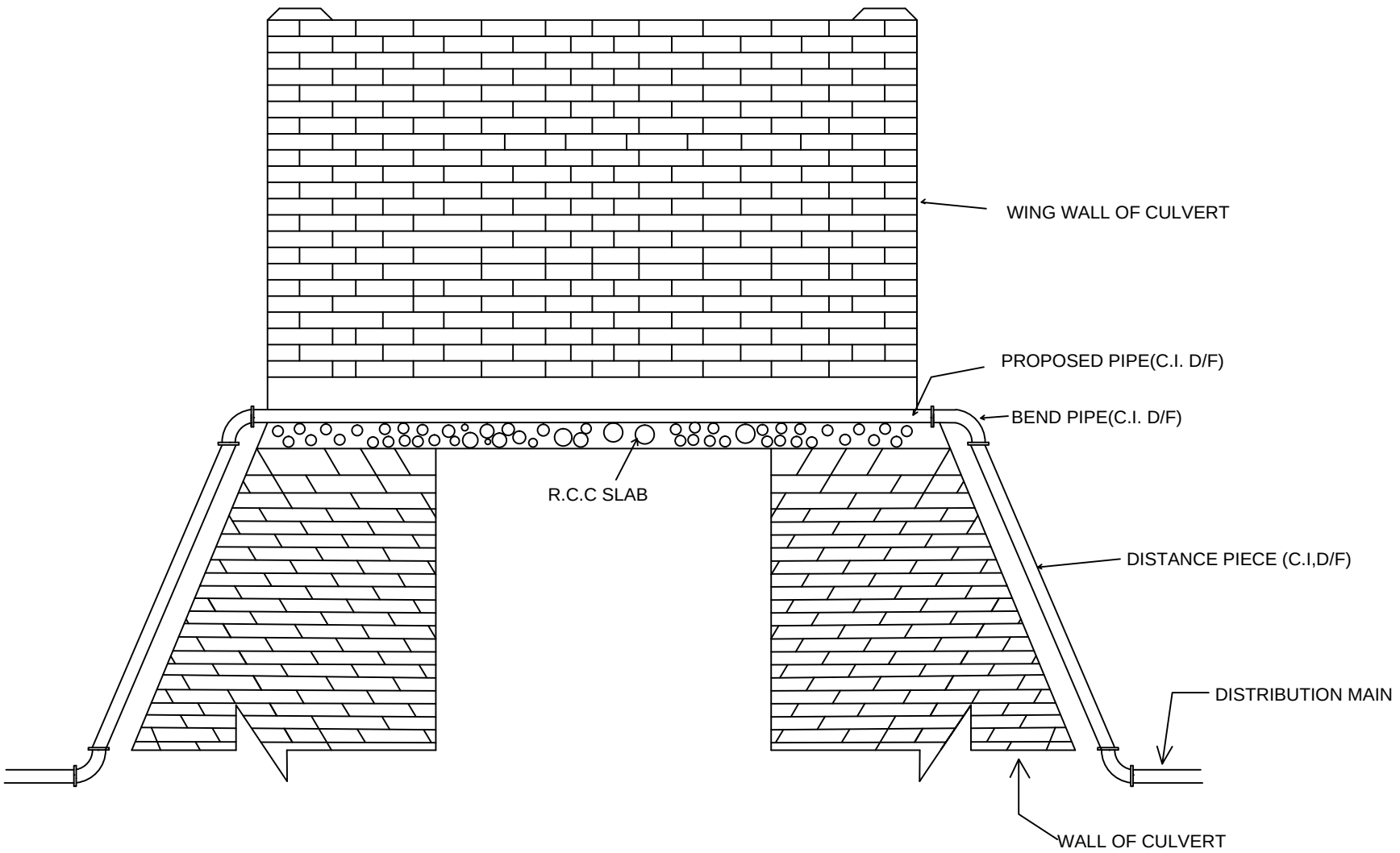
SKETCH SHOWING PIPES / FITTINGS IN R.C.C. OVER HEAD TANK



DRAWING D-8



TOP PLAN

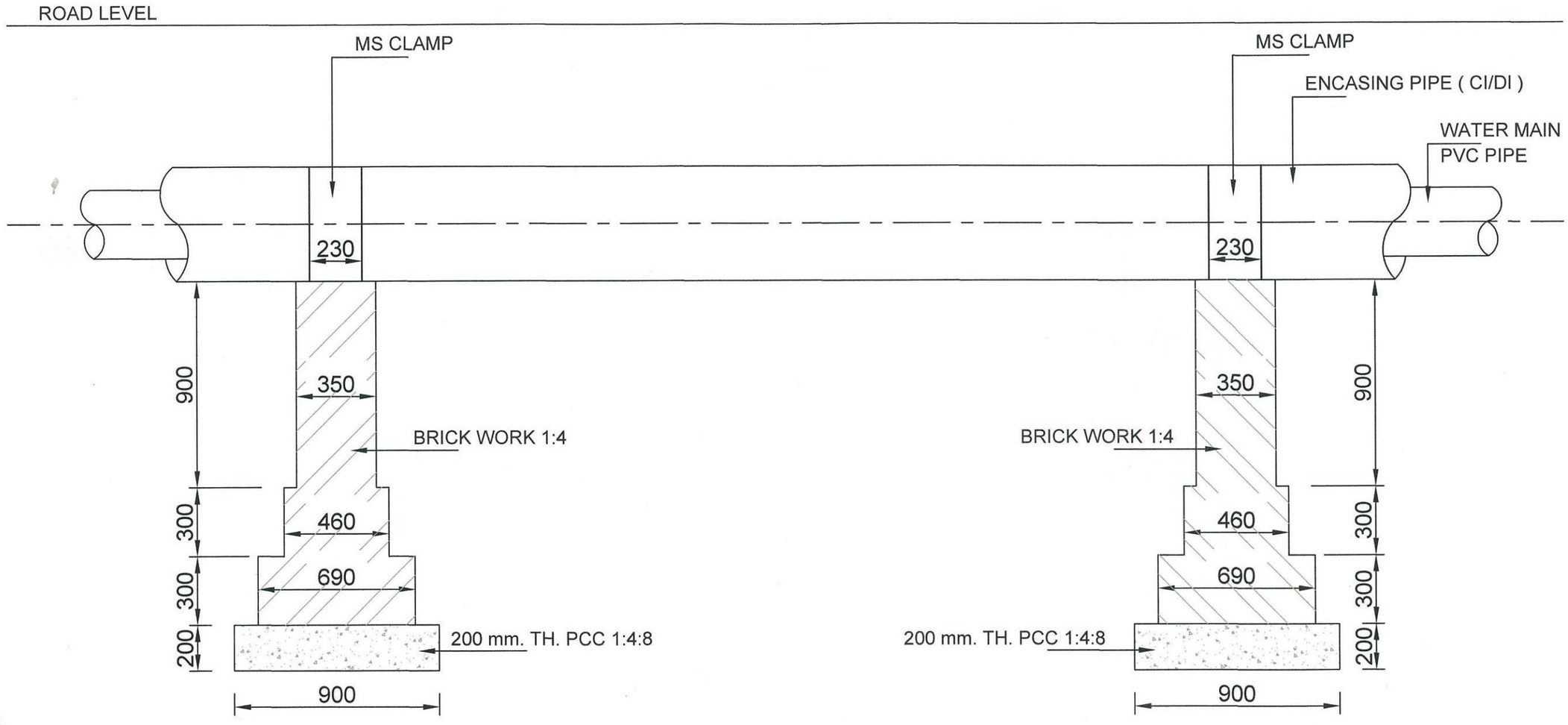


ELEVATION AT X-Y

DRAWING D-9

SCALE=N.T.S

DRAWING FOR CULVERT CROSSING

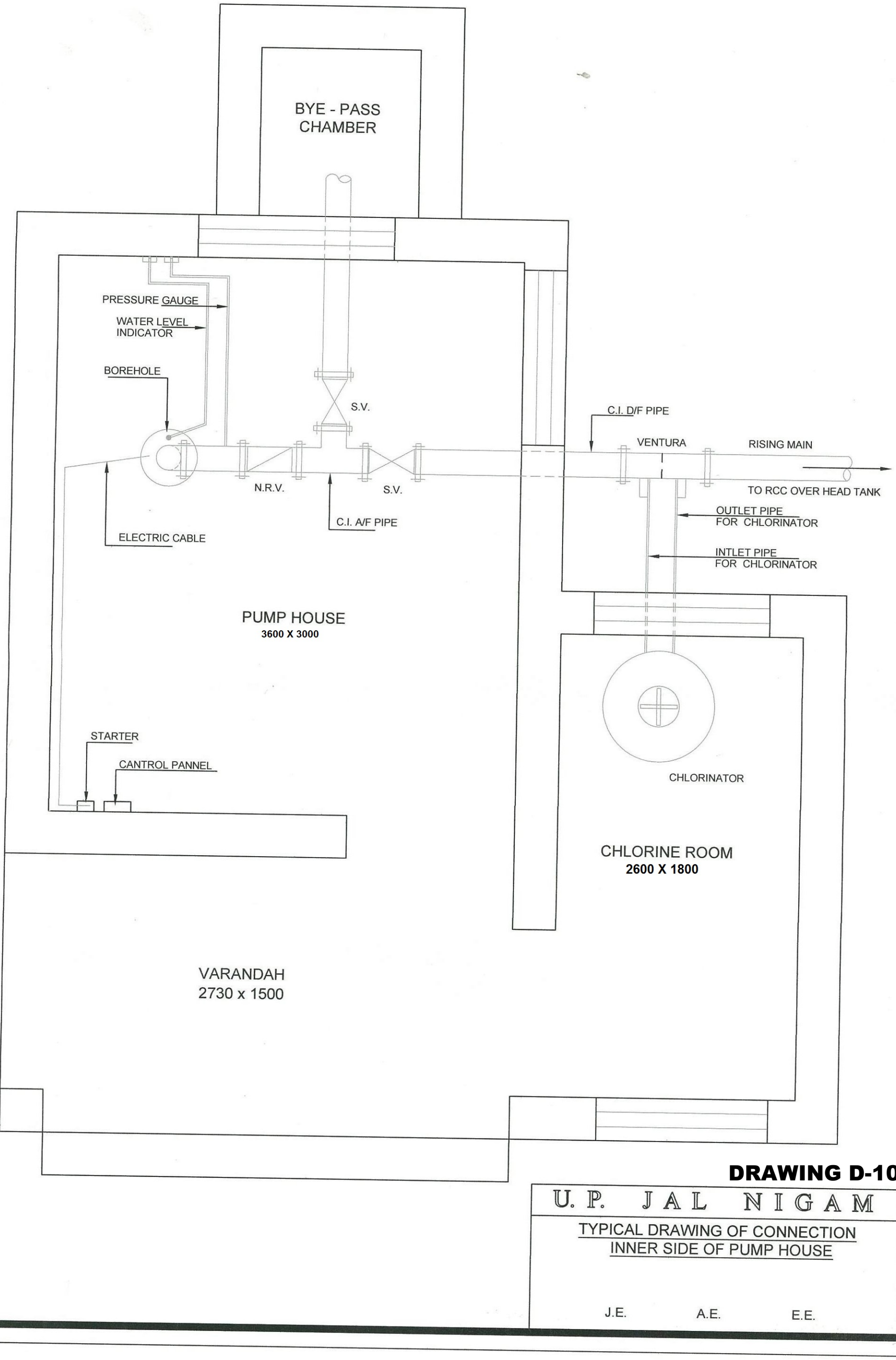


DRAWING D-9 A

U. P. JAL NIGAM

SKETCH OF NALA CROSSING
SPAN 2 METRES TO 3 METRES

J.E. A.E. E.E.

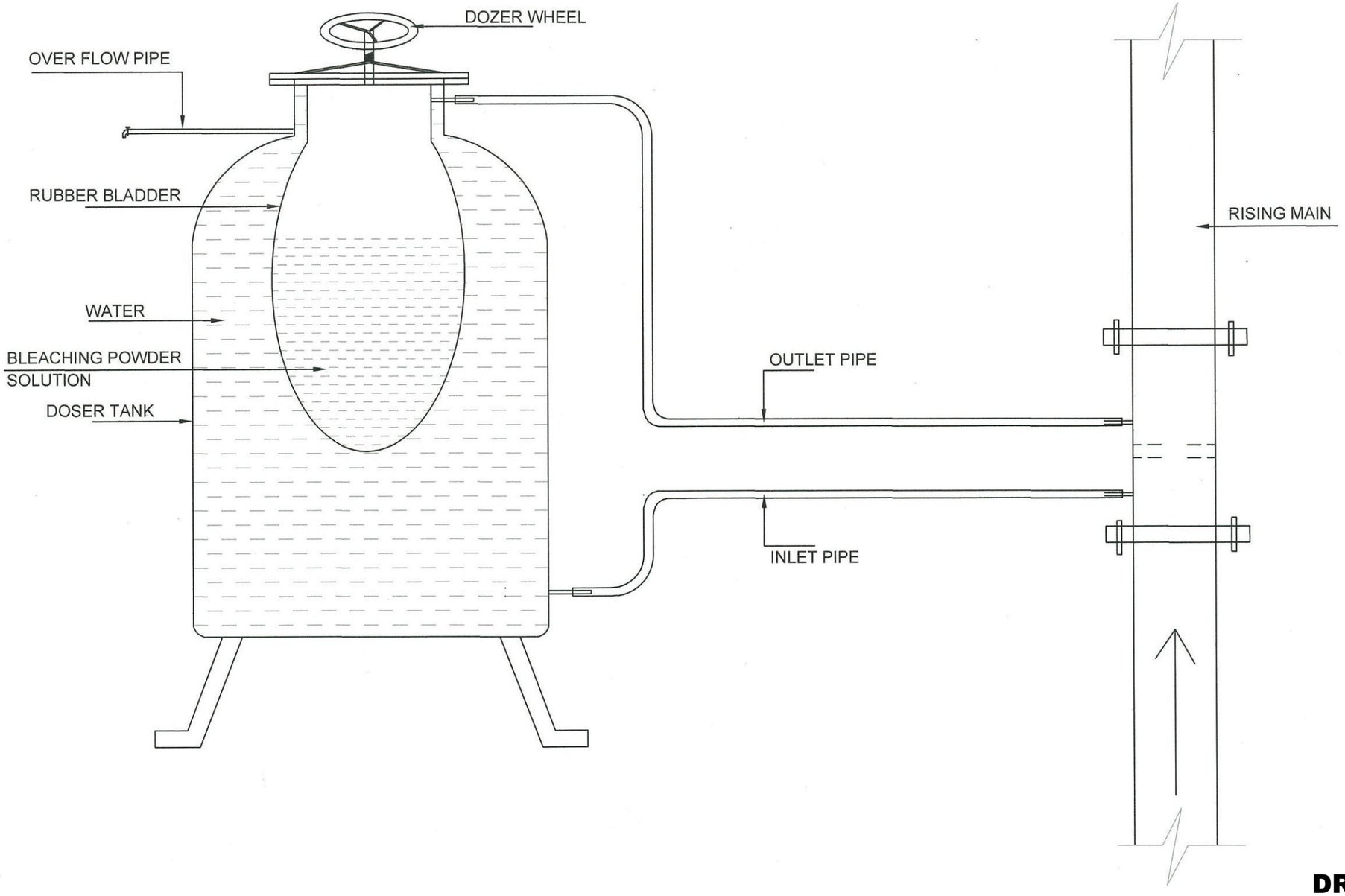


DRAWING D-10

U. P. JAL NIGAM

TYPICAL DRAWING OF CONNECTION
INNER SIDE OF PUMP HOUSE

J.E. A.E. E.E.

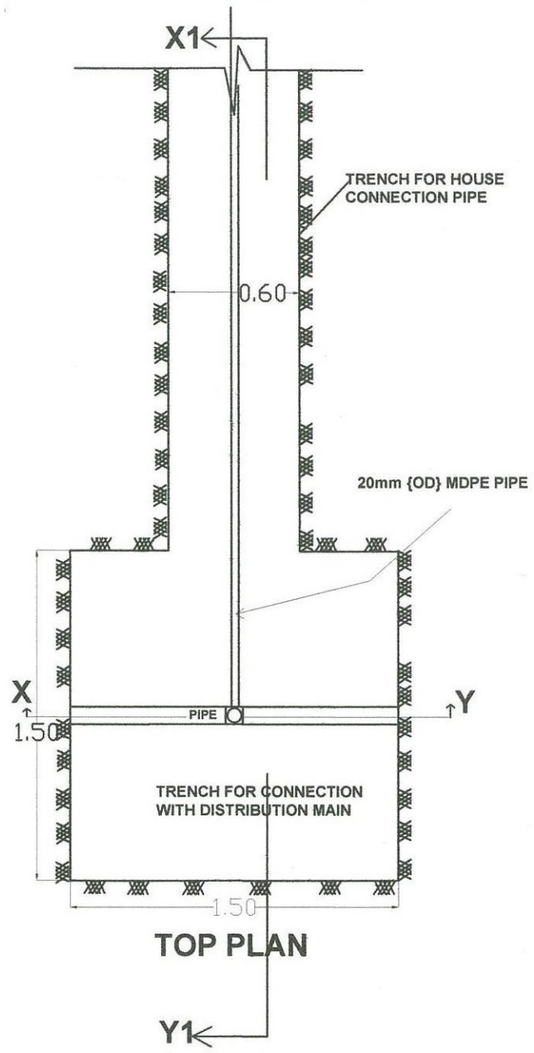


DRAWING D-11

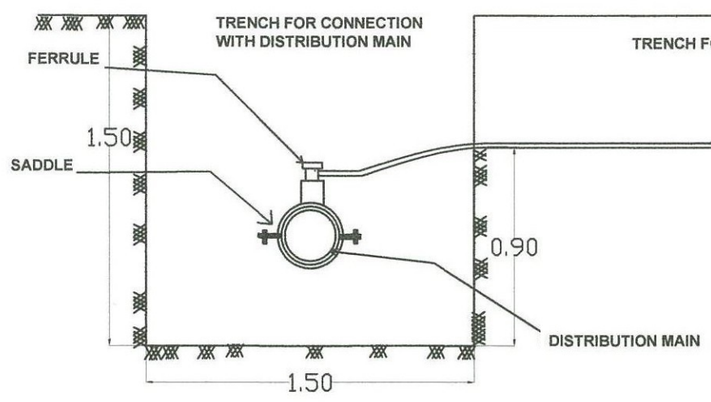
U. P. JAL NIGAM

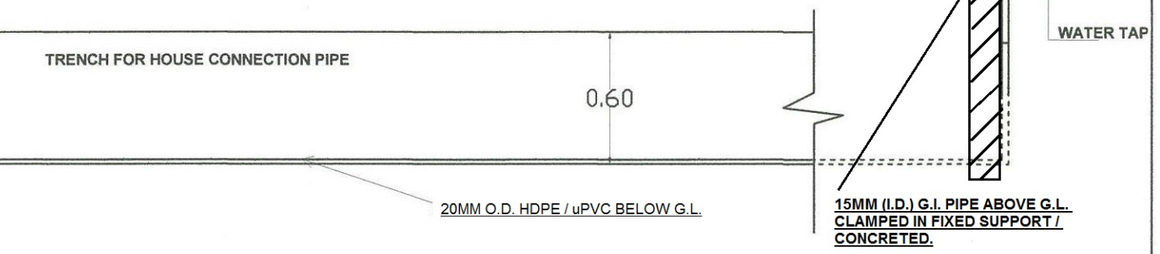
ELECTRO MECHANICAL TYPE
DIFFERENTIAL PRESSUR FEED TYPE DOSER

J.E. A.E. E.E.

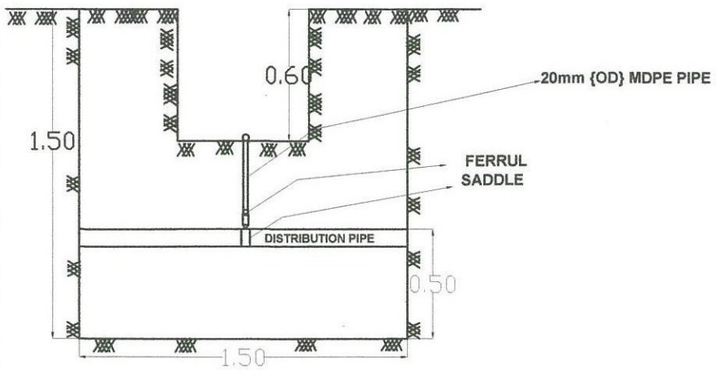


TOP PLAN





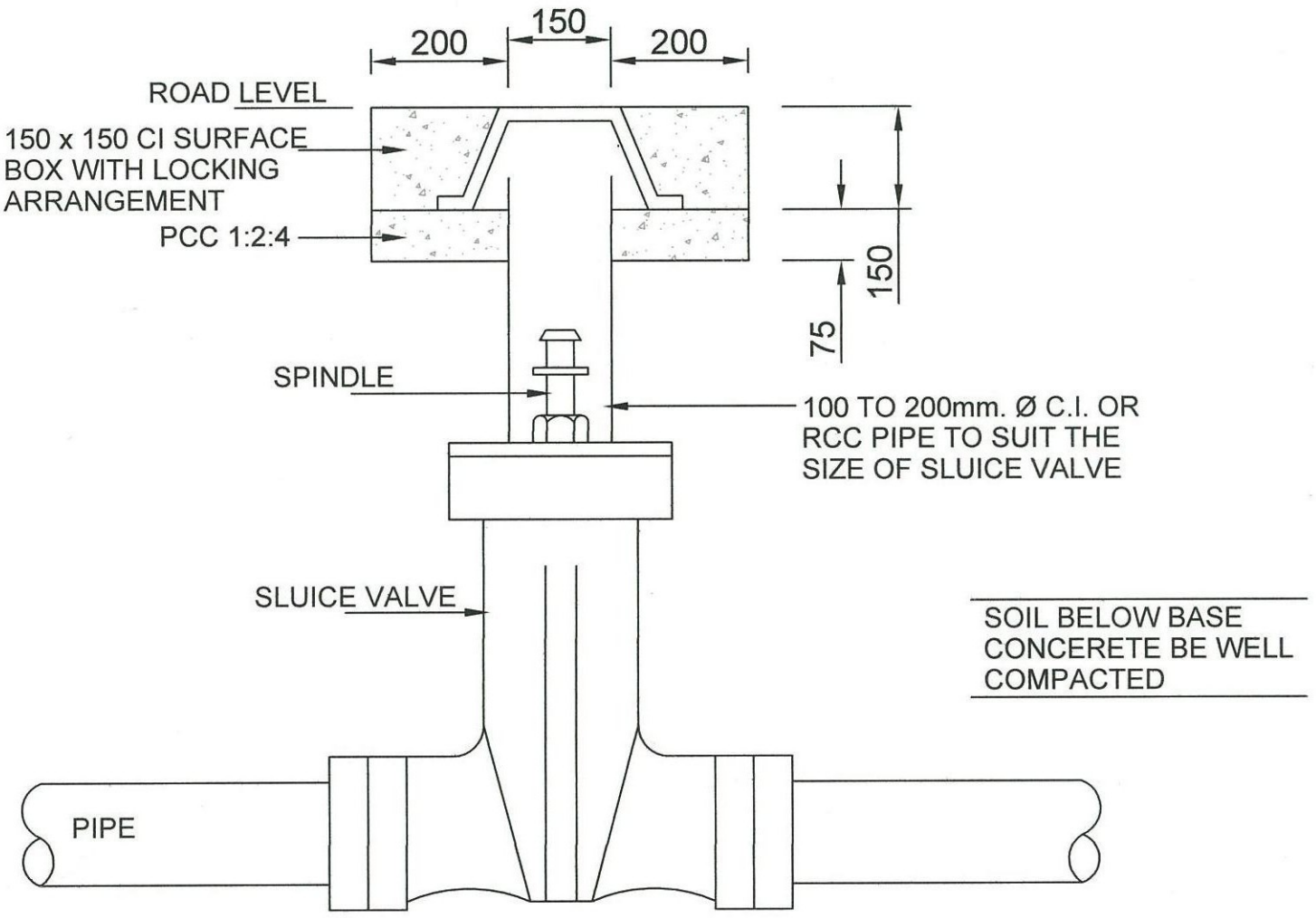
FRONT ELEVATION AT X1-Y1



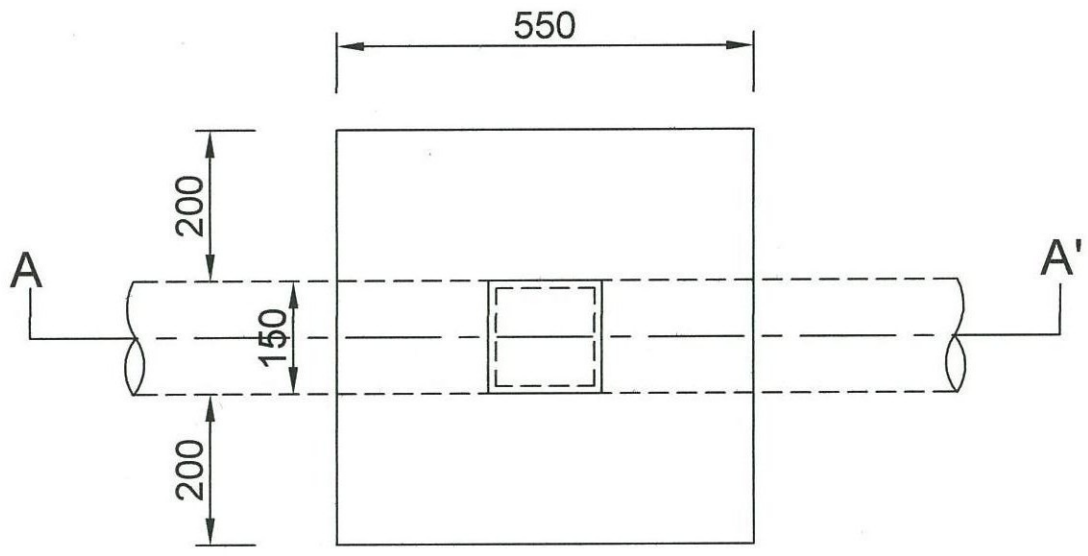
ELEVATION AT X-Y

DRAWING D-12

HOUSE CONNECTION DRAWING WITH TAP



SECTION AT A-A'



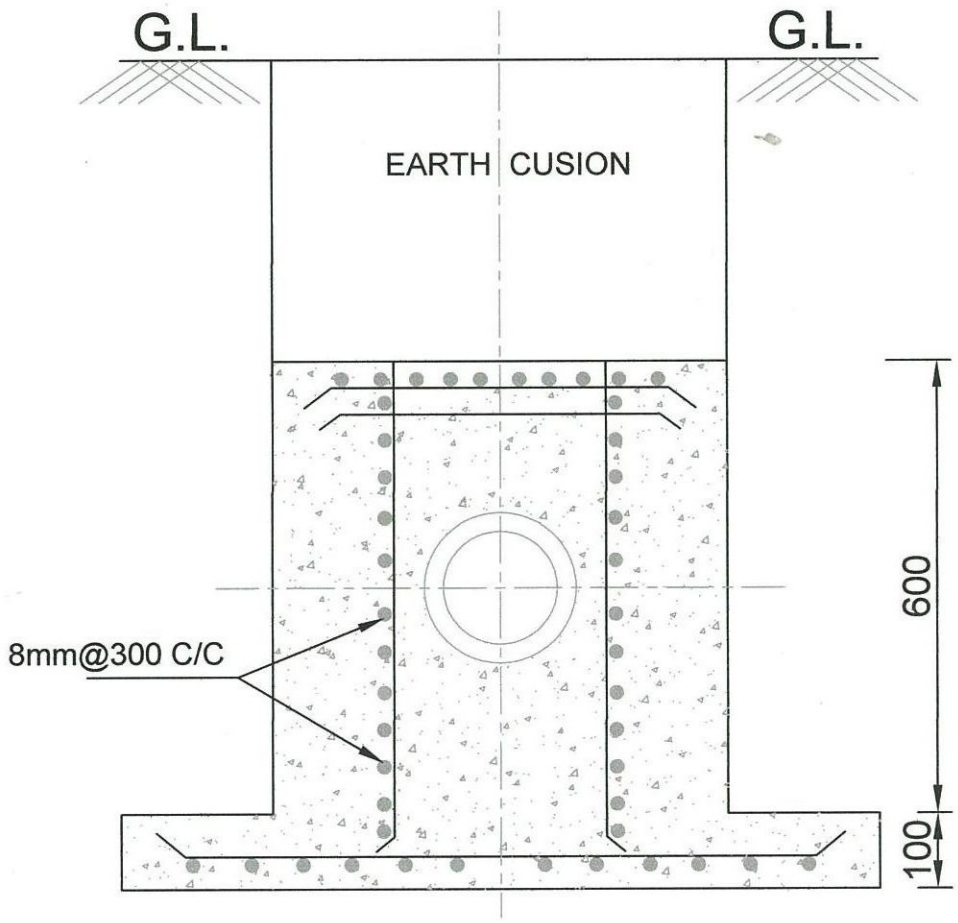
PLAN

DRAWING D-13

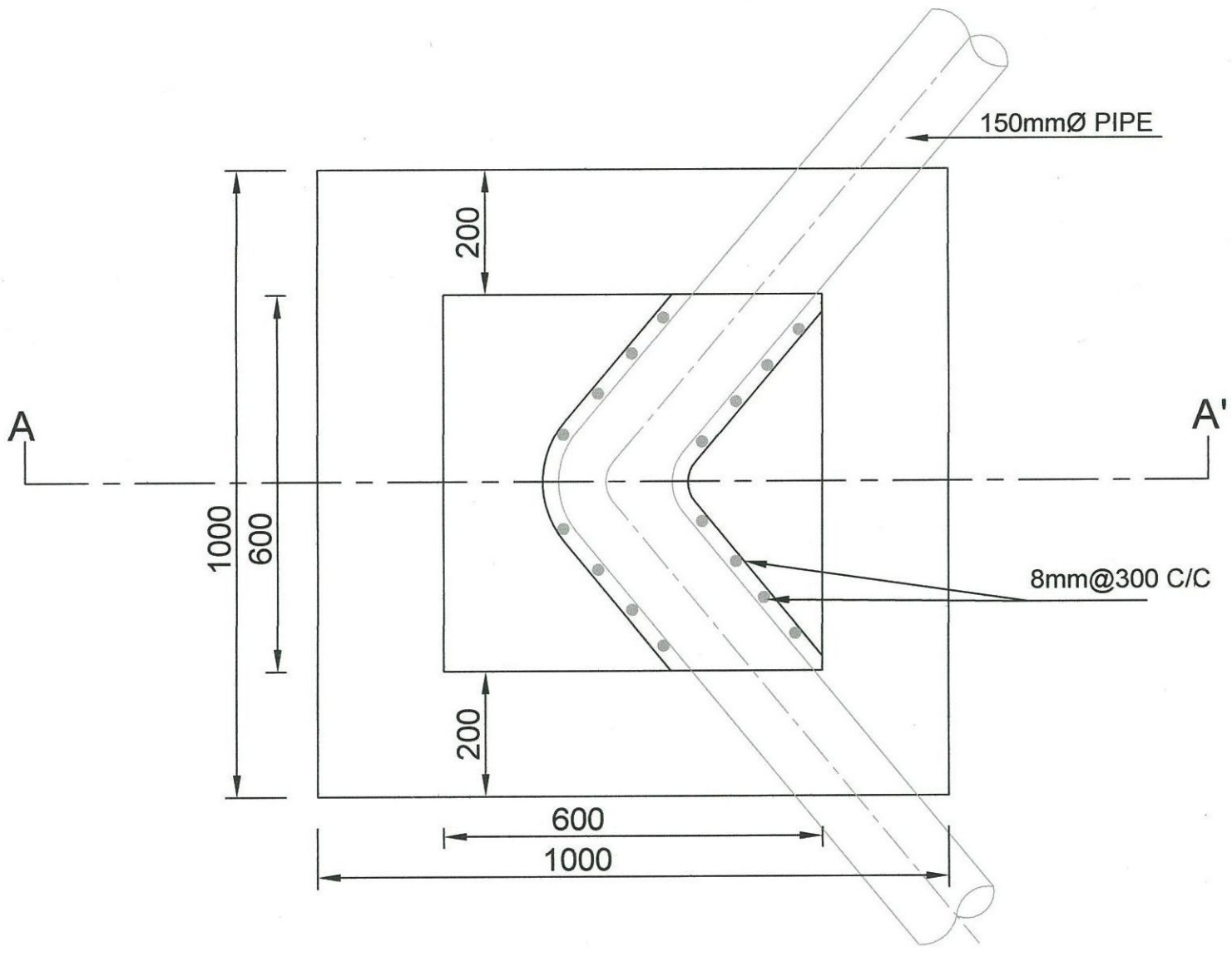
U. P. JAL NIGAM

TYPE DESIGN :

SURFACE BOX TYPE SLUICE VALVE CHAMBER



SECTION AT A-A'



PLAN

DRAWING D-14

U. P. JAL NIGAM

THRUST BLOCK FOR 45° HORIZONTAL BEND 150 mm.Ø PIPE

J.E. A.E. E.E.

Appendix 5

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CONTRACT PRICE ADJUSTMENT
APPENDIX 5 TO THE GENERAL CONDITIONS
FOR A CONTRACT
TO
BUILD AND OPERATE & MAINTAIN AND TRANSFER
SINGLE / MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, DISTT. GHAZIPUR

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Appendix 6

Subsidiary Tripartite Agreement Appendix

SUBSIDIARY TRI PARTITE AGREEMENT
APPENDIX 6 TO THE GENERAL CONDITIONS
FOR A CONTRACT
TO
BUILD, OPERATE & MAINTAIN AND TRANSFER
SINGLE / MULTI VILLAGE PIPED WATER SUPPLY SCHEMES, DISTT. GHAZIPUR

TRI-PARTITE AGREEMENT **APPENDIX**

Key features of Subsidiary Agreement between Operator, GP-WSC, and UP Jal Nigam.

Scope of Agreement	The scope of this Agreement will cover the operation and maintenance of water supply system up to the individual connections in the GP including customer service and billing. and collection
Operator's responsibilities	The Operator's responsibilities under this contract shall include: • Operation and maintenance of water supply system consisting of T W, reservoirs, water transmission, other Misc. works and distribution system upto the level of individual connections • Record and address customer complaints relating to quality, quantity and reliability of water supply within each habitation /gram panchayat • Replacement of machinery as per agreed plan • Preparation and submission of records to GP-WSC for volume of water supplied to village/gram panchayat • Provide service as per standards as laid down in the Operations and maintenance services appendix • Preparation and submission of bills for each connection to customers as per fixed tariff to be determined by the GP-WSC/Govt of UP
GP-WSC's responsibilities	• Supervision of the operation and maintenance of the water supply system • Review and verify the performance indicators related to water supply related to performance fee of the Operator • Enforce the water tariff on customers and impose penalties on defaulters • Collection of water tariff for each connection from customers • Deposit all amounts collected from end customers into the Escrow Account as provided for in the Operations and maintenance services appendix
GPWSC's responsibilities	• Advise and monitor the execution of works • To take over O&M of assets from contractors after the contract period

UP Jal Nigam or its Authorised Representative	• Supervision and monitoring of the contractor's performance under the agreement • Management of contract agreement (Technically and Financially) on behalf of GPWSC • Payment to Operator for water supplied to villages/gram panchayats at agreed rate from Escrow Account based on verification by GPWSC.
District Water and Sanitation Committee/District Project Management Unit	• To arrange for building the capacity of the GPs/ GPWSCs for operation and maintenance including water quality monitoring, aspects To arrange subsidies for O & M, if required any to fill the gap of requirement and collection to GP/GPWSC
Payment procedure	• The payment mechanism for the Operator shall be as per Schedule Two of the Operations and maintenance services appendix
Maintenance of balance in escrow account	• DWSC/DPMU/ GP shall be responsible for maintaining adequate balance in the Operations Escrow Account in Operations Escrow Account to ensure payment of applicable fee, subject to any deduction for non-achievement of performance indicators, to the Operator