JAIPUR DEVELOPMENT AUTHORITY

Tender Document

For

Name of work : Water supply arrangements for BSUP flats, Jaisinghpura from Bisalpur, JDA, Jaipur.

Cost: Rs 290.0 Lacs

NIT No. 09

Executive Engineer (PHE-I)
Jaipur Development Authority
Jaipur

Section A-1
Instructions to Bidders

JAIPUR DEVELOPMENT AUTHORITY JAIPUR

Name of work : Water supply arrangements for BSUP flats, Jaisinghpura from Bisalpur, JDA, Jaipur.

Period of Sale	**04.12.2015 to 28.12.2015**
Date of receipt of the tender	**28.12.2015 up to 6.00 PM**
Date of opening	**31.12.2015 at 3.00 PM**
Completion Period	**4 Months**

NAME OF AGENCY M/s ----------

EXECUTIVE ENGINEER (PHE-1)
JAIPUR DEVELOPMENT AUTHORITY
JAIPUR

TENDER FOR WORKS

I/We hereby tender for the execution for the Jaipur Development Authority, Jaipur of the work specified in the underwritten memorandum within the time specified in such memorandum at the rates, (in figure) .....% (as well as in words) ..... Percent below/above the amount, entered in the schedule G in all respects in accordance with the specifications, designs, drawings and instructions in writing referred to in Rule I in all respects in accordance conditions with such conditions so far as applicable. I/We have visited the site of work and am/are fully aware of all the difficulties and conditions likely to affect carrying out the work, I/We have fully acquainted myself/ourselves about the conditions in regard to accessibility of site and quarries/kilns nature and the extent of ground, working conditions including stacking, of materials, installation of tools & plant, conditions effecting accommodation and movement of labour etc. required for the satisfactory execution of contract.

Memorandum

(a) **General description of work..-** :

(b) **Estimated cost** : **Rs. 290.00 Lacs**

(c) **Earnest money** : **Rs. 5,80,000.00** for enlisted contractors outside JDA and

: **Rs. 1,45,000.00** @1/2% within JDA enlistment.

(d) **Security Deposit :**

(i) "The security deposit @ 10% of the gross amount of the running bill shall be deducted from each running bill and shall be refunded as per rules on completion of the contract as per terms and conditions. However, the amount of security deposit deducted from running bills shall not be converted into any mode of securities like bank guarantee. FDR etc. The earned money deposited shall however be adjusted while deducting security deposit from first running bill of the contractor. There will be no maximum limit of security deposit.

However, a contractor may elect to deposit of full amount of 10% security deposit in the shape of bank guarantee or any acceptable form of security before or at the time of executing agreement. In that case earnest money may be refunded only after deposition of full 10% as above. However, in case during execution cost of works exceeds as shown at the time of depositing 10% as above, balance security deposit shall be deducted from the Running Account Bills."

(ii) Bank Guarantee shall in all cases be payable at the headquarter of the Division or the nearest District Headquarters.

(e) Time allowed for the completion of work (to be reckoned from the 10th day after the date of written order to commence the work) is 6 month Should this tender be accepted in whole or in Part, I/We hereby agree to abide by and fulfill all the terms and provisions of the conditions of contract annexed here to and of the Notice Inviting Tender, or in default thereof, to forfeit and pay to the Governor of Rajasthan or his successors in office, the sum of money mentioned in the said conditions.

Validity of rates 120 days.

A sum of Rs. ..... is forwarded herewith in the form of Cash, Bank Draft, Bankers Cheque as Earnest Money. This amount of earnest money shall absolutely be forfeited to the Governor of Rajasthan or his successor in office without prejudice to any other right or remedies of Governor of Rajasthan or his successor in his office, should I/We fail to commence the work specified in the above memorandum.

Signature of Witness — Signature of Contractor

Witness's address & Occupation — Address of Contractor

Date:

The above tender is hereby accepted by me on behalf of the Governor of Rajasthan

Date:

Executive Engineer PHE-I,

Section A2
General Conditions of Contract

GENERAL CONDITIONS OF CONTRACT

Copy of appendix XI of PWF&AR, Govt. of Rajasthan effective from 01.07.1999 & subsequent addendum upto 01.03.2012 in case of any typographical error or alteration the original version of the same shall be valid.

Clause 1: Security Deposit:

"The security deposit @ 10% of the gross amount of the running bill shall be deducted from each running bill and shall be refunded as per rules on completion of the contract as per terms and conditions. The earnest money deposited shall However, be adjusted while deducting security deposit.

A contractor may However, elect to furnish bank guarantee or any acceptable form of security for an amount equal to the deposit of 10% of the work order or at the time of executing the agreement. In that case earnest money may be refunded only after furnishing of the bank guarantee as above. During the execution of the work or after completion of the work, also a contractor may replace the security deposit by furnishing bank guarantee for an equal amount. However, during execution of the work if cost of works exceeds as shown at the time of furnishing bank guarantee, balance security deposit shall be deducted from the Running Account Bills".

All compensation or other sums of money payable by the Contractor to Government under the terms of his contract may be deducted from or paid by the sale of a sufficient part of his Security Deposit, or from interest arising there from, or from any sums, which may be due or may become due to the Contractor by the Government on any account whatsoever, and in the event of his Security Deposit being reduced by reason of any such deduction or sale as aforesaid, the Contractor shall within ten days thereafter, make good in cash Or Bank Guarantee or Nationalised/Scheduled bank, as aforesaid, any sum of sums which may have been deducted from or raised by sale of his Security Deposit or any part thereof.

In case of Bank Guarantee of any Nationalized/Scheduled Bank is furnished by the Contractor to the Government, as part of the Security Deposit and the bank goes into liquidation or, for any reason, is unable to make payment against the said Bank Guarantee, the loss caused thereby shall fall on the contractor and the Contractor shall forthwith, on demand, furnish additional security to the Government to make good the deficit.

The liability or obligation of the bank under the Guarantee Bond shall not be affected or suspended by any dispute between the Engineer-in-charge and the Contractor, and the payment, under the Guarantee Bond by the bank to the Government shall not wait till disputes and decided. The bank shall pay the amount under the Guarantee, without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the Contractor. The demand, so made, shall be conclusive as regards, to amount due and payable by the bank, under the guarantee limited to the amount specified in the guarantee Bond. The guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

The bank Guarantee shall remain valid upto the specified date unless extended on demand by the Engineer-in-charge, which shall include the period of completion of the contract and the defect removal period as per terms of the Agreement. Bank's liability shall, stand automatically discharged unless a claim in writing is lodged with the Bank within the period stated in the Bank Guarantee including the extended period. After satisfactory completion of the contract and clearance of all dues by the contractor, the Chief Engineer or duly authorized Engineer will discharge the Bank Guarantee after expiry of the original or the extended period, as the case may be. In case the date of expiry of the Bank Guarantee is a holiday, it will be deemed to expire on the close of the next working day.

Government is not concerned with any interest accruing to the Contractor on any form of Security (primary or collateral) lodged by him with the bank or any sums payable to sureties obtained by the Bank as counter guarantee to secure its own position. These will be the matters between the Bank and the Contractor.

Clause 2: Compensation for delay:

The time allowed or carrying out the work, as entered in the tender, shall be strictly observed by the Contractor and shall be reckoned from the 10th day after the date of written order to commence the work given to the Contractor. If the contractor does not commence the work within the period specified in the work order, he shall stand liable for the forfeiture of the amount of Earnest Money, and Security Deposit. Besides, appropriate action may be taken by the Engineer-in-charge/competent authority to debar him from taking part in future tenders for a specified period or black list him. The work shall, through-out the stipulated period of completion of the contract, be proceeded with all due diligence, time being essence of the contract, on the part of the Contractor. To ensure good progress during the execution of work, the contractor shall be bound, in all cases in which the time allowed for any work exceeds one month (save for special jobs), to complete 1/8th of the whole of the work before 1/4th of the whole time allowed under the contract has elapsed, 3/8th of the work before 1/2 of such time has elapsed and 3/4th of the work before 3/4 of such time has elapsed. If the contractor fails to complete the work in accordance with this time schedule in terms of cost in money, and the delay in execution of work is attributable to the contractor, the contractor shall be liable to pay compensation to the Government at every time span as below:

(A)	Time Span of full stipulated period	1/4th (..... days)	1/2th (.....days)	3/4th (..... days)	full (..... days)
(B)	Work to be completed in terms of money	1/8th (Rs. .....)	3/8th (Rs. .....)	3/4th (Rs. .....)	full (Rs. .....)
(C)	Compensation payable by the contractor for delay attributable to the contractor at the stage:	2.5% of Scheduled work remained unexecuted on the last day of (1/4) time span.	5% of Scheduled work remained unexecuted on the last day of (1/2) time span.	7.5% Scheduled work remained unexecuted on the last day of (3/4) time span.	10% of Scheduled work remained unexecuted on the last day of contracted full period.

Note: In case delayed period over a particular span is split up and is jointly attributable to government and contractor the competent authority may reduce the compensation in proportion of delay attributable to Government over entire delayed period over that span after clubbing up the split delays attributable to government and this reduced compensation would be (I) First time span is of 6 months, delay is of 30 days, which is split over as under:-

5 days (attributable to government) + days (attributable to contractor)+ 5 days (attributable to government) + 5 days (attributable to contractor) + 5 days (attributable to government) +5 days (attributable to contractor)

Total delay is thus clubbed to 15 days (attributable to government) and 15 days (attributable to contractor).

The normal compensation of 30 days as per clause 2 of agreement is 2.5% which can be reduced as 2.5 15/30 1.25" over 30 days with any escalation by competent authority.

The contractor shall, further, be bound to carry out the work in accordance with the date and quantity entered in the progress statement attached to the tender.

In case the delay in execution of work is attributable to the contractor, the span wise compensation, as laid down in this clause shall be mandatory. However, in case the slow progress in one time span is covered up within original stipulated period, then the amount of such compensation levied earlier shall be refunded. The Price escalation, if any, admissible under clause 45 of Conditions of Contract would be admissible only on such rates and cost of work, as would be admissible if work would have been carried out in that particular time span. The Engineer-in-Charge shall review the progress achieved in every time span, and grant stage wise extension in case of slow progress with compensation, if the delay is attributable to contractor, otherwise without compensation.

However, if for any special job, a time schedule has been submitted by the Contractor before execution of the agreement, and it is entered in agreement as well as same has been accepted by the Engineer-in-charge, the Contractor shall complete the work within the said time schedule. In the event of the Contractor failing to comply with this condition, he shall be liable to pay compensation as prescribed in forgoing paragraph of this clause provided that the entire amount of compensation to be levied under the provisions of this Clause shall not exceed 10% of the value of the contract. While granting extension in time attributable to the JDA, reasons shall be recorded for each delay.

Clause 3: <u>Risk & Cost Clause</u>

The Engineer-in-charge or the Competent Authority defined under rules may, without prejudice to his rights against the Contractor, in respect of any delay or inferior workmanship or otherwise, or any claims for damages in respect of any breaches of the contract and without prejudice to any rights or remedies under any of the provisions of this Contract or otherwise, and whether the date for completion has or has not elapsed, by notice in writing, absolutely determine the Contract in any or the following cases:

(i) If the Contractor having been given by the Engineer-in-charge, a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in inefficient or otherwise improper or un-workman like manner shall omit to comply with the requirements of such notice for a period of seven days, thereafter, or if the Contractor shall delay or suspend the execution of the work so that either in the judgment of the Engineer-in-charge (which shall be final and binding) he will be unable to secure completion of the work by the date for completion or he has already failed to complete the work by that date,

(ii) If the Contractor, being a company, shall pass a resolution or the court shall make an order that the company shall be bound up or if a receiver or a manager, on behalf of a creditor, shall be appointed or if circumstance shall arise, which entitle the court or creditor to appoint a receiver or a manager or which entitle the court to make a winding up order,

(iii) If the contractor commits breach of any of the terms and conditions of the Contract,

(iv) If the contractor commits any acts mentioned in, clause 19 thereof.

When the Contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in charge on behalf of the J.D.A. shall have powers: -

(a) To determine or rescind the contract, as aforesaid (of which determination or rescission notice in writing to the Contractor under the hand of the Engineer-in charge shall be conclusive evidence), upon such determination or rescission, the earnest money, full security deposit of the contract and performance guarantee of the contractor shall be liable to be forfeited and shall be absolutely at the disposal of JDA.

(b) To employ labour paid by the J.D.A. and to supply materials to carry out the work or any part of the work, debiting the Contractor with the cost of the labour and the price of the materials (of the amount of which cost and price certified by the Engineer-in-charge shall be final and conclusive against the contractor) and crediting him with the value of the work done in all respects in the same manner and at the same rates, as if it had been carried out by the Contractor under the terms of this Contract. The certificate of the Executive Engineer, as to the value of work done, shall be final and conclusive evidence against the Contractor provided always that action under the sub-clause shall only be taken after giving notice in writing to the Contractor. Provided also that; if the expenses incurred by the J.D.A. are less than the amount payable to the Contractor at his agreement rates, the difference shall not be payable to the Contractor.

(c) After giving notice to the contractor to measure up the work of the contractor and to take such part thereof, as shall be unexecuted out of his hands, and to give it to another contractor to complete, in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him (of the amount of which excess, the certificate in writing of the Engineer-in-charge shall be final and conclusive) shall be borne and paid by the original Contractor and may be deducted from any money due to him by JDA under this contract or on any other account, whatsoever, or from his Earnest Money, Security Deposit, Performance Guarantee, Enlistment Security or the proceeds of sales thereof, or a sufficient part thereof, as the case may be. In the event of any one or more of the above courses being adopted by the Engineer-in-charge, the Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of contract. And, in case action is taken under any of provisions aforesaid, the Contractor shall not be entitled to recover or be paid, any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-charge has certified, in writing, the performance of such work and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified.

Clause 4: <u>Contractor remains liable to pay compensation, if action not taken under clause 3</u>

(i) In any case in which any of the powers conferred by clause 3 hereof, shall have become exercisable and the same shall have not been exercised. The non-exercise, thereof, shall not constitute waiver of any of the conditions hereof, and such power shall, not withstanding, be exercisable in the event of any future case of default by the Contractor for which, by any clause or clauses hereof, he is declared liable to pay compensation amounting to the whole of his Security Deposit/Performance Guarantee/Earnest Money/Enlistment security and the liability of the Contractor for past and future compensation shall remain unaffected.

Power to take possession of, or require removal, sale of Contractor's plant

(ii) In the event of the Engineer-in-Charge putting in force, powers vested in him under the preceding Clause 3 he may, if he so desires, take possession of all or any tools, plants, materials and stores, in or upon the works or the site, thereof or belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof, paying or allowing for the same in account, at the contract rates or, in case of these not being applicable, at current market rates, to be certified by the Director Engineering or duly authorized Engineer (whose certificate thereof, shall be final and conclusive), otherwise the Engineer-in-Charge may, by notice in writing to the contractor or his clerk of the works, foreman or other authorized agent, require him to remove such tools, plant, materials or stores from the premises (within a time to be specified in such notice), and in the event of the contractor failing to comply with any requisition, the Director Engineering or other duly authorized Engineer may remove them at the contractor's expenses, or sell them by auction or private sale on account of the Contractor and at his risk in all respects, and the certificate of the Director Engineering or other duly authorized Engineer, as to the expense of any such removal, and the amount of the proceeds and expense of any such sale shall be final and conclusive against the Contractor.

Clause 5: Extension of time

If the contractor shall desire an extension of the time for completion of the work on the ground of his having been unavoidably hindered in its execution or on any other grounds, he shall apply, in writing, to the Engineer-in-Charge within 30 days of the date of the hindrance, on account of which he desires such extension as aforesaid, and the Authority Competent to grant extension under the rules/delegations of power or other duly authorized Engineer shall, if in his opinion, (which shall be final) reasonable grounds be shown thereof, authorize such extension of time, if any, as may, in his opinion, be necessary or proper. If the period of completion of contract expires before the expiry of the period of one month provided in this clause, the application for extension shall be made before the expiry of the period stipulated for completion of the contract. The competent authority shall grant such extension at each such occasion within a period of 30 days of receipt of application from contractor

and shall not wait for finality of work. Such extensions shall be granted in accordance with provisions under clause (2) of this agreement.

Clause 5 A: Monthly Return of Extra Claims

Contractor has to submit a return every month for any work claimed as extra. The Contractor shall deliver the return in the office of the Executive Engineer and obtain Receipt Number of the Receipt Register of the day on or before 10th day of every month during the continuance of the work covered by this contract, a return showing details of any work claimed as extra by the contractor which value shall be based upon the rates and prices mentioned in the contract or in the Schedule of Rates in force in the District for the time being. The contractor shall be deemed to have waived all claims, not included in such return, and will have no right to enforce any such claims not included, whatsoever be the circumstances.

Clause 6: Final Certificate

On completion of the work, the contractor shall send a registered notice to the Engineer-in-charge, giving the date of completion and sending a copy of it to the officer accepting the contract, on behalf of the Governor and shall request the Engineer-in-charge to give him a certificate of completion, but no such certificate shall be given nor shall the work be considered to be complete until the contractor shall have removed from the site on which the work shall be executed, all scaffolding, surplus materials and rubbish and cleared off the dirt from all wood work, doors, walls, floors, or other parts of any building in, upon or about which the work is to be executed or of which he may have possession for the execution thereof, he had filled up the pits. If the contractor shall fail to comply with the requirements of this Clause as to removal of scaffolding, surplus materials and rubbish and cleaning off dirt and filling of pits on or before the date fixed for completion of the work, the Engineer-in-charge may, at the expense of the contractor, remove such scaffolding, surplus materials, and the rubbish and dispose of the same, as he thinks fit, and clean off such dirt and fill the pits, as aforesaid, and the contractor shall forthwith pay the amount of all expenses, so incurred, and shall have no claim in respect of any such scaffolding or surplus materials, as aforesaid, except for any sum actually realized by the sale thereof. On completion, the work shall be measured by the Engineer-in-charge himself or through his subordinates, whose measurements shall be binding and conclusive against the contractor. Provided that, if subsequent to the taking of measurements by the subordinate, as aforesaid, the Engineer-in-charge had reason to believe that the measurements taken by his subordinates are not correct, the Engineer-in-charge shall have the power to cancel the measurements already taken by his subordinates and acknowledged by the Contractor and to take measurements again, after giving reasonable notice to the Contractor, and such re-measurements shall be binding on the Contractor.

Within thirty days of the receipt of the notice, Engineer-in-charge shall inspect the work and if there are no visible defects on the face of the work, shall give the Contractor, a certificate of completion. If the Engineer-in-charge finds that the work has been fully completed, it shall be mentioned in the certificate so granted. If, on the other hand, it is found that there are certain visible defects to be removed, the certificate to be granted by Engineer-in-charge shall specifically mention the details of the visible defects along with the estimate of the cost for removing these defects. The final certificate of work shall be given after the visible defects pointed out as above have been removed.

Clause 7: Payment on Intermediate Certificate to be regarded as advance

No payments shall be made for *works estimated to cost less than rupees twenty five Thousands*, till after the whole of the works shall have been completed and a certificate of completion given. But in the case of works *estimated to cost more than rupees twenty five thousand ,* the Contractor shall on submitting the bill therefore, be entitled to receive a monthly payment proportionate to the part, thereof, then approved and passed by the Engineer-in-charge, whose certificate of such approval and passing of sum, so payable, shall be final and conclusive. The Running Account Bill shall be paid within 15 days from presentation. But all such intermediate payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed, and shall not preclude the requiring of bad, unsound and imperfect or unskillful work to be removed and taken away and re-constructed or re-erected, or considered as an admission of the due performance of the contract, or any part thereof, in any respect, or the accruing of any claim, nor shall it conclude, determine, or effect in any way the powers of the Engineer-in-charge under these conditions or any of them to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract. The final bill shall be made/submitted by the Contractor within one month of the date fixed for completion of the work, otherwise the Engineer-in-charge's certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on all parties.

Clause 7A: Time Limit for Payments of Final Bills

The final bill shall be paid within 3 months on presentation by the contractor after issuance of final completion certificate in accordance with clause 6 of the conditions of contract. If, there shall be any dispute about any item(s) of the work, then the undisputed item(s) only, shall be paid within the said period of 3 months. If a final bill (which contains no disputed item or disputed amount of any item) is not paid within the period of three months from presentation of final bill or 6 months from the date of receipt of registered notice regarding completion of work in accordance with clause 6 of the conditions of the contract, the defects, if any, shall be brought to be notice of the higher authority. The period of 3 months shall commence from the date of rectification of the defects. The higher authority shall ensure that in no case final bill should be left unpaid after 9 months from the receipt of registered notice regarding completion of work. The contractor shall submit a memorandum of the disputed items along with justification in support within 30 days from the disallowance thereof, and if he fails to do so, his claims

shall be deemed to have been fully waived and absolutely extinguished.

Clause 8: Bills to be submitted monthly

A bill shall be submitted by the Contractor each month on or before the date fixed by the Engineer-in-charge for all work executed in the previous month and the Engineer-in-charge shall take or cause to be taken the requisite measurement for the purpose of having the same verified and the claim, as far as admissible, authorized or paid, if possible, before the expiry of ten days from the presentation of the bill. If the Contractor dose not submit the Bill within the time fixed, as aforesaid, the Engineer-in-charge may depute a subordinate to measure up the said work in the presence of the Contractor, whose signature in the Measurement Book will be sufficient warrant and the Engineer-in-charge may prepare a bill from such Measurement Book, which shall be binding on the contractor in all respects.

Clause 8A: Contractor to be given time to file objection to the Measurements recorded by the J.D.A.

Before taking any measurement of any work, as have been referred to in preceding Clauses 6, 7 & 8, the Engineer-in-charge or a subordinate, deputed by him, shall give reasonable notice to the Contractor. If the Contractor fails to be present at the time of taking measurements after such notice or fails to sign or to record the difference within a week from the date of measurement in the manner required by the Engineer-in-charge, then in any such event, the measurements taken by the Engineer-in-charge or by the subordinate deputed by him, as the case may be, shall be final and binding on the Contractor and the Contractor shall have no right to dispute the same.

Clause 9: Bills to be on printed forms

The Contractor shall submit all bills on the printed forms, to be had on application, at the office of the Engineer-in-charge and the charges in the Bills shall always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender, at the rates hereinafter provided for such work.

Clause 9A: Payments of Contractor's Bills to Banks

Payments due to the Contractor may if so desired by him, be made to this Bank instead of direct to him, provided that the contractor has furnished to the Engineer-in-Charge(I)an authorization in the form of a legally valid document, such as a Power of Attorney conferring authority on the Bank to receive payments, and (ii) his own acceptance of the correctness of the account made out, as being due to him, by JDA, or his signature on the bill or other claim preferred against JDA before settlement by the Engineer-in-Charge of the account or claim, by payment to the Bank. While the receipt given by such bank shall constitute a full and sufficient discharge for the payment, the Contractor should, whenever possible, present his bill duly receipted and discharged through his Banker. Nothing, herein constrained, shall operate to create in favour of the Bank any rights vis-à-vis the Governor.

Clause 10 – Stores supplied by JDA

If the specification or estimate of the work provides for the use of any special description of material, to be supplied from Engineer-in-charge's stores, or if, it is required that contractor shall use certain stores to be provided by the Engineer-in-charge specified in the schedule or memorandum hereto annexed, the Contractor shall be bound to procure and shall be supplied such materials and stores as are, from time to time, required to be used by him for the purpose of the contract only, and the value of the full quantity of materials and stores, so supplied; at the rates specified in the said schedule or memorandum, may be set off or which may be deducted from any sum, then due or thereafter become due, to the contractor under the contract or otherwise or against or from the Performance Guarantee and or Security Deposit or the proceeds of sale, if the same is held in JDA securities, the same or a sufficient portion thereof being in this case, sold for this purpose. All materials supplied to the Contractor, either from departmental stores or with the assistance of JDA, shall remain the absolute property of JDA. The Contractor shall be the trustee of the Stores/Materials, so supplied/procured, and these shall not, on any account, be removed from the site of work and shall be, all times, open to inspection by the Engineer-in-charge. Any such material, unused and in perfectly good condition at the time of completion or determination or rescinding of the contract, shall be returned to the JDA's Stores, if by a notice in writing under his hand, he shall so require, and if on service of such notice, the contractor fails to return the materials, so required, he shall be liable to pay the price of such materials in accordance with the provision of Clause 10 B ibid. But the Contractor shall not be entitled to return any such materials, unless with such consent, and shall have no claim for compensation on account of any such materials, so supplied to him as aforesaid being unused by him, or for any wastage in or damage to any such materials. For the stores returned by the Contractor, he shall be paid for, at the price originally charged excluding storage charges, in case of materials supplied from JDA stores and actual cost including freight, cartage, taxes etc., paid by the Contractor in case of supplies received with the assistance of JDA which, however, should in no case exceed market rate prevailing at the time the materials are taken back. The decision of the Engineer-in-charge, as to the price of the stores returned, keeping in view its condition etc., shall be final and conclusive. In the event of breach of the aforesaid condition, the Contractor shall, in addition to throwing himself open to account for contravention of the terms of the license or permit and/or for criminal breach of trust, pay to the JDA, all advantages or profits resulting, or which in the usual course, would result to him by reason of such breach. Provided that the Contractor shall, in no case be entitled to any compensation or damage on account of any delay in supply, or non-supply thereof, all or any such materials and stores.

Clause 10A: Rejection of materials procured by the Contractor

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

Clause 10 B: Penal rate in case of excess consumption :

The Contractor shall also be charged for the materials consumed in excess of the requirements calculated on the basis of standard consumption approved by the department at double of the issue rate including storage and supervision charges or market rate which ever is higher. A Material Supply and Consumption Statement in prescribed From RPWA 35 A shall be submitted with every Running Account Bill, distinguishing material supplied by the JDA and material procured by the Contractor himself. The recovery for such material shall be made from Running Account Bill next after the consumption and shall not be deferred. Certificate of such nature shall be given in each Running Account Bill.

Clause 10 C: Hire of Plant and Machinery:

Special Plant and Machinery, required for execution of the work, may be issued to the Contractor, if available, on the rates of hire charges and other terms and conditions as per department Rules, as per Schedule annexed to these conditions. Rates of such Plant & Machinery shall be got revised periodically so as to bring them at par with market rate.

Clause 11: Works to be executed in accordance with specifications, Drawings, Orders etc.

The Contractor shall execute the whole and every part of the work in the most substantial and satisfactory manner and both as regards materials and otherwise in every respect, in strict accordance with the Specifications. The Contractor shall also conform exactly fully and faithfully to the designs, drawings (either designed by J.D.A. or designed by contractor and approved by Engineer-in-charge during execution) and instructions in writing relating to the work signed by the Engineer-in-charge and lodged in his office and to which the Contractor shall be entitled to have access at such office or on the site of the work for the purpose of inspection during office hours and the Contractor shall, if he so require, be entitled, at his own expense, to make or cause to be made copies of specifications and of all such designs, drawings and instructions, as aforesaid. A certificate of executing works as per approved design etc. shall be given on each Running Account Bill.

The specifications of work, material, and methodology of execution, drawings and designs shall be signed by the Contractor and Engineer-in-charge while executing agreement and shall form part of agreement.

Clause 12:

The Engineer–in–charge shall have power to make any alterations in or additions to or substitutions for the original specification, drawings, designs and instructions, that may appear to him to be necessary during the progress of the work and the contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer–in-charge and such alterations, omissions, additions or substitutions shall not invalidate the contract and any altered, additional or substituted work, which the contractor may be directed to do in the manner above specified as part of the work, shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work. The time for the completion of the work shall be extended in the proportion that the altered, additional or substituted work bears to the original contract work, and the certificate of the Engineer-in-charge shall be conclusive as to such proportion. The rates for such additional, altered or substituted work under this clause shall be worked out in accordance with the following provisions in their respective order:

(i) If the rates for the additional, altered or substituted work are specified in the contract for the work, the contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the contract for the work.

(ii) If the rates for the additional, altered or substituted work are not specifically provided in the contract for the work, the rates will be derived from the rates for a similar class of work as are specified in the contract for the work.

(iii) If the rates for the altered, additional or substituted work can not be determined in the manner specified in the sub-clauses (i) to (ii) above, then the rates for such composite work item shall be worked out on the basis of the concerned Schedule of Rates of the District/area specified which the total tendered amount bears to the estimated cost of the entire work put to tender. Provided always that if the rate for a particular part or parts of the item is not in the Schedule of Rates, the rate for such part or parts will be determined by the Engineer-in-Charge on the basis of the prevailing market rates when the work was done.

(iv) If the rates for the altered, additional or substituted work item can not be determined in the manner specified in sub-clauses (i) to (iii) above, then the contractor shall within 7 days of the date of receipt of order to carry out the work, inform the Engineer- in – Charge of the rate which it is his intention to charge for such class of work supported by analysis of the rate or rates claimed and the Engineer-in-Charge shall determine the rate or rates on the basis of prevailing market rates, and pay the contractor accordingly. However, the Engineer-in-Charge, by notice in writing, will be at liberty to cancel his order to carry out such class of work and arrange to

carry it out in such manner as he may consider advisable. But under no circumstances, the contractor shall suspend the work on the plea of non-settlement of rates on items falling under the clause.

(v) Except in case of items relating to foundations, provisions contained in sub-clauses(i) to (iv) above shall not apply to contract or substituted items as individually exceed the percentage set out in the tender documents under clause12.A.

For the purpose of operation of clause 12 (v) the following works shall be treated as work relating to foundations:-

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

(b) For abutments, piers, retaining wall of culverts and bridges, walls of water reservoir and the bed of floor level.

(c) For retaining walls, where floor levels is not determinate 1.2 meters above the average ground level or bed level.

(d) For roads, all items of excavation and filling including treatment of sub base and soling work.

(e) For water supply lines, sewer lines under ground storm water drains and similar work, all items of work below ground level except items of pipe work for proper masonry work.

(f) For open storm water drains, all items of work except lining of drains.

(g) Any other items of similar nature which Engineer-in-Charge may decide relating to foundation.

The rate of any such work, except the items relating to foundations, which is in excess of the deviation limit, shall be determined in accordance with the provisions contained in Clause 12A.

Clause 12A:

The quantum of additional work for each item shall not exceed 50% of the original quantity given in the agreement and the total value of additional work shall not exceed 20% of the total contract value, unless otherwise mutually agreed by the Engineer-in-charge and the Contractor. This limit shall not be applicable on items relating to foundation work which shall be executed as per original rates or provision of clause 12 (i) to (iv).

In case of contract substituted items or additional items, which results in exceeding the deviation limit laid down in this clause except items relating to foundation work, which the contractor is required to do under clause 12 above, the contractor shall within 7 days from the receipt of order, claim revision of the rate supported by proper analysis in respect of such items for quantities in excess of the deviation limit notwithstanding the fact that the rates for such items exist in the tender for the main work or can be derived in accordance with the provision of sub clause (ii) of clause 12 and the Engineer-in-Charge, may revise their rates having regard to the prevailing market rates and the contractor shall be paid in accordance with the rates so fixed. The Engineer-in-Charge shall, however, be at liberty to cancel his order to carry out such increased quantities of work by giving notice in writing to the contractor and arrange to carry it out in such manner as he may consider advisable. But under no circumstances, the contractor shall suspend the work on the plea of non-settlement of rates of items failing under this Clause.

All the provisions of the preceding paragraph shall equally apply to the decrease in rates of items for quantities in excess of the deviation limit notwithstanding the fact that the rates for such items exist in the tender for the main work or can be derived in accordance with the provisions of sub-clause(ii) of the preceding clause 12 and the Engineer-in-Charge may revise such rates having regard to the prevailing market rates unless otherwise mutually agreed by the Engineer-in-Charge and the Contractor..

Clause 13: <u>No compensation for alteration in or restriction of work to be carried out</u>.

If, at any time after the commencement of the work the JDA shall, for any reason, whatsoever, not require the whole work, thereof, as specified in the tender, to be carried out, the Engineer-in-charge shall give notice, in writing, of the fact to the Contractor, who shall have no claim to any payments or compensation, whatsoever, on account of any profit or advantage, which he might have derived from the execution of the work in full but which he did not derive in consequence of the full amount of the work not having been carried out. Neither, shall he have any claim for compensation by reason of alterations having been made in the original specifications, drawings, and design, and instructions, which shall involve any curtailment of the work, as originally contemplated. Provided, that the Contractor shall be paid the charges for the cartage only, of materials actually brought to the site of the work by him for bonafide use and rendered surplus as a result of the abandonment or curtailment of the work or any portion thereof, and taken them back by the Contractor, provided however, that the Engineer-in-charge shall have, in all such cases, the option of taking over all or any such materials at their purchase price or at local market rates whichever may be less. In the case of such stores, having been issued from JDA Stores, charges recovered, including storage charges shall be refunded after taking into consideration any deduction for claim on account of any deterioration or damage while in the custody of the contractor, and in this respect the decision of the Engineer-in-charge shall be final.

Clause 14: <u>Action and compensation payable in case of bad work</u>

If, it shall appear to the Director Engineering or any authorized authority or the Engineer-in-charge or his subordinates in-charge of the work, or to the committee of the retired officers/officers appointed by the J.D.A. JDA for the purpose that any work has been executed with unsound, imperfect or unskillful workmanship, or with material of any inferior description, or that any materials or articles provided by him for the execution of the work

are unsound or of a quality inferior to that contracted, or otherwise not in accordance with contract, the Contractor shall on demand in writing from the Engineer-in-charge, specifying the work/materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, will rectify or remove and reconstruct the work, so specified, in whole or in part, as the case may be, remove the materials or articles, so specified, and provide other proper and suitable materials or articles at his own cost, and in the event of his failing to do so, within a period to be specified by the Engineer-in- Charge in his demand as aforesaid, then the Contractor shall be liable to pay compensation at the rate of one percent, on the tendered amount of work for every week not exceeding ten percent, while his failure to do so shall continue, and in the case of any such failure, the Engineer-in-Charge may rectify or remove and re-execute the work or remove and replace with others, the materials or articles complained of as the case may be, at the risk and expense, in all respects of the contractor.

Clause 15: Work to be opened to inspection: Contractor or his responsible Agent to be present

All work, under or in course of execution or executed in pursuance of the contract shall, at all times, be opened for inspection and supervision of the Engineer-in-charge and his superior officers and his subordinates and any other authorized agency of the JDA and the contractor shall, at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Engineer-in-charge or his subordinate and any other authorized agency of JDA or committee of retired officers/officers appointed by the JDA for the purpose to visit the works shall have been given to the Contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for the purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the Contractor himself.

Clause 16: Notice to be given before any work is covered up

The Contractor shall give not less than 7 days notice, in writing, to the Engineer-in-charge or his subordinate-in-Charge of the work, before covering up or otherwise placing beyond the reach of measurement, any work in order that the same may be measured, and correct dimensions there of, be taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up or place beyond the reach of measurement any work without the consent in writing of the Engineer-in- Charge of the work, and if, any work shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at the Contractor's expense or in default, there of, no payment or allowance shall be made for such work, or for the materials with which the same was executed.

Clause 17: Contractor liable for damage done and for imperfections

If the Contractor or his work people or servants shall break, deface, injure or destroy any part of a building, in which they may be working or any building, road, fence, enclosure, or cultivated ground contiguous to the premises on which the work or any part of it is being executed, or if any damage shall happen to the work, while in progress, from any cause, whatsoever, or any imperfections become apparent in it, within a period specified in clause 37, after a certificate, final or otherwise of its complection, shall have been given by the Engineer-in-charge, may cause the same to be made good by other workmen and deduct the expense (of which the certificate of the Engineer-in-charge shall be final) from any sums that may be then, or at any time thereafter, may become due to the Contractor, or from his security deposit, or the proceeds of sale therof, or of a sufficient portion thereof.

Clause 18: Contractor to supply plant, ladders, scaffolding etc.

The Contractor shall arrange and supply, at his own cost, all material (except such special materials, if any, as may, in accordence with the contract, be supplied from the Engineer-in-charge's stores), plants, tools, appliances, implements, ladders, cordage, tackle, scaffolding and temporary works requisite or propoer for the proper execution of the work, whether original, altered, or substituted, and whether included in the specification or other documents, forming part of the Contract, or reffered to in these conditions, or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer in- Charge, as to any matter as to which, under these conditions, he is entitled to be satisfied or which he is entiled to require, together with carriage thereof, to and from the work. The Contrctor shall also arrange and supply, without charge, the requisite number of persons with the means and materials, necessary for the purpose of setting out work and counting, weighting and assisting in the measurement or examination at any time and from time to time of the work, or materials. Failing his so doing, the same may be provided by the Engineer-in-charge, at the expense of the Contrator, and the expenses may be deducted from any money due to the Contractor under the Contract, or from his Performance Guarantee and/or Security Deposit or the proceeds of sale therof, or a sufficient portion thereof. The Contractor shall also provide all necessary fencing and lights required to protect the public from accident and shall be bound to bear the expenses of defence of every suit, action or other proceeding at law, that may be brought by any person for injury sustained owing to neglect of the above precautions, and to pay any damages and costs which may be awarded in any such suit, action proceeding to any such person or which may, with the consent of the Contractor, be paid to compromise any claim by any such person.

Clause 19: Contract may be rescinded and Security Deposit and Performance Forfeited for bribing or if Contractor becomes insolvent.

If the Contractor become insolvent, or commence any insolvency procedings or mark any composition with his creditors, or attempt so to do, or if any bribe, gratuity, gift, loan requisite reward or advantage, pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the Contractor or any of his servants

or agents to any public officer or person, in the employ of JDA, in any way, relating to his office or employment, or if, any such officer or person shall become, in any way, directly or indirectly, interested in the contract, the Director Engineering may, thereupon, by notice, in writing, rescind the contract and Performance Guarantee and Security Deposit of the Contractor shall, thereupon, stand forfeited and be absolutely at the disposal of JDA and the same consequences shall ensure as, if the contract had been rescinded under Clause 3 hereof, and in addition the Contractor shall not be entitled to recover or be paid for any work therefor, actually performed under the Contract.

Clause 20: Sums payable by way of compensation to be considered as reasonable compensation without reference to actual loss

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of JDA without reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.

Clause 21: Changes in constitution of firm

Where the Contractor is a partnership firm, previous approval, in writing, of the Engineer-in-charge shall be obtained before any change is made in the constitution of the firm. Where the Contractor is an individual or a Hindu undivided family business concern, such approval, as aforesaid, shall likewise be obtained before the Contractor enters into any partnership agreement thereunder the partnership firm would have the right to carry out the work hereby undertaken by the Contractor. If, previous aproval, as aforesaid, is not obtained, the Contract shall be deemed to have been assigned in contravention of Clause 19 hereof, and the same action may be taken, and the same consequences shall ensure, as provided in the said clause 19.

Clause 22: Work to be under direction of Engineer-in-charge

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

Clasue 23: Standing Committee for Settlement of Disputes

If any question, difference or objection, whatsoever shall arise in any way, in connection with or arising out of this instrument, or the meaning of operation of any part thereof, or the rights, duties or liabilities of either party then, save in so far, as the decision of any such matter, as herein before provided for, and been so decided, every such matter constituting a total claim of Rs. 50,000/- or above, whether its decision has been otherwise provided for and whether it has been finally decided accordingly, or whether the Contract should be terminated or has been rightly terminated, and as regards the rights or obligations of the parties, as the result of such termination, shall be referred for decision to the empowered Standing Committee, which would consist of the followings:-

(i) Commissioner , J.D.A.

(ii) Secretary, J.D.A.

(iii) Director Engineering (Member Secretary), J.D.A.

(iv) Director , Finance, J.D.A.

(vi) Director , Law, J.D.A.

The Engineer-in-charge, on receipt of application along with non-refundable prescribed fee, (the fee would be two percent of the amount in dispute, not exceeding Rs. one lac) from the Contractor, shall refer the disputes to the committee, within a period of one month from the date of receipt of application.

Procedure and Application for referring cases for setttlement by the Standing Committee shall be, as given in Form RPWA 90.

Clause 23A: Contractor to indemnify for infringement of Patent or design

Contractor shall fully indemnify the J.D.A. against any action, claim or proceeding, relating to infringement or use of any patent or design, or any alleged patent or design, rights, and shall pay any royalties, which may be payable in respect of any article or part thereof, included in the contract, in the event of any claims made under or action brought against JDA. In respect of any such matters, as aforesaid, the Contractor shall be, immediately, noticed thereof, and the Contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation, that may arise there from provided that the Contractor shall not be liable to indemnify the J.D.A., if the infringement of the patent or design or any alleged patent or design, right is the direct result of an order passed by the Engineer-in-Charge in this behalf.

Clause 24: Imported Store articles to be obtained from JDA :

The Contractor shal lobtain fro m the stores of the Engineer-in-charge, all imported store articles, which may be

required for the work or any part thereof, or in making up articles required thereof, or in connection therewith, unless he has obtained permission in writing, from the Engineer-in-charge, to obtain such stores and articles from else-where. The value of such stores and articles, as may be supplied to the Contractor by the Engineer-in-charge, will b debited to the Contractor, in his account, at the rates shown in the schedule attached to the contract, and if they are not enetered in the schedule, they will be debited at cost price, which for the purposes of this contract, shall include the cost of carriage and all other expenses, whatsoever, which shall have been incurred in obtaining delivery of the same at the stores aforesaid plus storage charges.

Clause 25: Lump-sums in estimates

When the estimate, on which a tender is made includes lump sums, in respect of parts of the work, the Contractor shall be entitled to payment in respect of the item of work involved, or the part of the work in question at the same rates, as are payable under the contract for such items or if the part of the work in question is not, in the opinion of the Engineer-in-charge, capable of measurement, the Engineer-in-charge may at his discretion pay the lump sum amount entered in the estimate and the certificate in writing of the Engineer-in-charge shall be final and conclusive with regard to any sum or sums payable to him under the provisions of this clause.

Clause 26: Action where no Specification

In case of any Class of work for which there is no such specification as is mentioned in the contract document such work shall be carried out in accordance with the detailed specification of the J.D.A. and also in accordance with the instructions and requirement of the Engineer-in-charge.

Clause 27: Definition of work

The expression “works” or “work” where used in these conditions, shall, unless there be some thing either in subject or context, repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed, whether temporary or permanent, and whether original, altered, substituted or additional.

Clause 27A: Definition of Engineer-in-charge

The term “Engineer-in-charge” means the Executive Engineer who shall supervise and be incharge of the work and who shall sign the contarct on behalf of the JDA.

Clause 28:

It can not be guaranteed that the work will be started immediately after the tenders have been received. No claims for increase of rate will be entertained, if the orders for starting work are delayed.

Clause 29: Payments at reduced rates on account of items of work not accepted and not completed to be at the discretion of the Engineer-in- charge

The rates for several items of works, estimated to cost more than Rs. 1,000/-, agreed within, will be valid only when the item concerned is accepted as having been completed fully in accordance with the sanctioned specifications. In cases, where the items of work are not accepted, as so completed, the Engineer-in-charge may make payment on account of such items, at such reduced rates, as he may considers reasonable, in the preparation of final or on account bills, and his decision in the matter shall be final and binding.

Clause 29A: Payments at part rates

The rates for several items of works may be paid at part rates provisionally in running bills in proportion to the quantum of items executed at the discretion of Engineer-in-charge. In case of item rates, if the rate quoted for certain items are very high in comparison to the average/overall tendered premium, and then the payment at running stages shall not be made more than the average sanctioned premium. The deferred payment, will however be released after successful completion of the work.

Clause 30: Contract’s percentage, whether applied to net or gross amount of bill

The percentage referred to in the “Tender for works “will be deducted / added from / to the gross amount of bill before deducting the value of any stock issued.

Clause 31: Contractor to adhere to labour laws/regulation

The Contractor shall adhere to the requirements of the Workmen's Compensation Act and Labour Legislation in force from time to time and be responsible for and shall pay any compensation to his workmen which would be payable for injuries under the Workmen's Compensation Act, here-in-after called the said Act. If such compensation is paid by the J.D.A. as Principal employer under Sub Section (1) of section 12 of the said Act, on behalf of the Contractor, it shall be recoverable by the J.D.A. from the Contractor under Sub Section (2) of the said section. Such compensation shall be recovered in the manner laid down in clause 1 of the Conditions of Contract.

Clause 32: Withdrawal of work from the Contractor

If the Engineer-in-charge shall at any time and for any reasons, whatever, including inability to maintain prorata progress, think any portion of the work should not be executed or should be withdrawn from the Contractor, he may, by notice in writing to that effect, require the Contractor not to execute the portion of the work specified in the notice, or may withdraw from the Contractor the portion of work, so specified, and the Contractor shall not be entitled to any compensation, by reason of such portion of work having been withdrawn from him. The Engineer-in-charge may supplement the work by engaging another agency to execute such portion of the work at the cost of the original contractor, without prejudice to his rights under clause 2. He shall also be competent to levy compensation for delay in progress. The recovery of excess cost shall be made from next available running bill or any other claim and shall not be deferred.

Clause 33:

The Contract includes clearance, leveling and dressing of the site within a distance of 15 meters of the building on all sides except where the building adjoins another building.

Clause 34: Protect works

The Contractor shall arrange to protect, at his own cost, in an adequate manner, all cut stone work and other work, requiring protection and to maintain such protection, as long as work is in progress. He shall remove and replace this protection, as required by the Engineer-in-Charge, from time to time. Any damage to the work, so protected, no matter how it may be caused, shall be made good by the Contractor free of cost.

All templates, forms, moulds, centering, false works and models, which in the opinion of the Engineer-in-Charge, are necessary for the proper and workman like execution of the work, shall be provided by the Contractor free of cost.

Clause 35: Contractor liable for settlement of claims caused by his delays

If the progress of the work has fallen so much in arrears as to prevent other contractors on the work, from carrying out their part of the work within the stipulated time, he will be liable for the settlement of any claim, put in by any of these contractors for the expenses of keeping their labour unemployed, to the extent considered reasonable by the Engineer-in-Charge.

Clause 36A:

The liability, if any, on account of quarry fees, royalties, octroi and any other taxes and duties in respect of materials actually consumed on public work, shall be borne by the Contractor.

Clause 36B:

The cost of all water connections, necessary for the execution of work, and the cost of water consumed and hire charges of meters and the cost of electricity consumed in connection with the execution of work, shall be paid by the Contractor, except where otherwise specifically indicated.

Clause 36C: Payment of Sales Tax, and any other Taxes

Royalty or other tax on materials, issued in the process of fulfilling contract, payable to the JDA under rules in force, will be paid by the Contractor himself.

Clause 36D:

In respect of goods and materials procured by the Contractor, for use in works under the contract, sales tax will be paid by the Contractor himself. But in respect of all such goods manufactured and supplied by the Contractor and works executed under the contract, the responsibility of payment of sales tax would be that of the Engineer-in-charge.

Clause 37: Refund of Performance Guarantee and Security Deposit

The Security Deposit will be refunded after the expiry of the period, as prescribed below:

Original works/special repairs/renewal works: Six months after completion except in case of works, such as building works, bridge works, cross drainage works, Dams, Canals, water supply and sewerage schemes (except where provided otherwise in any specified case) etc., the Performance Guarantee/ Security Deposit will be refunded 6 months after completion, or expiry of one full rainy season or after expiry of defect liability period, whichever is later, provided the final bill has been paid.

Clause 38: Fair Wage Clause

(a) The Contractor shall pay not less than fair wages/minimum wages to laboures engaged by him on the work as revised from time to time by the JDA, but the JDA shall not be liable to pay any thing extra for it except as stipulated in price escalation clause (clause 45) of the agreement.

Explanation: "Fair Wage" means minimum wages for time or piece work, fixed or revised, by the J.D.A. JDA under Minimum Wages Act, 1948.

(b) The Contractor shall, **notwithstanding the provisions** of any contract to the contrary, cause to be paid fair wages to laborers indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work as if the laborers have been immediately or directly employed by him.

(c) In respect of all laborers immediately or directly employed on the work, for the purpose of the Contractor's part of this agreement, the Contractor shall comply with or cause to be complied with the Public Works J.D.A. Contract's Labour Regulations made, or that may be made by the JDA, from time to time, in regard to payment of wages, wages period, deductions from wages, recovery of wages not paid, and unauthorized deductions, maintenance of wages register, wage card, publication or scale of wages and other terms of employment, inspection and submission of periodical returns and other matters of a like nature.

(d) The Engineer-in-charge shall have right to deduct from the money due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers, by reasons of non-fulfillment of the conditions of the contract, for the benefit of the worker or workers, non-payment of wages or

of deductions made there from, which are not justified by the terms of the contract, or as a result of non-observance of the aforesaid regulations.

(e) Vis-à-Vis the JDA of Rajasthan, the Contractor shall be primarily liable for all payments to be made and for the observance of the regulations aforesaid, without prejudice to his right to claim indemnity from his sub-contractors.

(f) The regulations, aforesaid, shall be deemed to be part of this contract and any breach, thereof, shall be deemed to be breach of the Contract.

Clause 39: Contractor to engage technical staff

The Contractor shall engage the technical staff, as follows, on the contract works:

(a) For works costing Rs. 100 lac and above – One Graduate Engineer

(b) For works costing between Rs. 50 lac to Rs. 100 lac - One qualified diploma holder having experience of not less than 3 years.

(c) For works costing between Rs. 15 lac and Rs. 50 lac - One qualified diploma holder

The technical staff should be available at site, whenever required by Engineer-in-charge to take instructions.

Clause 39 A:

The Contractor shall comply with the provisions of the Apprenticeship Act, 1961, and the Rules and Orders issued, hereunder, from time to time. If he fails to do so, his failure will be a breach of contract. The Contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.

Clause 40: Safety code

The Contractor shall follow the safety code (s) of the works and specified in the special conditions of the work.

Clause 41: Near Relatives barred from tendering

The Contractor shall not be permitted to tender for works in Circle, in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of the Additional Chief / Circle Engineer and Sector Engineer (both inclusive). He shall also intimate the names of persons, who are working with him in any capacity, or are subsequently employed by him and who are near relatives to any gazetted officer in the Organization/J.D.A... Any breach of this condition by the Contractor would render him liable to be removed from the approved list of contractors of the J.D.A If such facts is noticed (a) before sanction of tender, his offer shall be declared invalid and earnest money shall be forfeited, (b) after sanction of the tender then the tender sanctioning authority may at his discretion forfeit his earnest money, performance guarantee, security deposit and enlistment deposit and work/remaining work may allot to any registered contractor on the same rates as per rules.

Note: By the term **"near relative"** is meant wife, husband, parents, and grand-parents, children and grand children, brothers and sisters, uncles and cousins and their corresponding in-laws.

Clause 42: Retired Gazetted Officers barred for 2 years

No Engineer of Gazetted rank or other Gazetted officer, employed in Engineering or Administrative duties in an Engineering J.D.A. of the JDA of Rajasthan, is allowed to work as a Contractor for a period of 2 years of his retirement from JDA service without the previous permission of JDA of Rajasthan. This contract is liable to be cancelled, if either the Contractor or any of his employees is found, at any time, to be such a person, who had not obtained the permission of JDA, as aforesaid, before submission of the tender or engagement in the contractor's service, as the case may be.

Clause 43: Quality Control

The JDA shall have right to exercise proper Quality Control measures. The Contractor shall provide all assistance to conduct such tests.

Clause 43 A:

The work (whether fully constructed or not) and all materials, machines, tools and plant, scaffolding, temporary buildings and other things connected therewith, shall be at the risk of the contractor until the work has been delivered to the Engineer-in-charge, and a certificate from him, to the effect, obtained.

Clause 44: Death of Contractor

Without prejudice to any of the rights or remedies under the contractor, if the Contractor dies the legal heirs of the Contractor or the Director Engineering or duly authorized Engineer shall have the option of terminating the contract without any compensation.

Clause 45: Price Variation Clause:

If, during the progress of the contract of value exceeding Rs. 50.00 lac (accepted tendered amount minus cost of material supplied by the department), and where stipulated completion period is more than 03 months (both the conditions should be fulfilled), the price, of any materials/bitumen/diesel and petrol / cement / steel incorporated in the works (not being materials to be supplied by the department) and / or wages of labour increases or decreases, as compared to the price and / or wages prevailing at the date of opening of tender or date of negotiations for the work, the amounts payable to contractors for the work shall be adjusted for increase or decrease in the rates of materials (excepting those materials supplied by the department) / labour / bitumen / diesel and petrol / cement / steel. If negotiated rates have been accepted, prices as on the date of negotiation shall be considered for price adjustment. Similarly, if rates received on the date of opening of tenders have been accepted, then prices on the date of opening of tender shall be considered for price adjustment.
Increase or decrease in the cost of labour / material / bitumen /diesel and petrol / cement / steel shall be calculated quarterly in accordance with the following formula.

(A) Labour :

$$V_L = 0.75 \times \frac{P_L}{100} \times \frac{(I_{L1} - I_{L0})}{I_{L0}}$$

V_L = Increase or decrease in the cost of work during the quarter under consideration due to change in rates for labour.

R = The value of the work done in rupees during the quarter under consideration excluding the cost of materials supplied by the department and excluding other items as mentioned in this clause.

I_{L0} = The average consumer price index for industrial workers (whole-sale prices) for the quarter in which tenders were opened / negotiated (as published in Reserve Bank of India Journal / labour Bureau Simla, for the area).

I_{L1} = The average consumer price index for industrial workers (whole-sale prices) for the quarter of calendar year under consideration (as published in Reserve Bank of India Journal / labour Bureau Simla, for the area).

P_L = Percentage of labour components.

Note: In case of revision of minimum wages by the JDA or other competent authority, nothing extra would be payable except the price escalation permissible under this clause.

(B) **Material** (excluding material supplied by the department)

$$V_M = 0.75 \times \frac{P_M}{100} \times \frac{(L_{M1} - L_{M0})}{L_{M0}}$$

V_M = Increase or decrease in the cost during the quarter under consideration due to change in rates of material.

R = The value of the work done in rupees during the quarter under consideration excluding the cost of materials supplied by the department and excluding other items as mentioned in this clause.

L_{M0} = The average wholesale price index (all commodities) for the quarter in which tender were opened / negotiated (as published in Reserve Bank of India Journal / labour Bureau Simla, for the area).

L_{M1} = The average wholesale price index (all commodities) for the quarter under consideration (as published in Reserve Bank of India Journal / labour Bureau Simla, for the area).

P_M = Percentage of material component (excluding materials supplied by the Department).

(C) Bitumen :

$$V_b = 0.75 \times \frac{P_b}{100} \times \frac{(B_1 - B_0)}{B_0}$$

V_b = Increase or decrease in the cost during the quarter under consideration due to change in the rate for bitumen.

R = The value of the work done in rupees during the quarter under consideration excluding the cost of materials supplied by the department and excluding other items as mentioned in this clause.

B_0 = The wholesale price for bitumen on the day of opening of tenders/negotiation, as published by the Economic Adviser to Govt. of India, Ministry of Industry.

B_1 = The average wholesale price index for bitumen for the quarter under consideration (as published by the Economic Adviser to Govt. of India, Ministry of Industry.

P_b = Percentage of bitumen component excluding supplied by the Department (Specified in the sanctioned estimate of the work).

(D) Petroleum :

$$V_f = 0.75 \times \frac{P_f}{100} \times R \times \frac{(F_1 - F_0)}{F_0}$$

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

R = The value of the work done in rupees during the quarter under consideration excluding the cost of materials supplied by the department and excluding other items as mentioned in this clause.

F_0 = The average wholesale price Index of High Speed Diesel (HSD) as published by the Economic Adviser to the Govt. of India, Ministry of Industry on the day of opening of tender / negotiations.

F_1 = The average wholesale price index of H.S.D. for the quarter under consideration as published weekly by the Economic Adviser to Govt. of India, Ministry of Industry for the quarter under consideration.

P_f = Percentage of fuel and lubricants component excluding fuel and lubricants supplied by the Department (Specified in the sanctioned estimate for the work).

R = Total work done during the quarter as prescribed under this clause.

Note : For application of this clause price of HSD is chosen to indicate fuel and lubricant component.

(E) **Cement :**

$$V_f = 0.75 \times \frac{P_f}{100} \times R \frac{(F_1 - F_0)}{F_0}$$

V_C = Increase or decrease in the cost of work during the quarter under consideration due to change in rates for cement.

R = The value of the work done in rupees during the quarter under consideration excluding the cost of cement supplied by the department and excluding other items as mentioned in this clause.

I_{C0} = The average wholesale price index for the quarter in which tenders were opened / negotiated (as published by the Economic Advisor to Government of India , Ministry of Industries.).

I_{C1} = The average wholesale price index for the quarter under consideration (as published by the Economic Advisor to Government of India , Ministry of Industries).

P_C = Percentage of cement components (excluding cement supplied by the Department).

(F) Steel :

$$V_f = 0.75 \times \frac{P_f}{100} \times R \frac{(F_1 - F_0)}{F_0}$$

V_S = Increase or decrease in the cost of work during the quarter under consideration due to change in rates for steel.

R = The value of the work done in rupees during the quarter under consideration excluding the cost of steel supplied by the department and excluding other items as mentioned in this clause.

I_{S0} = The average wholesale price index for the quarter in which tenders were opened / negotiated (as published by the Economic Advisor to Government of India , Ministry of Industries.).

I_{S1} = The average wholesale price index for the quarter under consideration (as published by the Economic Advisor to Government of India , Ministry of Industries).

P_S = Percentage of steel components (excluding steel supplied by the Department).

Clause 45 A : Price Variation in – installation of elevators, supply/installation of Centrally Air Conditioning and Central Evaporating Cooling Works :

In all cases of contracts for installation of elevators, supply/installation of Central Air Conditioning and Central Evaporating Cooling Works, the price quoted shall be based on the Indian Electrical and Electronics Manufacturers Association (IEEMA) price variation clause based on the cost of raw materials / components and labour cost as on the date of quotation / tender, and the same is deemed to be related to wholesale price index number of metal products and All India Average consumer price index number of industrial workers as specified below. In case of any variation in these index numbers, the prices shall be subject to adjustment up or down in accordance with following formula.

$$P = \frac{P_0}{100}\left[15 + 55\frac{MP}{MP_0} + 15\frac{W_0(D)}{Wo} + 15\frac{Wo(I)}{Wo}\right]$$

Where :

P = Price payable as adjusted in accordance with the above price variation formula.

P_0 = Price quoted / confirmed

M_{P0} = Wholesale Price Index Number for metal products as published by the office of the Economic Adviser, Ministry of Industry, JDA of India in their weekly bulletin, Revised Index Number of Wholesale Prices (Base : 1981-82=100) for the week ending first Saturday of the relevant calendar month. The relevant month shall be that in which price was offered or negotiated whichever is later.

W_0 = All India Average Consumer Price Index Number for Industrial workers (Base : 1982 = 100) as published by Labour Bureau, Ministry of Labour, JDA of India, for relevant calendar month. The relevant month shall be that in which price was offered or negotiated whichever is later.

The above index number MPo & We are those published by IEEMA as prevailing on the first working day of the calendar month FOUR months prior to the date of tendering.

MP = Wholesale Price Index Number of Metal Products as published by the office of Economic Adviser, Ministry of Industry, JDA of India, in their weekly bulletin Revised index number of wholesale prices (Base : 1981-82 = 100). The applicable wholesale price Index Number for Metal Products as prevailing on Ist Saturday of the month covering the date FOUR months prior to the date of delivery and would be as published by IEEMA.

W0 (D)= All India Average Consumer Price Index Number for Industrial workers prevailing for the month covering the date FOUR months prior to the date of delivery of manufactured material and would be as published by IEEMA.

W0 (I) = All India Average Consumer Price Index Number for Industrial workers (Base : 1982=100) as published by

Labour Bureau, Ministry of Labour, JDA of India. The applicable All India Consumer Price Index Number of Industrial workers prevailing for the FOUR months prior to the date of completion of installation / progress parts of installation and would be as published by IEEMA. The date of delivery shall be the date on which the manufactured material is actually supplied at site. The date of completion of installation (or progress part of installation shall be the date on which the work is notified as being completed and is available for inspection / duly tested. In the absence of such notification, the date of completion is not intimated, such completion shall be considered by the Engineer-in-charge which shall be final.

Note-1 The Wholesale Price Index Number for Metal Products is published weekly by the office of the Economic Adviser, but if there are any changes, the same are incorporated in the issue appearing in the following week. For the purpose of this Price Variation Clause, the final index figures shall apply.

Note-2 The sole purpose of the above stipulation is to arrive at the entire contract under the various situations. The above stipulation does not indicate any intentions to sell materials under this contract as movables.

Note-3 The indices MP & Wo are regularly published by IEEMA in monthly basic price circulars based on information bulletins from the authorities mentioned. These will be used for determining price variation and only IEEMA Circulars will be shown as evidence, if required.

General Conditions for admissibility of Escalation

1. The exact percentage of labour / material (excluding materials to be supplied by the department)/bitumen/diesel and petrol/cement/steel component for the work shall be approved by the authority while sanctioning the detailed Estimates.

2. The break-up of components of labour / materials (excluding materials to be supplied by the department)/bitumen/diesel and petrol cement/steel as indicated in Clause 45 have been pre-determined as below :

(a)	**Labour**	**00.00 percent**
(b)	**Material**	**00.00 percent**
(c)	**Bitumen**	**00.00 percent**
(d)	**Diesel and Petrol**	**00.00 percent**
(e)	**Cement**	**00.00 percent**
(f)	**Steel**	**00.00 percent**
	Total	**000.00 percent**

3. While allowing price escalation the following shall be deducted from the value of work done (R): (a) Cost of material supplied by the Department. (b) Cost of services rendered as per clause 34. (C) of Secured Advance / any advance added earlier but deducted now after work is measured. (d) Cost of extra items, the rates for which have been worked out based on market rates / mutually agreed rates.

4. The first statement of escalation shall be prepared at the end of three months in which the work was awarded and the work done from the date of start to the end of this period shall be taken into account. For subsequent statement, cost of work done during every quarter shall be taken into account. At the completion of work, the work done during the last quarter or fraction, thereof, shall be taken into account.

5. For the purpose of reckoning the work done during any period, the bills prepared during the period shall be considered. The dates of recording measurements in the Measurement Book by the Assistant Engineer shall be the guiding factor to decide the bills relevant to any period. The date of completion, as finally recorded by the competent authority in the Measurement Book shall be the criterion.

6. The index relevant to any quarter, for which such compensation is paid, shall be the arithmetical average of the indices relevant of the calendar month.

7. Price adjustment clause shall be applicable only for – the work that is carried out within the stipulated time, or extension thereof, as are not attributable to the contractor.

8. If during the progress in respect of contract works stipulated to cost Rs. 50 lacs or less. the value of work actually done excluding cost of material supplied by the Department exceeds Rs. **50** lacs and completion period is more **than 03** months, then escalation would be payable only in respect of value of work in excess over Rs. 50 lacs from the date of satisfying both the conditions.

9. Where originally stipulate period is 03 months or less but actual period of execution excess beyond 06 months on account of reasons not attributable to contractor, escalation amount would be payable only in respect of extended period of amount of work is more than Rs. 50 lac.

10. In case the contractor does not make prorate progress in the first or another time span and the short fall in progress is covered up by him during subsequent time span within original stipulated period then the price escalation of such work expected to be done in the previous time span shall be notional given based

upon the price index of that quarter in which such work was required to be done.

11. No claims for price adjustment other than those provided therein shall be entertained.

12. If the period of completion including extended period attributable to JDA exceeds twelve months but cost does not exceeds more than Rs. 50 lac, no escalation is admissible.

13. Similarly, if cost of works increases more than Rs. 50 lac but completion period including extended period attributable to JDA is less than 3 months, no escalation is admissible.

14. No provisional escalation is payable quarterly and no provisional escalation is payable monthly or fortnightly.

15. Escalation is always payable quarterly and no provisional escalation is payable monthly of fortnightly.

16. In case at the time of executing agreement, both the conditions (completion period **3 months** and amount of work **Rs. 50 lac)** for admissibility of price escalation are not fulfilled and subsequently due to additional work and extension of time attributable to JDA, both the conditions become fulfilled, in that case the escalation shall be payable from the date of satisfying both the conditions and only for work done beyond Rs. 50 lac and in period of work beyond 6 months.

17. The contractor shall for the purpose of this conditions keep such books of accounts and other documents are necessary to show the amount of any increase climbed or reduction available and shall allow inspection of the same by a duly authorized representative of JDA and further shall at the request of the Engineer-in-charge furnish, verified in such a manner as the Engineer-in-charge may required any documents so kept and such other information as the Engineer-in-charge may require.

Clause 46: Force-Majuro

Neither party shall be liable to each other, for any loss or damage, occasioned by or arising out of acts of God such as unprecedented floods, volcanic eruptions, earthquake or other invasion of nature and other acts.

Clause 47: General discrepancies and errors

In case of percentage rate tenders, if there is any typographical error or clerical error in rates shown by the JDA in the G- schedule, the rates as given in the basic schedule of rates on which estimate is framed shall be taken as correct.

Clause 48: Post payment Audit & Technical Examination

The JDA shall have right to cause an audit and technical examination of the works, and the final bills of the contractor, including all supporting vouchers, abstracts, etc., to be made within 2 years after payment of the final bill, and if, as a result of such audit and technical examination, any sum is found to have been over paid in respect of any work done by the Contractor under the contract, or any work claimed by him to have been done by him under the Contract and found not to have been executed or executed below specifications, the Contractor shall be liable to refund the amount of over payment, and it shall be lawful for J.D.A. to recover the same from him in the manner prescribed in Clause 50 or in any other manner legally permissible, and if it is found that the Contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under-payment shall be duly paid by the JDA to the Contractor.

Clause 48A: Pre Check or Post Check of Bills

The JDA shall have right to provide a system of pre-check of Contractor's bill by a specified Organization, and payment by an Engineer or an Accounts Officer/sr. Accounts Officer/ chief Accounts Officer/ financial Advisor, as the JDA may in its absolute discretion prescribe. Any over-payments excess payments detected, as a result of such pre-check or post-check of Contractor's bills, can be recovered from the Contractor's bills, in the manner, herein before provided, and the Contractor will refund such over/excess payments.

Clause 48B: Check Measurements

The J.D.A. reserves to itself, the right to prescribe a scale of check measurement of work, in general, or specific scale for specific works, or by other special orders (about which the decision of the J.D.A. shall be final). Checking of measurement by superior officer shall supersede measurements by the subordinate officer, and the former will become the basis of the payment. Any over/excess payments detected, as a result of such check measurement or otherwise at any stage up to the date of completion and the defect removal period specified else-where in this contract, shall be recoverable from the Contractor, as any other dues payable to the JDA.

Clause 49: Dismantled materials

The Contractor, in course of the work, should understand that all materials e.g. stone, bricks, steel and other materials obtainable in the work by dismantling etc. will be considered as the property of the JDA and will be disposed off to the best advantage of the JDA, as per directions, of the Engineer-in-charge.

Clause 50: Recovery from Contractors

Whenever any claim against the Contractor for the payment of a sum of money arises out of or under the contract, the J.D.A. shall be entitled to recover such sum by appropriating, in part or whole of the Performance Guarantee and/or Security Deposit, Security Deposit at the time of enlistment of the Contractor. In the event of the security being insufficient, or if no security has been taken, then the balance or the total sum recoverable, as the case may be, shall be deducted from any sum, then due or which at any time, thereafter, may become due to the Contractor, under this or any other contract with the J.D.A.. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the J.D.A. on demand the balance remaining dues.

The J.D.A. shall, further, have the right to affect such recoveries under Public Demand Recovery Act.

Clause 51: Jurisdiction of Court

In the event of any dispute arising between the parties hereto, in respect of any of the matters comprised in this agreement, the same shall be settled by a competent Court having jurisdiction over the place, where agreement is executed and by no other court, after completion of proceedings under Clause 23 of this Contract.

Dated Signature of Engineer- in -charge Dated signature of Contractor

Progress statement referred to in Clause 2 of Conditions of Contract

Name of Work	Date from which the work should be commenced	Date by which the work should be completed	Monthly rate of Progress
1	2	3	4

The contractor has been informed that his tender has been accepted

Notes: - For Filling in the Progress J.D.A. Form

Columns 2,3, and 4 must be initialed and dated by the Contractor

Column 4 must be initialed and dated by the Director Engineering or other duly authorized Engineer also.

The date in column 2 should correspond to the date on which the order to commence work is given to the contractor read with Clause 2 of the conditions of contract.

The date in column 3 must correspond to the period J.D.A. in Sub clause (e) of the Memorandum below “Tender for works”.

Column 4. This will ordinarily be worked out proportionately; thus if Rs. 24,000/- is the cost of the whole or portion of work tendered for, and six months period of completion, then the monthly rate of progress should be Rs. 4,000. If necessary, quantities may also be specified in this column at the discretion of the Director Engineering.

The Certificate as to intimation of acceptance of tender printed at the foot of the form must be signed and dated both by the Director Engineering or other duly authorized Engineer and the Contractor.

Dated Signature of Engineer- in -Charge

Signature of Contractor

ANNEXURE TO APPENDIX XI
RAJASTHAN PUBLIC WORKS DEPARTMENT
CONTRACTOR LABOUR REGULATIONS

1. **Short title :** These regulations may be called "The Rajasthan Public Works Department Contractor's Labour Regulations."

2. **Definition** : These regulations unless otherwise expressed or indicated, the following words and expressions shall have the meaning hereby assigned to them respectively, that is to say :

(i) **"Labour"** means workers employed by a Rajasthan P.W. Department contractor directly or indirectly through a sub-contractor or other person or by an agent on his behalf.

(ii) **"Fair Wage"** means minimum wages for time or piece work fixed or revised by the State Government under the Minimum Wages Act., 1948.

(iii) **"Contractor"** shall include every person whether sub-contractor or headman or agent employing labour on the work taken on contract.

(iv) "**Wages"** : shall have the same meaning as defined in the Payment of Wages Act. and includes times and piece rate wages.

3. **Display of Notice regarding wages etc.** : The contractor shall (a) before the commences his work on contract, display and correctly maintain and continue to display and inconspicuous places on the work notices in English and the correctly maintain in Hindi by the majority of the workers giving the rate of wages which have been certified by the Executive Engineer, the superintending engineer, the Chief Engineer or Labour Commissioner, as fair wages and the hours of works for which such wages are earned, and (b) send a copy of such notices to the Certifying Officers.

4. **Payment of Wages**

(i) The contractor shall fix the wage period in respect of which the wages shall be payable.

(ii) No wage period shall exceed one month.

(iii) Wages of every workman employed on the contract shall be paid before the expiry of ten days after the last day of the wage period in respect of which the wages are payable.

(iv) When the employment of any worker is terminated by or on behalf of the contractor, the wages earned by him shall be paid before the expiry of the day succeeding the one on which his employment is terminated.

(v) All payments of the wages shall be made on a working day except when the work is completed before the expiry of the wage period in which case, final payments shall be made within 48 hours of the last working day.

5. **Wage Book and Wage slips etc.**

(i) The Contractor shall maintain a Wage Book of each worker in such form as may be convenient but the same shall include the following particulars.

(a) Rate of daily or monthly wages.

(b) Nature of work on which employed.

(c) Total number of days worked during each wage period.

(d) All deduction made form the wages with an indication in each case of the ground for which the deduction is made.

(e) Wages actually paid for each wage period.

(ii) The contractor shall also maintain a wage slip for each worker employed on the work

(iii) The Executive Engineer may grant an exemption from the maintenance of the wage books and wages slips to a contractor who, in his opinion, may not directly or indirectly employ more than 50 persons on the work.

7. **Fines and deductions which may be made form wages**

(i) The wages of a worker shall be paid to him without any deductions of any kind except those authorized, namely the following

(a) Fines

(b) Deductions for absence from duty i.e. from the place or places where, by the terms of his employment, he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.

(c) Deductions for damages to or loss of goods expressly entrusted to the employed person for custody or for loss or any other deductions of money, which he is required to account where such damages or losses are directly attributable to his neglect or default.

(ia) The Rajasthan Government may, from, time to time, allow deductions other than those specified in clause I above.

(ii) No fines shall be imposed on a worker and no deductions for damage or loss shall be made until worker has been given an opportunity of showing cause against each fine or deductions.

(iii) The total amount of fines, which may be imposed in any one wage period on a worker, shall not exceed an amount equal to three paisa in rupee of the wage payable to him in respect of that wage period.

(iv) No fine imposed on any worker shall be recovered from him by installment or after the expiry of 60 days from the date on which it was imposed.

8. **Register of fines etc. :** The contractor shall maintain a register of fines and of all deductions for damage or loss. Such register shall mention the reasons for which fine was imposed or deduction for damage or loss was made.

The contractor shall maintain both in English and local Indian Language, a list approved by the Labour, Commissioner clearly stating the acts and omission for which penalty of fine may be imposed on a workman and display it in a good condition in a conspicuous place on the work.

9. **Preservation of Register :** The wage register, the wage card and the register fines deductions required to be maintained under these regulations, shall be preserved for 12 months after the date of the 1st entry made in them.

10. **Powers of Labour Welfare Officer to make investigation of enquiry** : The Labour Welfare Officer or any other person, authorized by the State Government on their behalf, shall have power to make enquiries with a view to ascertaining and enforcing due and proper observance of the fair wage clauses and provisions of the regulations. He shall investigate into any complaint regarding default made by the Contractor or Sub-Contractor in regard to such provisions.

11. **Report of Labour Welfare Officer :** The Labour Welfare Officer or other person, authorized as aforesaid, shall submit a report of the result of his investigation or enquiry to the Executive Engineer concerned indicating the extent, if any, to which the default has been committed with a note that necessary deductions from the contractors bill be made and the wage and other dues be paid to the labour concerned in case an appeal is made by contractor under clause 12 of these regulations, actual payment of labours will be made by the Executive Engineer after the Labour Commissioner had given decision on such appeal.

12. **Appeal against the decision of Labour Welfare Officers :** Any person aggrieved by the decision and recommendation of the Labour. Welfare Officer or other persons, so authorized, may appeal against. Such decision to the Labour Commissioner within 30 days from the date of decision forwarding simultaneously a copy of his appeal to Executive Engineer concerned but subject to such appeal the decision of the Officer shall be final and binding upon the contractor.

12a No party shall be allowed to be represented by a lawyer during any investigation, enquiry, appeal or any other proceedings.

13. **Inspection of wage books and slips** : The contractor shall allow inspection of the wage books and wage slips and register of lines and deductions to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour Welfare Officer or any other person authorized by the State Government on his behalf.

14. **Submission of Returns** : The Contractor shall submit periodical returns, as may be specified from time to time.

15. **Amendments** : The State Government may, from time to time, add to or amend these regulations and on any questions as to the application, interpretationer effect of these regulations, the decision of the Labour Commissioner to the Government of Rajasthan or any other person authorized by the State Government in that behalf, shall be final.

SCHEDULE OF FAIR WAGE TO BE GIVEN BY EXECUTIVE ENGINEER LIST OF ACTS AND COMMISSION FOR WHICH FINE CAN BE IMPOSED

(I) Willful insubordination disobedience whether alone or combination with another (2) The fraud or dishonesty in connection with the contractor business or property of the Rajasthan P.W.D. (3) Taking or giving bribes or any illegal gratification. (4) Habitual late attendance. (5) Drunkenness, fighting riot or disorderly or indecent behavior (6) Habitual negligence (7) Smoking near or around the area where combustible or other materials are stocked. (8) Habitual indiscipline (9) Causing damage work in progress or to property of the Rajasthan P.W.D. or the contractor (10) Sleeping on duty (11). Malingering or sowing

down work (12). Giving of false information regarding name, age, father's name (13) Habitual loss of wage cards supplied by the employers. (14) Unauthorized use of employer's property or manufacturing or making of unauthorized articles at the work places (15) Bad workmanship in construction and maintenance by skilled workers which is not approved by the department and for which contractors are compelled to undertake rectification (16) Making false complaints and / or misleading statement. (17) Engaging, in trade within the premises of the establishment. (18) Any delinquency of business affairs of the employers. (19) Collection or canvassing for the collection of any money within the premises of an establishment unless authorized by the employer. (20) Holding meeting inside the premises without previous sanction of the employer (21). Threatening or intimidating any workman or employee during the working hours within the premises.

Schedule showing (approximately) material to be supplied from the Public Works Store for work contracted to be executed and the rates of which they are to be charged for

Particulars	Rates which the material will be charged to be contractor			Place of Delivery
	Unit	Rs.	NP	
Doors with Chowkhats				
Doors with Chowkhats				
Doors with Chowkhats				
Windows with Chowkhats				
Windows with Chowkhats				
Windows with Chowkhats				
Steel Shapes				
Steel Shapes				
Steel Shapes				
Bars Mild Steel				
Sheets plain, Corrugated, G.I. etting, wire				
Belts Tower				
Belts Tower				
Locks, Mortise				
Locks, Mortise Rim				
Hinges, Butt				
Hinges, Butt				
Hinges, Butt				
Hinges, Butt				
Hinges, Spring				
Cement, Portland				

Note : The person or firm submitting the tender should see that the rates in the above schedule are filled up by the Engineer-in-Charge on the issue of the form prior to be submission to the tender.

Signature of Contractor

Signature of Engineer

Progress Statement referred to in Clause 3 of Condition of Contract

Name of Works	Date from which the work should be commenced	Date by which the work should be completed	Monthly rate of progress

The contractor has been informed that his tender has bee accepted.

Date : Date :

Engineer-in-Charge Contractor

Notes for filling in the Progress Statement Form on the Last Page

1. Columns 2, 3 and 4 must be initialed and dated by the Contractor.
2. Column 4 must be initialed and dated by the Chief Engineer or other authorized Engineer also.
3. The date in column 2 should correspond to the date on which the order to commence works is given to the contractor read with Clause 2 of the conditions of contract.
4. The date of column 3 must correspond to the period stated in sub class (e) of the Memorandum below "Tender for works".
5. Column 4. This will ordinarily be worked out proportionately ; thus if Rs. 24,000/- is the cost of the whole or portion of work tendered for, and six months period of completion, then the monthly rate of progress should be Rs. 4,000. If necessary, quantities may also be specified in this column at the discretion of the Chief Engineer.
6. The Certificate as to intimation of acceptance of tender printed at the foot of the form, must be signed and dated both by the Chief Engineer or other duly authorized Engineer and the Contractor

Section A3
Special Conditions of Contract

Special Conditions of Contract

CONTRACT

1.1 Type of Contract

PART "A" **BSR ITEM BASED ON JDA PHE BSR & PWD BSR 2013**

PART "B" **NON BSR ITEM**

PART "C" **O & M**

1.2 Priority of contract

The documents forming part of the agreement are to be taken as mutually explanatory documents of one another. In case of discrepancies they shall be explained and adjusted by the Engineer In Charge. The priority of the Contract documents shall be as follows:

1. Letter of award
2. Special Conditions of Contract Part A & Part B

Instructions to Bidders

3. General Conditions of Contract
4. Work description/ Scope of works
5. Technical specifications
6. Drawings
7. Bill of quantities

Design And Drawings

2.1 General Design Obligations

The Contractor shall be deemed to have scrutinized, prior to submission of bid, the JDA Requirements (including design criteria and calculations, if any). The Contractor shall be responsible for the design of the following works and for the accuracy of such designs-

1. RCC CWR/SUMP

JDA shall not be responsible for any error, in accuracy or permission of any kind in JDA requirements as originally included in the contract. Any data or information received by the Contractor, from JDA or otherwise, shall not relieve the Contractor from his responsibility for the design and execution of the works.

2.2 Contractor's Documents & Submission Procedure For Detailed Design & Execution Drawings

The Contractor's Documents shall comprise the Technical Documents specified in the JDA requirements, Documents Requirement to satisfy all regulatory approvals, As Built Documents and Operation and Maintenance Manuals. The Contractor's Documents shall be written in the language for communications defined in contract.

If errors, omissions, ambiguity, inconsistencies, inadequacies or other defects are found in the Contractors Documents, these and the works shall be corrected at the Contractor's cost, notwithstanding any consent for approval under this clause.

The contractor shall carry out the preparatory works such as Topographic survey, soil investigations, geo technical investigations etc to prepare the plans, designs, drawings etc.

The contractor is required to submit the detailed design and execution drawings such as site plan, general arrangement drawings, plans, structural drawings and all working drawing of all civil works stated in the above clause 2.1. He will also submit the detailed system and working drawings as well as performance curves and data for all hydraulic, mechanical, Electro-mechanical and electrical equipment.

The detailed design & execution drawings shall be submitted only after verification by MNIT/equivalent institute or agency approved by the Engineer In Charge or any authorized representative of the JDA.

2.3 Approval procedures

After submission of detailed designs, working drawings and documents etc., the competent authority or his authorized representative shall progressively review them and issue an approval within 15 days. The period of review will be counted after all quarries are replied satisfactorily. The schedule should be such so as not to obstruct the actual construction work.

The following shall be the procedure for submission and approval of detailed design and execution drawings:

The Contractor shall submit three copies of design/drawings and performance curves etc. to the Engineer in Charge. All the drawings are to be signed by the Contractor or his authorized representatives.

(a) The Engineer in Charge will review the design/drawings etc. and if found in order return one copy duly approved to the Contractor within 15 days.

(b) In case the design/drawings etc. are not found fit for approval, the Engineer in Charge will mark the comments on them and return two copies to the Contractor within 15 days and the same shall be repeated till drawings are finally approved as mentioned in the above clause. The contractor in such cases shall submit the revised and corrected design/drawings within 15 days to the receipt of comments from Engineer-In-Charge.

(c) On request of the Engineer in Charge, the Contractor shall depute the design engineer responsible for the particular design/drawing to discuss with the Engineer in Charge or his Representative.

(d) On receipt of approved designs/drawings as per sub-clause (b) above, the Contractor shall submit four (4) additional copies of the approved designs / drawings to JDA for reference and records.

No designs / drawings with corrections made after taking the prints will be accepted.

The approval of drawings/designs by the Engineer in Charge shall not relieve the Contractor of his responsibility in terms of the Contract for soundness of the designs. The Contractor shall be responsible for the structural safety of all the components of the Work.

2.4 Discrepancies between Drawings and Specifications

In case of discrepancies between drawings and specifications or data sheets arising from the meaning, dimensions or quality of the materials and equipment for the due and proper execution of the Work, the discrepancy shall be explained by the Engineer in Charge. His explanation shall be the final decision and the Contractor shall execute the Work accordingly without any extra payment.

3. Pre – Construction, Inspection and testing and review of data for material, plant and equipment

- The contractor shall place order for the material and equipment only after approval of Engineer In Charge. The contractor shall submit the detailed drawings to the Engineer In Charge for approval.
- The contractor shall inform the Engineer In Charge about the likely dates of manufacture, testing and dispatching of the material. The contractor shall notify the Engineer In Charge for inspection and testing, at least twenty eight (28) days prior to packing and shipping and shall supply the manufacturers test results and quality control certificate.
- The inspection and test categories shall be applied prior to delivery of the equipment of various categories as indicated in the technical specifications for each type of equipment.

Category A: The drawing/data sheet has to be approved by the Engineer In Charge before manufacture and testing. The material has to be inspected by inspecting agency at the manufacturers premise before packing and dispatching.

Category B: The drawings of the equipment have to be submitted and to be approved by the Engineer In Charge prior to manufacture. The material has to be tested by the manufacture and the manufacturers test certificate are to be submitted and approved by the Engineer In Charge before dispatching of the equipment. Notwithstanding the above, the Engineer In Charge after examination of the test certificates, reserves the right to instruct the contractor for testing, if required, in the presence of the contractors representative.

Category C: The material may be manufactured as per standards and deliver to the site.

- For material/equipment under Category 'A' and 'B' the Engineer In Charges will provide an authorization for packing and shipping after inspection.
- The testing, approval for dispatching shall not absolve the contractors obligations for satisfactory performance of the plant.

Inspection Category

S.Nos.	Items	Category
	Related to Rising mains and Distribution System	
1.	Cast Iron specials	B
2	uPVC / DI pipes	A
3	Sluice Valves, Reflux valves, Air Valves, Water Meter, Bulk Meter and Pressure sensor, Magnetic Water Meter	B
4	C.I. Joints and rubber rings for joints & couplers	B

3.1 Third Party Inspection :

The contractor is to contact for third party inspection amongst the CEIL, SGS, RITES on his own. He shall deposit & bear the cost of inspection. The contractor should inform the JDA of the name of agency finalized by him for the contract. The agency finalized by him for the contract. The agency will be same for all items of supply in this contract requiring 3rd party inspection.

The manufacturer should be required to call for inspection to the agency under instructions of the Contractor and Engineer In Charge. The Engineer in Charge may depute a representative to witness the inspection. The inspection agency should furnish copies of Inspection Certificate to the manufacturer, Contactor and to the Engineer In Charge directly. All material tested and found satisfactory as per specifications shall be marked distinctly.

3.2 Cost for Inspection

The cost of inspection shall be borne by the contractor.

3.3 Approval of Material and Equipment

The fact that the Contractor has agreed to provide the material prescribed in the Tender Documents does not release him to ask for the final approval of the equipment and material to be used for the Work. The specifications and drawings of each item to be supplied shall be individually scrutinized and its conformity with the technical specifications and the standards shall be verified by the Engineer In Charge.

Prior to ordering any material and equipment such as pipes, specials, measuring equipment's, mechanical and Electro-mechanical equipment, electrical equipment, material for civil works and interior decoration, paints, etc. the Contractor has to supply the detailed specification, drawings, performance curves and data, operation instructions etc., to the Engineer In Charge. If the Contractor has any doubts about the required specifications as prescribed in the Contract, he has to clarify them with the Engineer In Charge.

The procedure for the submission of documents, verification, re-submission if necessary and approval of these items is the same as that for the drawings, described in clause 2.3. If equipment or material which the Contractor submitted first is refused in the approval process he has to submit documents of such equipment which corresponds to the specifications of the Tender Documents and which is likely to be approved.

Only after approval of the material and equipment, the Contractor can place the order or start the manufacturing or purchasing procedures.

Four weeks prior to packing and shipping the Contractor must inform the Engineer In Charge when the material/equipment is ready for inspection and testing. At this date, the Contractor shall supply the results of all manufacturer's own tests made during or after manufacturing and his own quality control certificates. The Engineer In Charge will decide whether he or his representative will inspect and test the material/ equipment or whether he will approve it on the basis of the supplied documentation.

Inspection of bought out items i.e. Sluice valve, Air Valve, or any other Electro-Magnetic, Electrical and Mechanical

equipment(s) and other items defined under Category 'A' shall done by third party selected by the JDA.
The Engineer In Charge will provide an authorization for packing and shipment after inspection and/or approval of the material/equipment.
If the Contractor packs and ships material/ equipment without approval or authorization of the Engineer In Charge-in-Charge, it can be refused if it is not matching with the specifications of the Contract. All costs resulting from this are to be borne by the Contractor. The Contractor has then to provide the material/ equipment, which is matching with the Contract.

4. COMPLETION OF THE WORK

4.1 Time for completion

The whole of the work, including mobilization, reconnaissance, construction, installation, testing, commissioning and trial runs, and demobilization has to be completed within a period of 4 **months** calculated from the commencement date, which is 10 days after the written order to commence the Work.

4.2 Completion of work and fully commissioning

Once the entire system has been successfully tested and commissioned, and removal of all visible defects to the satisfaction of Engineer In Charge-in-Charge, the work shall be treated as **"Completed".**
Unless otherwise provided in the contract, after the successful completion Engineer In Charge shall issue a certificate of "Completion of Work". The date of Certificate notifying "Completion of Work" will be used for the final payment as per clause 6 and 7 of General Conditions of Contract. From this date of issue of certificate for "Completion of Work", the Operation and Maintenance period shall commence.

4.3 Defects liability period

The defect liability period shall be of 6 months, from the date of the completion. The Contractor shall be responsible for satisfactory performance of the work under all design and operation conditions for the duration of the defects liability period, except for damage due to unprecedented natural calamities.
In the case of delayed "Completion of Work" not caused by the Contractor, the defects liability period shall be extended accordingly but not more than two (2) years after the total completion of the entire Work, whichever is earlier.

4.4 Cost of water and electricity for testing

Water and electricity for construction and testing of scheme purpose shall be arranged by the contractor at his own cost. Electricity for trial and run period shall be provided by JDA. Electric connection and regular electric bill of TW shall be paid by JDA but liaison work shall be carried by contractor with JVVNL, Jaipur.

5 As-Built Drawings

The submission of the as-built drawings for the equipment is the precondition for the final payment. The final drawings shall be submitted in one reproducible set and 3 copies on linen bound in an album of an approved size. The contractor shall submit all the completion drawings and approved design calculations on CD ROM / DVD in two copies with proper directory structure. The scale of drawing and the size of drawing shall be as per the direction of the Engineer In Charge.
The contractor shall prepare, and keep up to date, a complete set of "as built" records of the execution of the works, showing the exact as built locations, sizes and details of the works as executive. The records shall be kept on the site and shall be used exclusively for the purpose of this sub clause. Two copies shall be supplied to JDA before the commencement of the tests on completion. The Contractor shall obtained the consent of JDA as to their size, the references system, and other relevant details.

6 Progress Of Work

All components of works shall ensure a logical sequence of supply, installation, testing, and commissioning. If any supply of a material is made, not in conformity to the logical sequencing of the work component, no payments will be entitled against such supplies and installations.
It will be the responsibility of contractor to maintain simultaneous pro-rata progress of civil work, pumping stations, RCC SR.

7 Documents Required For Payment:

The contractor shall submit the following documents in duplicate along with the invoice/bill.

(i) Invoice indicating details of equipment's, material manufactured, supplied and installed or work carried out, supply value of such material or equipment or value of such work carried out and amount claimed.
(ii) Inspection reports/ test reports/ reports certifying completion of activity with acceptable results.
(iii) Report/certificate of inspections /tests carried out by the supplier of the contractor or by the contractor himself.
(iv) Any other such details/documents as may be reasonably specified by the Engineer In Charge-in-Charge from time to time during execution of the contract.
(v) Certificates, as prescribed, regarding payment of Sales Tax, duties etc. legible on supplies made.
(vi) Other documents required by the Engineer In Charge-in-charge.

8 Payment Terms

9.1 Breakup of Payment for construction of RCC CWR/SUMP

1	After excavation, laying PCC and casting of foundation slab	15%
2	After completion of outer vertical wall, RCC stair case inside and outside as per drawing &site requirement.	30%
3	After completion of top dome/roof slab, Head room, railing	30%
4	After fixing of CI fitiings, painting and miscelleneous works, and satisfactory testing as per standards	25%

9.2 Breakup of payment for Supply laying jointing, installation and testing of Upvc /DI pipe line and specials, installation of sluice valve, Air Valves and dismantling joints.

1	After Supply laying jointing, installation and testing of Upvc/ DI pipe line and specials, installation of sluice valve, Air Valves and dismantling joints.	80 % payment on providing lowering in trenches, laying installation and jointing etc. complete. Remaining 20 % after satisfactory testing

10. Refund of Performance Guarantee & Security Deposit

The Security Deposit (SD) and Performance Guaranty (PG) shall be refunded after successfully completion defect liability period 6 months.

11. The contractor/firm or company while executing the above work will adopt all safety measures on his cost to safeguard from any loss of life & damage of public & private property. if any loss & damage occurred then they will pay the full compensation from their own pocket. all the consequence will be born by them & JDA will not be responsible in any way.

12. The contractor/firm or company will display necessary signboards & lights from safety point of view during nights at site of work on his own cost as directed by the authorized Engineer In Charge.

13. The contractor shall not work after the sunset & before sunrise without specific permission of the Engineer In Charge in-charge

14. Contractor shall provide sufficient number of boards at site of work indicating 'JDA AT WORK" at his own cost as required by Engineer In Charge-In Charge.

15. The contractor will pay compensation to the house owner or to the owner of any adjoining property or any other works for the damaged sustained on account of this work while in progress or complete from his own pocket.

1. Contractor shall get the material inspected from the third party (CEIL, SGS, RITES) before bringing the material at site. The inspection charges shall be born by the contractor. No payment of these items shall be made before the third party inspection.
2. In case of pipe line testing shall be done as per the relevant Codal and the leakage level shall not be more than as per IS 8329. Only 80% of the payment shall be released after providing, laying and jointing of pipes and special in trenches, 20% of the payment shall be released after testing as above.
3. The JDA shall be free to carry out the work from any participating agency on the rate of lowest bidder during the concurrency of rate contract.
4. The contractor shall submit the proof of ownership of suitable machinery for laying of pipeline in all type of strata.
5. The quantity of work can be increased or decreased. However, no guarantee is given about the actual quantity of work.
6. No extra payment shall be made to the contractor on account of excavation in collapsible strata or in hard or rocky strata. The tenderers shall have to make their own arrangement for completing the work and no claim in this respect will entertained.
7. On collection of complete material for each section the same shall be got checked by Engineer–in–Charge or his authorized representative. Such approval shall in no way release the contractor of his responsibility regarding completion of work, as per required specification until the contract is complete.
8. The electric connection, if required, for construction and testing purpose shall be arranged by the contractor at his own cost.
9. The contractor shall make his own arrangement regarding water required for the execution and testing of the work and shall also arrange for the supply of drinking water to his own employees. He shall defray all charges in this connection and should include in his rates a sufficient amount to cover such charges. All such facilities as are required now to be provided for the labour, made under labour welfare rules inforce, shall also be provided by the contractor at his own cost.
10. The contractor will be required to see that the usual hours of work are adhered too. No work shall be done after the sun set without the permission of the engineer-in-charge.
11. The security deposit of the work shall be refundable after six months from the date of completion of the work only after successful testing of the works.
12. The contractor/firm or company while executing the work will adopt all safety measures at his cost to safeguard from any loss of life and damage of public and private property. If any loss and damage is occurred, they will pay the full compensation from their own pocket to the concern. All the consequence (legal and or financial) will be born by the contractor only and JDA will not be responsible in any way.
13. Water for construction / testing purpose shall have to arranged by contractor at his own cost. If water is supplied by the department, the same shall be recovered from the contractor from each running bill at the rate of 1% of total value of pipe line laying work, In case of metered connection the charges shall be recovered on the actual consumption basis on the commercial rates.
14. The contractor shall be fully responsible for structural safety and water tightness of pipeline when tested.
15. No secured advance against material procured at site will be allowed.

16. Pipeline laying should be done in the presence an Engineer not below the rank of Junior Engineer of the JDA, and trench shall be refilled after checking of sector engineer. After taking layout, the contractor shall submit day to day schedule of work to the Engineer–in- charge in advance.

18. The contractor/firm or company will take utmost care to safeguard the water mains, Electric and Telephone cable existing surface drains water connections etc., while executing the work. Any damages/rectification shall be born by the contractor only

19. The contractor shall, at his own cost, arrange to provide, erect and maintain necessary display boards/ flags/banners etc. at selection points of project site giving such information as considered necessary for public awareness/ information/ safety as directed by the Engineer-in-charge.

20. Contractor shall provide sufficient number of boards at site of work indicating "JDA AT WORK" at his own cost as required by Engineer-in-charge.

21. The surplus earth and damaged materials will be immediately removed from the site of work and dumped as per instruction of Engineer-in-charge

22. The material collected at site and paid provisionally shall remain under the watch and ward of the contractor till it is consumed fully on the work.

23. Any material not conforming to the specifications collected at site shall have to be removed by the contractor within a period of 3 days of the instructions, issued by the Engineer-in-charge, failing which, such material shall be removed by the Engineer-in-charge at risk and the contractor after expiry of 3 days period.

24. The contractor/firm/company is bound to get the workmen insured against accident from the Insurance Company at his own cost.

25. Contractor shall be the sole custodian of the men and material at work and will be fully responsible for any loss of life or otherwise occurred during the execution of the works.

26. The submission of the as-built drawings of the water line work is the precondition for the final payment. The final drawings shall be submitted in one reproducible set and 3 copies on linen bound in an album of an approved size. The contractor shall submit all the completion drawings and approved design calculations on CD ROM / DVD in two copies with proper directory structure. The scale of drawing and the size of drawing shall be as per the direction of the Engineer in Charge.

27. If there is any typographical error or otherwise in the 'G' Schedule. The nomenclature and the rates as given in the relevant BSR-2012 and JDA approved items/rates on which schedule 'G' is based, shall prevail

28. **O&M period is taken for 60 months in this WSS .This Water Supply Scheme may be handed over to other agency/PHED before 60 months accordingly O & M period can be reduce at that time & payment made to the bidder for actual period of O & M.**

The above conditions may be read very carefully and adhered strictly.

I/we confirm above

Signature of contractor

Executive Engineer (PHE-I)
JDA, Jaipur

Section A-4

Specifications of Work

(A) Specifications of SR & CWR

1. 0 Location and site Condition

WSS SEZ at Khatwada Pump House

2.0 Scope / Volume of work for Contractor

Job Work for RCC Rectangular Sump

The work consists of construction of RCC rectangular sump of 200 Kl at SEZ existing Pump House , JDA, Jaipur:

S. No.	Particular	No.	Capacity
1	RCC rectangular sump of 200 Kl	1	200 KL
2	Pumping Machinery NON BSR items	1job	

The present contract is on Lump Sump. basis, where the responsibility of the contractor will include preparation, execution and testing of all works as per General arrangement drawings attached and specifications.

The work will include: -

To carry out survey using level instruments to find out average ground of site. The bench mark location and it's value are available with the Engineer in Charge. Ground level of ESR is 365.25 m for Zone 5 respectively. Reconnaissance and investigation of site is necessary. Detailed soil investigation at the location of tank at site for confirming the safe bearing capacity of soil indicated by JDA so that the contractor is equally responsible for the value adopted in the design.

Preparation and submission of detailed drawing and design of ESR of required particulars. The ESR shall be of intze type shape, supporting on raft foundation. This shall not include the design of pipes, valves, lightening arrester, conductor, earthing system, which shall be as stipulated in the tender document. The shape of ESR piping arrangements and other functional features shall be as per the drawings enclosed with the document.

The structural design and reinforcement design shall be prepared assuming SBC of the site as 10.0 T/Sqm. at 3.0 meter depth in case of ESR. If the SBC is found to be less than 10.0T/sqm at 3.0 meter depth then the structure shall be design on the basis of actual SBC found on testing for which no extra payment will be made to the contractor.

All the surfaces of the structure below ground level shall be painted with 2 coats of ISI make bituminous paint.

Supply and fixing of all ancillary material as stipulated including inlet, outlet, washout, over flow pipe, sluice valves, non-return valves, duck foot bends, other specials, level indicator, lighting arrester, conductor and Earthing, manholes, ventilators, railing, ladders, etc.

Construction plinth protection works, overflow pipe chambers, fixing of manhole covers, stair case railings etc. as stipulated and detailed in the set of drawings attached with the document.

The testing of tanks for water tightness by filling with water shall be the contractor's responsibility and shall have to be done in accordance with procedure laid down in the tender document.

The entire structure along with all it's installation shall being finished condition when handed over. All the exposed concrete surfaces should be finished with carborandum stone rubbing.

Painting of the slogan on vertical wall of Tank as indicated by the Engineer In Charge.

Providing ancient Jaipur State Architectural effects on the outside of the container with nice finishing along with water proof paint (Snowcem) of approved shade on complete structure on all exposed surface after smoothing the surface with carborandum stone rubbing.

Before handing over the work the site has to be cleared in every respect. The earth has to be leveled at a uniform level and surplus earth, if any, shall be disposed off as per the direction of the engineer in charge.

The contractor has to submit 2 sets of as built drawings in bounded form.

No separate payments shall be made for reconnaissance, preliminary investigations, surveys, inspections, plinth protection, site clearance, earth works, leveling etc. They shall be included in the L. S. rates.

The contractor shall be fully responsible for the soundness of the construction, structural safety and water tightness of the structure based on the specifications, Sound engineering practices and latest IS provisions. The contractor shall also ensure at his level correctness of design and drawing of ESR and CWR for structural safety.

a. Interconnection of inlet and outlet pipes as shown in the General Arrangement Drawing.

b. Installation of CI spun cast screw flanged outlet or distribution pipe as per IS:1536 specifications as shown in the GA drawing.

c. Connecting the overflow pipe up to the chamber shown in the Campus drawing.

65.0 PREPARATORY WORK

The contractor shall provide and maintain a benchmark with a level at a location approved by the Engineer In Charge at ESR construction sites. All levels shall be deemed to refer to that benchmark. The Contractor may establish other secondary benchmarks on the site.

5.1 Soil Investigation

The contractor necessarily has to perform S.B.C. test at site for a permissible settlement of 25mm at the depth of 3.0 mtr for ESR. And accordingly design should be carried out. For estimation purpose SBC may be assumed as 10.0 T/sqm. For design propose and if SBC is less than 10.0 T/Sqm then actual SBC shall be considered for Design no extra payment shall be made for extra foundation. He shall be solely responsible for the overall safety of structure.

5.2 Location

The site for the tanks has been fixed. This may be seen to have a fair idea of the work site.

6 CIVIL WORKS

6.1 General

The construction of service reservoir shall be carried out in accordance with the drawings specification mentioned herein and relevant IS amended up to date. The general arrangement of the piping system shall be as per drawings enclosed with the tender documents. In cases where the specifications given below are silent about any aspects in respect of any item, the work shall be carried out as per the relevant IS code of practice in the latest version and as per sound engineering practice as decided by the Engineer in Charge.
Some of the important IS codes to be referred during execution of the work are as follows:

Earth work

- IS 3764 – Safety code for excavation works
- IS 3720 – Methods of tests for soils

Soil Investigation

- IS – 1888 – Load test on soil

IS – 2131 – Standard Penetration Test for soil method

Concrete Works & Reinforcement

- IS.280 – Mild steel wire for general engineering purposes
  IS.1786 – High strength deformed bars and wires for concrete reinforcement
- IS.269 – Ordinary & low heat Portland cement
- IS.383 – Aggregate, coarse & fine, from natural sources for concrete
- IS.456 –plain and reinforced concrete, Code of practice
- IS.516 – Methods of testing for strength of concrete
- IS.1199 – Method of sampling and analysis of concrete
- IS.1566 – Fabric reinforcement
- IS. 3370 – Code of practice for concrete structures for the storage of liquids
- IS. 7861 – Recommended practice for hot weather concreting (Part-I)
- IS. 4082– Recommendation on stacking and storage of construction material on site.

General

- IS.875 - Code of practice for structural safety of buildings, loading standards

- IS.1911 – Dead loads
- IS.1893 – Criteria for earthquake resistant design and structures
- IS.2950 – Design & construction of raft foundation, code for practice (part-1)
  IS-11089- Design & construction of ring foundation, code for practice
- IS.1200 – Method of measurements

6.2 Detailed design

- The detailed design, structural design and drawings (including reinforcement detailing and bar bending schedule) shall have to prepared taking provisions of dead load, water load, live load, seismic load, wind load, point loads due to pipes etc. and shall be checked for most critical condition resulting for various load combinations. The design shall be based on no crack basis for water retaining components.
- For the purpose if design safe bearing capacity of soil shall determine by SBC test at site or as directed by Engineer in Charge.

6.2.1 LOADS

Account shall be taken of all loads due to dead loads, live loads, wind loads, seismic loads, water pressure, soil pressure and point loads caused during installation of pipes etc.
The live load for top dome shall be taken as 1.50 KN/sqm. The platforms and stairs shall be

designed for a live load of 3.00KN/sqm in addition to other loads.
Full water depth including free board and dead storage shall be considered for structural design of the tank.
The area is situated in seismic zone number II and the seismic load shall be taken accordingly.
The wind load shall be taken assuming a basic wind speed of 170 Km/h.

6.2.2 CONCRETE MIXES

Cement concrete (plain or reinforced) shall comply with the requirement of specifications of Rajasthan PWD (B&R) Specification and Explanatory Notes for Buildings and House Drainage except in so far as these are not altered or modified by specific stipulations as given in the specifications herein. The concrete grades to be used shall not be leaner than following:

- Water bearing structure i.e. container, beam top and bottom dome M-30
- Other structural concrete M25
- Lean concrete in foundation M15

6.2.3 CONCRETE COVER AND THICKNESS

The minimum clear cover of reinforcement bars shall be as following:

-	In case of dry surface (shaft, platforms)	25 mm
	In case of dry surface (foundation)	50 mm
-	In case of occasionally wetted surface (roof)	30 mm
-	In case of permanently wetted surfaces/walls and bottom of the water chamber, central access shaft, platform in the reservoir) reinforcement dia up to 20 m	35 mm
-	In case of permanently wetted surfaces/walls and bottom of the water chamber, central access shaft, platform in the reservoir) reinforcement dia above 20 mm	40 mm

The various dimensions shall not be less than the following

-	Thickness of top dome	125 mm
-	Thickness of platform, landings	150 mm
-	Thickness of Water retaining walls, slabs <2m	150 mm
-	Thickness of Water retaining walls, slabs >2m	200 mm
-	Thickness of Other structural walls (load bearing)	150 mm
-	Thickness of Non structural walls	150 mm
-	Age factor shall not be more than	1 (one)

6.2.4 GENERAL RCC

The aggregates and cement shall be proportioned by weight only. The mixing shall invariably be carried out in mechanical mixer and in such a way so as to avoid any loss of water or cement. No hand mixed concrete will be allowed. It should be conveyed, placed in position and compacted by suitable type of mechanical vibrator as rapidly as practicable but in no case the time of compaction after mixing shall increase 30 minutes. Standby Concrete Mixer and Vibrator shall be available at Site.
The concrete shall be cured properly by keeping it moist constantly until end of three weeks from the date of casting.
Ordinary Portland Cement (OPC) conforming to IS: 269-1976 mark shall only be used. Cement manufactured in mini-cement plants shall not be used.
All reinforcement used shall be of Tor steel (Fe 415) ISI marked shall be clean and free from loose mill scales, rust and coating of oil or other coatings which may destroy or reduce bond. Minimum size of reinforcement bars shall be of 8mm. Only steel shuttering shall be used. Shuttering shall be new or in good condition without holes or dents. It has to be approved by the Engineer in Charge. The individual elements should be in the good shape to ensure a gap free shuttering according to the drawings. The paint used shall have good bonding and shall not stick to the concrete surface. Suitable system have to be provided for keeping the surface in place and keeping the correct distance in case of walls. The construction joints should be minimum and they have to be executed with most care. Before continuing concreting the loose material has to be removed and they have to be cleaned properly. Honey combing has to be avoided by suitable shuttering and proper use of vibrators.
The water used for concreting shall be free from all undesirable salts and other impurities and shall be fit for concreting as per IS : 456.
It is specifically being mentioned that the ground water available in this area may not be potable and not fit for concreting, therefore transportation from nearby safe water source has to be made. For the purpose of concreting and curing only potable water is to be used. For this purpose contractor shall make a temporary masonry/RCC underground water reservoir of 3 days average water consumption storage capacity. He shall provide a diesel pump set and necessary piping arrangement to ensure proper curing.
The exposed surface of concrete shall be kept continuously in a wet condition by ponding or covering with a layer of sackings, canvas, hessain or similar materials and kept continuously wet for at least 21 days from the date of placing of concrete.
To obtain a dense concrete and to reduce chances of honeycombing adequate admixture approved by Engineer In Charge shall be used as integral water proofing compound in concrete work. The quantity of the admixture shall be as prescribed by the manufacturer and as approved by the Engineer in Charge.

6.3 Testing

Materials and workmanship shall comply with the relevant specifications as described in subsequent clauses and in the Rajasthan PWD(B&R) Specification and Explanatory Notes for Building and House Drainage. Any material or workmanship not covered by the above specifications shall comply with the relevant Indian Standard (with up to date amendments).

6.3.1 MATERIAL

The Contractor shall submit to the Engineer In Charge or his representative, samples of the materials which will form part of the permanent works, sufficiently in advance of the start of the work, so that necessary tests can be carried out for the approval of the Engineer In Charge or his representative, before using any such material on site. Samples for the basic materials shall be submitted from every supplier and from each consignment; if materials differ from one consignment to another, the consignment differing from the accepted sample shall be replaced by the Contractor free of cost. The format will be provided by Engineer In Charge.

The testing of materials to be used in the Works, or of the quality of finished items shall generally be done in a laboratory approved by the Engineer In Charge or his representative. All testing charges shall be borne by the Contractor. The following tests shall be carried on a routine basis:

Gradation and specific gravity of coarse and fine aggregate to be used for concrete work.

Moisture content in fine and course aggregates, bulking of sand of fine aggregate.

Determination of fines and deleterious materials, organic impurities and light weight places in course and fine aggregate.

Workability tests on concrete by means of slump cone.

Determination of the crushing strength, absorption and efflorescence of bricks.

Concrete cube crushing strength at 7 days and 28 days.

Determination of flakiness index and crushing value for coarse aggregates.

The above tests (a) to (g) inclusive, shall be done on a routine basis as per the provisions of the relevant Indian Standards, or as specified by PMC and explanatory notes shall be kept during the construction period. The following additional tests of materials and workmanship shall also be carried out at contractor's cost, if the Engineer In Charge or his representative require:-

Chemical tests of fine and coarse aggregates, to determine the sulphate, chlorides and other deleterious material present in the aggregate.

Testing of cement (Physical and Chemical), as per IS 269 or IS 485, as the case may be.

Tests on steel (High Tensile (Tor) as per IS 1786 to establish the Ultimate tensile strength, yield stress, percentage elongation and chemical composition.

Tests for suitability of water for concrete work.

In addition to the above tests, the Engineer In Charge or his representative, may request any other test to be carried out from time to time as per the Indian Standards or the Rajasthan PWD specification, at contractor's cost.

6.3.2 **CONCRETE**

During the progress of construction sampling, preparation of test specimens, curing and testing of concrete shall be conducted in accordance with IS :1199 and IS : 516, to determine whether the concrete being produced complies with the strength requirements as specified.

At least one slump test shall be carried out for every compressive strength test carried out, or as directed by the Engineer in Charge. Six No.15 cm cubes shall be made for each cubic meter or portion thereof or for each pour per grade of concrete. This number may be increased at the discretion of the Engineer In Charge. Six specimens shall preferably be prepared from different batches, three being tested after 7 days and the remaining three being tested at 28 days. The Contractor shall provide, at his own expense, all apparatus, labour and arrange for testing at a laboratory, approved by the Engineer in Charge.

The concrete tested in accordance with "Testing of Concrete" clause above, shall me the criteria for acceptance of concrete as per IS 456. The strength of concrete shall be the average strength of three specimens tested at 28 days and conform to strength requirements for different grades of concrete. If the advance 7 days tests show crushing strengths that are too low, corrective measures shall be taken at once, at the Engineer's direction, without waiting for the results of the 28 days tests.

6.3.2.1 **Failure to meet Strength Requirements**

In cases where concrete tested fails to meet the test requirements, the Engineer In Charge shall have the right to require any one or all the following additional tests. These shall be carried out by contractor at his own expense. The Engineer In Charge shall be the finally authority for interpreting the results and shall decide upon the acceptance or otherwise.

Curing and load testing of the concrete member concerned represented by the test which failed.

Replacement of any such portions of the structure. No payment shall be made for the dismantling of the concrete, relevant form work, or reinforcement. Embedded fixtures and reinforcement of adjoining structures damaged during dismantling shall be made good by the contractor at his own expense.

Extended curing of the structure of the concrete represented by the specimen.

Collecting and testing of a core specimen from the hardened concrete. The location number and size of such specimen shall be taken as directed by the Engineer In Charge.

Any Other tests i.e. ultrasonic/ or rebound hammer tests to be decided by the Engineer In Charge, at the contractors own cost.

6.3.2.2 **Check of Reinforcement and Concreting**

All reinforcement shall be got checked recorded prior to pouring of concrete, by a representative of the Engineer In Charge. Similarly, the entire concrete pouring work shall be done in the presence of an officer not below the rank of Site Engineer. The contractor shall therefore, give a notice of a minimum three days to the Engineer In Charge or his representatives, such that the work can be checked by him or his representative . No work shall be covered before inspection and approval of Engineer In Charge.

6.3.2.3 **Final Finishing**

The contractor shall ensure that the entire structure along with all its installations are in a

finished and in new and fully operative condition when handed over. He shall have repaired and remove all signs of damage that might have been done during the course of installation and fixing of equipment. He shall also see that all the exterior finished properly and the entire site is cleared all extra construction material, debris and excavated soil. This shall have to be done to the satisfaction of Engineer In Charge.

6.4 **All flanged Specials**

The cast iron flanged specials (all flanged tee, flanged tapers, bends, blank flanges. Puddle collar) shall conform to IS 1538.
The specials shall be internally and externally coated with hot applied (dip) bituminous paint.
All flanged specials shall be used for nominal pressure of 25 kg/cm2 (2.5 Mps).
Flanged specials shall be supplied with the galvanized bolts, nuts and rubber gaskets. The galvanized nut & bolts shall be supplied in jute bag; rubber gasket shall be supplied in polyethylene bags. The rubber gaskets shall conform to IS 5382.
The length and size of the puddle collars to be fixed at different places of the structures shall be decided by the Engineer in Charge.

6.5 **Puddle Collar**

All puddle collars shall be of C.I. The length and size of the puddle collars shall be as shown in drawings.

6.6 **Ladder**

M. S. ladder 450 mm wide, made up of 50mm x 50mm x 6 mm M. S. angle iron and 25mm M. S. bars welded at 300mm c/c shall be provided outside from the balcony to top dome. MS cage shall also be provided on this ladder as shown in drawing. The ladder from top dome to inside platform and from platform to button dome in the container shall be of aluminum. Its drawing shall be got approved from EIC before dispatch.

6.7 **Railing**

Hand railing around the platforms, Balcony, stairs and landings shall be consisting of 25mm diameter medium B class GI pipes in two rows (one at the top and other at middle level) and 1000mm high vertical post 65x65x6 mm angle iron @ 1500mm center to center (At least two vertical angles are to be provided wherever distance is less) with all accessories like elbows, tees etc. including welding, threading and embedding in cement concrete floor. Railing shall be protected against corrosion after welding. The pipe shall pass through hole in the vertical angle.

6.8 **Water level indicator**

The level will be transferred at suitable and visible place.

6.9 **Ventilator**

This shall be 300mm dia MS cowl, 300 mm high with mosquito proof jali of stainless steel as per drawing shall be fixed at the top Alternatively a CI ventilator may be provided.

6.10 **Painting**

If not otherwise stated metallic surfaces shall receive one initial coat at the manufacturer's workshop. Alter arrival of the equipment on site, the same shall be inspected and damaged portions shall be cleaned and given the primer and under coat of similar paint. After erection all metal work shall be painted as follows:

Painting of metallic surfaces

All mild steel railing, gate, frame, MS ladders, ventilator, manholes, cover, float valve.	Primer of red oxide, two under coats and one finishing coat of an approved enamel paint and of approved shades.

6.11 **Dismantling joints**

All valves shall be installed between flanges with a flexible cast iron dismantling joint at one side of the valve. The joint must allow the dismantling without stress to the joints of the attached pipes, the minimum clearance of the dismantling joint shall be 5 Cms. Drawing of the dismantling joint shall be submitted to the Engineer In Charge for approval.

6.12 **Water bars (for SR)**

PVC water stop of 320 mm. Wide will be fixed between foundation of wall and base slab. pvc water stop of 230 mm wide will be fixed between foundation of columns and base slab & all radial joints and in construction joints of vertical wall as per IS 3370 Part-I1965 Clause 8.5.2.

6.13 **Slogan and logo**

The contractor shall paint a area of 6m x 3m on the vertical wall of the tank portion by using 3 coats of plastic emulsion paint of shade as approved by Engineer In Charge to form a base for writing the slogan and logo of "JAL BHI SEEMIT PARIWAR BHI SEEMIT" in Hindi. For writing the slogan the letters shall be of 30 cm size. The size of logo shall be 75 cm. The shade for painting the slogan will be approved and directed by Engineer in Charge.

6.14 **Pipe Clamp**

The clamp shall be 10 mm thick 55mm wide MS flat fixed on pipe & column as shown in drawing.

6.15 **Man Hole Cover**

Square man hole cover 800x800 mm shall be provided. The cover shall be made of 3 mm thick MS flat. The frame shall be made of MS angle 80*80*4. The cover shall be connected to this frame by using two nos. strung hinges. Arrangement shall be provided as shown in drawings.

7. **Testing for water tightness**

The contractor shall carry out a water tightness test for the maximum water head condition i.e. with the water standing at full supply level. All cost of testing shall be born by the contractor. This test shall be carried out in accordance with the procedure given below:
For water tightness test, before the filling operations are started, the reservoirs shall be jointly

inspected by the Engineer In Charge and the representative of the Contractor and condition of surfaces of wall, construction joints etc. shall be inspected and noted and it shall be ensured that jointing material filled in the joints is in position and all openings are closed. The contractor shall make necessary arrangement for ventilation and lighting of reservoir by way of floodlights, circulators etc. for carrying out proper inspection of surface and internal conditions if so desired by the Engineer in Charge.

The water retaining structures shall be filled with water gradually at the rate not exceeding 30 cm. Rise in water level per hour and shall extend for a period of 72 hours. Records of leakages starting at different level of water in the reservoirs, if any, shall be kept.

The reservoirs once filled shall be allowed to remain filled for a period of 7 days before any readings or drop in water level is recorded again at 7 days. The total drop in surface level over a period of 7 days shall be taken as indication of the water tightness of the reservoir, which for all practical purposes shall not exceed 40mm. There shall be no indication of leakages around the puddle collars or on the wall and bottom of the reservoir.

If the structure does not satisfy the test requirements, and the daily drop in water level is decreasing, the period of test may be extended for a further seven days and if the specified limit is not exceeded, the structure may be considered as satisfactory.

In case the drop in water level exceed the permissible limit with the stipulated period of test, the Contractor shall carry out such additional works and adopt such measures as may be directed by the Engineer In Charge to reduce the leakage in the permissible limit. The entire rectification work that shall be carried out in this connection shall be at Contractor's cost.

If the test results are unsatisfactory, the Contractor shall ascertain the cause and make all necessary repairs and repeat the water retaining structure test procedures, at his own cost. Should the re-test results still be unsatisfactory after the repairs, the structure will be condemned and the Contractor will dismantle and reconstruct the structure, to the original specification, at his own cost.

C. Specifications for Electrical and mechanical works at RCC SUMP.

1. submersible Centrifugal Pumps

1.1 General

It is not the intent to specify herein all the details pertaining to the design, drawing, selection of equipment/material, procurement, manufacture, installation, testing & commissioning, however, the same shall be of high standard of engineering and shall comply with all currently applicable standards, regulations & safety codes.

Generally from considerations of reliability, case of operation and maintenance, a split casing centrifugal pumps are proposed.

1.2 Pump Operation Range:

The pump shall be suitable for operation in a pumping system at the duty points specified for each pump and should be able to satisfactorily operate within the range of operation specified in the tender. The duty condition of the pumps in the pumping system are as follows

Discharge- 26.00 lps
Head- 70.0 m

1.3 Codes And Standards

The design, manufacture and performance of the centrifugal pumps specified herein shall comply with the requirements of the latest edition of the applicable Codes and Standards.

1.4 Design Requirements

The pumps shall be capable of developing the required duty point head at rated capacity for continuous operation. Pumps shall be single stage or two stage in horizontal split case design running at 1450 rpm . Contractor shall select the pumps to operate satisfactorily within the operating rate. The pump shall have to stable bend curve, i.e. the total head.

The material of the various components shall conform to those stipulated in the "Technical Particulars" section.

The power characteristic shall be non overloading and preferably flat for flows higher than the best efficiency flow (BEP).

Specifications / dimensional standards for flanges are mentioned elsewhere in this document. It is Contractor's responsibility to provide pump suction and discharge flanges as specified. Otherwise contractor must supply correct matching, M.S.plate flanges as per the thickness specified.

Spare parts supplied with the pump shall be identical to respective pump components and shall be from original manufacturer.

Pumps shall run smooth without undue noise or vibration. Noise levels and velocity of vibrations shall be within acceptable limits. Noise level shall be limited to 85 dba at a distance of 2m. Velocity of vibrations shall be within 4.5 mm/s as per relevant Hydraulic Institutes Standards and IS.

1.5 FEATURES OF CONSTRUCTION

1.5.1 Impeller

The impeller shall be an enclosed impeller, made in one piece and securely keyed on the shaft. The installation will include means to prevent loosening of the impeller during operation, including rotating in the reverse direction. The impeller shall be statically and dynamically balanced to prevent vibration.

1.5.2 Casing Ring

The pump shall be provided with a renewable type casing ring, to offer wearing resistance. Hardness of the casing ring shall be lower than the impeller.

1.5.3. Shaft

Single integral shaft, shall be designed to withstand the torque loads throughout the whole range of operating conditions, for the selected particular impeller diameter as well as all the impeller diameters covered between minimum and maximum impeller diameters when coupled to the motor shaft through flexible coupling.

1.5.4. Shaft Sleeves

Replaceable shaft sleeves shall be provided to protect the shaft where it passes through stuffing boxes. The end of the shaft sleeve assembly shall extend through the packing gland. Shaft sleeves shall be securely locked or keyed to the shaft to prevent loosening. Shaft and shaft sleeve assembly shall ensure concentric rotation.

1.5.5. Stuffing Boxes

Stuffing boxes at driving end and non-driving end shall be of such design that they can be re-packed, without removing any part, other than the gland and lantern ring. An axially split gland should be used to facilitate changing the gland packing. Sufficient space shall be available for maintenance purposes.

1.5.6 Air Release Valves

Pump shall be provided with arrangement of valve to vent air which may get accumulated in the pump.

1.5.7. Sealing

Self sealing water connections should be provided.

1.5.8. Flanges

Flanges shall be machined flat, with flange faces vertical and at right angles to the pump mounting surface. Flange drilling shall conform to IS 1538 (table IV & VI) with suction and discharge connections being flanged and drilled to the specified flange table. Pump flanges shall be flat faced and bolt holes shall be spot faced on the back side.

1.5.9 Bearings

Bearings shall be grease lubricated and should absorb the radial and axial thrusts, under all operating conditions. Anti-friction bearing shall be of standard type and shall be selected to give 20,000 hours continuous operation at rated operating conditions. The rise in bearing grease temperature will continuous running of the pump shall be within the allowable limits.

1.5.10. Base plate

The common base plate for pump and motor shall be provided having sufficient rigidity to resist vibration and distortion. Suitable holes shall be provided for grouting and they shall be so located that the base will be able to be grouted in place, without disturbing the pump and motor. The base plate should be of the drain rim type to collect any gland water leakage and lead to drain. All pumps and motors should be properly and accurately aligned, bolted and doweled to the base plate for installation of minimum 15mm diameter drain pipe. Foundation bolts shall be complete with nuts and flat and shake proof washers.

1.5.11.Coupling

A flexible pinbush type coupling shall be provided, duly bored and keyed to the pump and motor shafts.
The coupling and the pump shafts have to be designed such that the breaking load of the coupling system is below that of the shaft.

1.5.12 Accessories

All specified accessories and any other standard accessories required for correct and safe operation of the pump shall be furnished with the pumps.

Amild steel fabricated coupling guard shall be provided to provide a safeguard against the open rotating parts of the pump and motor.

Eye bolts (as many per pump as required for safety), shall be provided for ease of lifting and installation.

1.6 TECHNICAL PARTICULARS COMMON TO ALL PUMPS

1.6.1 Materials of Construction

1.	Casing	Cast Iron Gr.260 of IS 210
2.	Impeller	Bronze Gr. LTB II of IS 318
3.	Shaft	Carbon Steel 40 C 8 of IS 1570
4.	Shaft Sleeve	SS AISI 410 of LTB II of IS 318
5.	Casing Rings	Bronze Gr. I.T.B.II of IS 318
6.	Gland Packing	Graphited Asbestos

Accessories and services required to be supplied by the Contractor with pump

1.	Base Plate	Yes
2.	Coupling	Yes
3.	Coupling Guard	Yes
4.	Foundation Bolts	Yes

1.6.2 DRAWINGS AND INFORMATION TO BE PROVIDED

During detailed engineering the Contractor shall submit the following:

1. General arrangement, cross sectional and dimensional drawings/data pertaining to selected models with improvements, if any.

2. General arrangement/dimensional drawing of pump set including motor, base plate and coupling guard..

3. Complete pump performance curve with

   a) II-Q curves for complete range of impellers between minimum and maximum size of impellers and efficiency curves super imposed on them, highlighting selected impeller diameter.

   b) Shaft Power – Q curves for complete range of impellers.

   c) Efficiency – Q curve for Maximum impeller diameter and selected impeller diameter.

   d) NPSHR – Q curve for maximum, minimum and selected impeller diameters.

4. Test reports, performance curves and other particulars, as required by the applicable clauses of this specification.

   Instruction Manuals:

   a) Instruction manual for erection.
   b) Instruction for pre-commissioning check up, operation, abnormal conditions, maintenance and repair.
   c) Write up on Controls and interlocks provided.
   d) Recommended inspection points and period of inspection.

e) Schedule of preventive maintenance.
f) Ordering information for all replaceable parts.
g) Recommendations for types of lubricants, lubricating points, frequency of lubrication and lubricant changing schedule.

1.6.3 Inspection and Testing

The performance and hydraulic tests of the pumps shall be made with their duty motors. The following inspections/tests shall be executed (ref. To section 4).

1.	Material Test Certificate	Casing, Impeller & Shaft. – Class B Casing – Dye penetration test on critical area, Class – A.
2.	Hydrostatic Test	1.5 times the shut-off head – Class A
3.	Performance Test	As per IS 5120 & 9137 at full speed. Head v Discharge characteristic – Class A Power absorbed v Discharge – Class A Efficiency v Discharge – Class A Readings for the above tests shall be taken at six points on the performance curve at Rated Motor. Speed: as per details below- a) At shut off b) At rated duty point
		c) At full open maximum discharge point on the pump curve
		a) At a point between best efficiency point and full open maximum discharge point.
4.	NPSH TEST	"Type" test certificate for the offered model – Class A
5.	Strip Test	"Type" test certificate for the offered model – Class A
6.	Mechanical Balancing	As per ISO 1940, Gr 6.3 or better – Class C
7.	Field Tests	Field performance test required for satisfactory operation – Class A

2.0 Motor Control Center (MCC)

2.1. General requirements :

The Motor control Centre (MCC) required for 2x35 HP 415 Volt 50Hz AC Electric driven pumping sets to be installed at Main Pump House at New Loha Mandi, Jaipur.

2.2. Construction :

i) The Motor Control Center shall be in Conventional cubicle Type formation indoor, floor mounted metal enclosed.
ii) MCC shall be dust & vermin proof (Protection Class 1P54) all doors, panels, removable covers etc. are lined all around with Rubber/PVC gasket in U or rectangular shape.
iii) Metal enclosed bus bar compartment running horizontally throughout the length of the Switchgear.
iv) Sides of the MCC & front of the Starter Doors of Panel shall be provided with louvers to Facilitate proper circulation of Air.
i) Individual feeder modules (Starters) in Horizontal in conventional cubicle type formation.
ii) Metal enclosed unit is comprixed of rigid structural frame of 2 mm thick 14 SWG sheed steel and doors and covers of 1.6 mm thick 16 SWG cold rolled sheet steel.
iii) A 75x40 mm MS channel is provided as the Base Frame of the MCC.
iv) All Starters shall be accessible from the front side of the MCC. And the Starters are assembled on separate removable plate of not less than 16 SWG (1.6mm) thickness.
v) All Starters shall have Separate Door.
vi) All Aluminium busbars are supported by non-hygroscopic DMC resin cast insulating material.
vii) The busbars are minimum 150 sq.mm. Aluminium flat and are designed for carrying rated current continuously.
Viii) The Aluminium busbars are insulated by heat shrinkable sleeves of Red/Yellow/Blue & Black colours. For each Phase & Neutral.
Ix) The Incoming Main LT Cable shall be connected to Incoming MCCB only through Busbars with proper support of DMC Insulators.
x) The Ground Aluminium busbar will run throughout the length of the MCC.
Xi) Power Control and motor control equipment shall be fixed type execution.
Xii) The panel wiring will be executed by PVC insulated 660 Volts grade flexible wires of Grey/Red colours.
Xiii) The wiring of CT circuit is executed with 2.5 sq.mm wires.
Xiv) Normal control circuit wiring will be executed with 1.5 sq.mm control Cables.

2.3 Metal Treatment and Finish

All steel fabrication work used in the construction of the switchgear should have undergone a rigorous metal treatment process as follows:

i) The panel is first treated with a NEROLAC's degreasing, de-rusting, pickling and phosphating emulsion.
Ii) Thereafter, passivating in de oxalite solution to retain and augment the effect of phosphating.
Iii) Drying with compressed air in a dust free atmosphere.
Iv) The panel is then coated with 2 (two) coats of metal primer.
v) The pasting be done with automative NC putty.
Vi) Finally two coats of Mat finish (Non glazing) synthetic enamel paint is applied and air dried.

2.4. Wiring

i) The panel shall be completely factory wired, ready for connection to the equipment at site.
Ii) Power wiring for 40 HP starters shall be carried out with 1100 volt grade by 10 sqmm copper conductor Multistrand single core flexible cable.
Iii) Motor side wiring shall be carried out with 1100 volt grade by 6 sqmm copper conductor multistrand single core flexible cable.
Iv) All control wiring shall be carried out with 1100 volt grade single core PVC cable Grey/ Black conforming to IS:694 having stranded copper conductors, of minimum 1.5 sqmm section for potential circuits and 2.5 sqmm section for current transformer circuits.
v) Wiring shall be neatly bunched, adequately supported and properly routed to allow easy access and maintenance.
Vi) Wire shall be identified by numbered ferruled at each end. The ferrule shall be of ring type and of non deteriorating material. They shall be firmly gripped on each wire so as to prevent free movement.
Vii) All control circuit of individual starters, metering and indication shall be protected by single pole(SP) MCB not more then 6 amp.

2.5. Lables:

i) A anodized aluminium Danger Plate for 440 volts is provided.
Ii) Individual module (Motor Starter or Power Control) shall be labelled by acrylic or anodized

2.6. Earthing terminals

A ground earthing aluminium Busbar of 25 x 6 shall run throughout the length of MCC.

2.7. Water Level Indicators

The Motor Control Centre is comprised of the following components:-

S.No.	Description	Make	Quantity
1	Moulded case Circuit Breaker (MCCB) of 100 amp TP of 25 KA breaing capacity. Suitable for 415 volt 50 Hz. AC supply with adjustable Thermal current setting	L&T, GE Power, Crompton, (CGL), Havels	1 No.
2	Volt meter, Digital Type (DPM) 1.5 class, 0-700 volt Ac range. 96 sqmm frame size. 31/2 digit LED Display, with selector switch	Meco, AE, Enercon, Agronic, Indotech	1 No.
3	Ampere meter, Digital Type, (DPM) 1.5 class, 100/5 CTR current range., 96 sqmm frame size., 31/2 digit LED display with selector switch	Meco, AE, Enercon, Agronic, Indotech	1 No.
4	Current Transformer BPL type Class –I, 100/5 CTR 5 VA burden.	Alfa, Essma, Indotech	3 Nos.
5.	Phasing Indication Light RYB, LED Type. For 230 Volt AC Supply.	Vaishno, Teknic	3 Nos.
6.	MCB 2 Amp. SP for Control Circuit.	Protec, Havells, Hager (L&T)	3 Nos.
7.	Aluminium Busbar 150 Sq. mm. (25x6mm.) 4 Pole.	Panel Manufacturer	1 Set
8.	Cable Gland suitable size for 50 sq.mm. $3^{1/2}$ Core Armoured nickle plated for Incoming Cable.	Gripwell	1 No.
9.	Electroni Digital Type Water Level Indicating Instrument to Indicate Water Level of SR & CWR.	Nivo	2 Nos.

2.8 Outgoing Feeders :

Sr. No.	Description	Make	Quantity
1.	Moulded Case Circuit Breaker (MCCB) of 40 Amps. TP of 16 KA Breaking capacity. Suitable for 415 Volt 50 Hz AC Supply.	As per List	2 Sets

	35 HP fully Automatic Star Delta Starter with Push Button Starting facility from MCC as well as Remote Push Button Station. Star-delta Starter comprised of 40 Amp. AC 3 Duty Contactors 3 nos. Single Phase Preventer Minilec Make, Pneumatic Timer of BCH Make & Thermal Overload Relay suitable for 20 HP Motor. Star-delta Starter is provided with Ampere Meter Digital Type DPM 1.5 CLASS 50/5 ctr CURRENT Range 96 Sq. mm. Frame size, 31/2 digit LED Display with Ammeter selector Switch & CT's. Starter 'ON' Indication LED type to be provided on MCC as well as Remote Push Button Station. Outgoing Termination of Starter not less than 60 Amp. 6 Way open type Separate Control Terminate 30 Amp. Way for Remote Push Button Station A 7.5 KVAR Capacitor to be provided with each Star-Delta Starter.		
2.	MCB 6 Amp. TP with 2 HP DOL Starter with Push Button Starting facility from MCC as well as Remote Push Button Station.	As per List	1 no.
3.	MCB 32 Amp. TPN.		1 no.
	MCB 32 Amp. TPN		2 nos.

2.9 Approved Make of Components :

1.	MCCB :	L&T, GE Power, Crompton,, (CGL), Havells (Dorman Smith)
2.	DIGITAL METERS :	Meco, IMP, Enercon, Agronic, Indotech.
3.	CURRENT TRANSFORMERS :	Alfa, Indotech, AE.
4.	INDICATING LIGHT & PUSH BUTTON:	Teknic, Vaishno, Standard Gold.
5.	MCB:	Protec, Hager, Standard, Merlin Gerin.
6.	SELECTOR SWITCH :	Salzer, Kaycee, Standard Gold.
7.	CABLEGLAND :	Gripwell, Commet.
8.	DIGITAL WATER LEVEL INDICATOR :	Nivo
9.	CONTACTOR, RELLAY :	BCH, L&T, Siemens, Telemecanique (Schneider)
10.	PNEUMATIC TIMER :	BCH
11.	TERMINAL STRIPS :	Veeco, Essen.
12.	CAPACITORS :	Dugati (Neptune), L & T

3.0 Cables

3.1 LT Cables

3.1.1 Standards

No.	Standard	Description
1.	IS 1554	PVC insulated electric Cables.
2.	IS 8130	Conductors for insulated electric cables.
3.	IS 5831	PVC insulation and sheath of electric cables.
4.	IS 3975	Mild steel wires, strips and tapes for armouring of cables.

3.1.2 Other Considerations

Power cable shall be of Al conductor, whereas control and lighting cables shall be of Cu conductor. The minimum size of Al conductor cable shall be 4 mm^2 and Cu conductor cable of 1.5 mm^2.The sizes of the cables shall be as per cable list given in Part B7.Control cables of CTs shall be based on the VA burden of CT and relays, meters.

3.2 Technical parameters

LT Cables	PVC insulated, taped PVC inner sheath and outer sheath 1100 V grade, with multi-stranded aluminium/copper conductor, armoured
Cable selection	Cable shall be selected considering following points Current rating of the load De-rating due to grouping of cables

	Voltage drop up to 3% in cable due to cable resistance De-rating factor due to ambient temperature. De-rating due to depth in case of buried cables

3.3 Inspection

All routine test on cables-**class B** All type test certificate conducted on similar cables

4.0 De watering Pump

4.1 General

The de watering pump shall be of 10 m^3/h capacity and 8m head. The pump motor shall be suitable for working with or without submergence in water. The motor rating shall be more than the maximum power required by the pump.

The pumps shall be electric motor driven.

The pumps shall be submersible float switch operated, non – clog type. The impeller shall be mounted on the extended shaft of the motor.

4.2 Feature of Construction

1	Impeller	Bronze grade LTB II of IS 318
2	Casing	Cast Iron Grade FG 200 of IS 210 / Aluminium as per mfg. Standard
3	Shaft	40c8 of IS 1570
4	Motor	415 V, 3Ph AC supply, submersible.

Drawings and information to be provided
During detailed engineering the contractor shall submit the following:
Data sheet of de watering pump/motor
Leaflets on de watering pump
Cross sectional drawings with performance curves

4.3 Instruction Manuals:

Installation manual for erection

Instruction for pre-commissioning check up operation, abnormal conditions, maintenance and repair

4.4 Inspection and Testing

Material Test certificate	Review of test certificates. Client can ask for witnessing the test(s) Class B
Pump Performance test	Class B
Hydrostatic test	Class B
Visual inspection	Dimensional check; operational check for smooth operation -Class B

5.0 Mild Steel Pipes

Pipe work within the battery limits shall be flanged, mild steel (MS) pipes confirming to IS 3589. The pipes shall be manufactured from fresh mild steel plates confirming to IS 2062 and having minimum tensile strength 410 Mpa . The pipe wall thickness shall not be less than 6.35mm for pipes from 200 to 500 NB sizes. Pipes of sizes 150mm and below shall be MS black pipes as per IS1239 heavy class.

5.1 MS specials and pipe assemblies

Should any mild steel (MS) specials (bends, reducers, enlargers, tees, tail pieces and pipe assemblies i.e. headers etc.) , can be required they shall conform to IS 7322. The overall. Dimensions i,e. Length, radius etc. Of the specials shall be as per IS 1538. The contractor will submit the design and drawings for each special to be used in any of the Pipe work in the package. After approval by Engineer in charge, the contractor will take up the manufacturing. The specials shall be manufactured in a workshop and under conditions approved by Engineer in Charge. Headers with branches and other similar piping, components shall be pre fabricated at the contractors work shop. Welding at the site shall be limited to a strict minimum after approval of the Engineer in Charge, No specials shall be manufactured /welded on site. The contractor has to ensure the timely manufacturing of the MS specials so that they can be installed in synchronization with the pump and equivalent installation.

On completion of the manufacturing the material will be inspected by the Engineer in Charge or his representative. After clearance and approval, the coating and lining for the specials will be applied by the contractor.

5.2 Flanges

All mild steel flanges shall be machined flat with flange faces vertical and at right angles to the mounting surface. The thickness of the flanges shall be as per IS 6392. The drilling of the flanges shall confirm to IS 1538 (part IV and VI)

5.3 Design consideration – MS pipe and specials

Pipe fittings of size 50NB and below shall be forged confirming to IS –1239 Part II. Fittings above 50NB upto 200 NB shall be welded/seamless confirming to ASTM A-234 Gr. WPB and dimensional standard ANSI B 16.9 Fittings and specials of size 250 NB and above can be fabricated from pipes of respective specifications. 45^0 and 90^0 bends shall be made in mitre construction with 3 piece and 5 piece design respectively. Equal and unequal tees shall be made by direct welding of pipe to pipe with reinforcement pads wherever as per direction of Engineer in Charge

5.4 Nuts, Bolts, Studs and Washers

Nuts and bolts shall be of the best quality bright steel, machined on the shank and under the head and nut. Studs, bolts and nuts shall be galvanised. Bolts shall be of adequate length. Nuts and bolts shall conform to IS 1363 and IS 1367.

Washers, locking devices and anti-vibration arrangements shall be provided where necessary.

Where there is a risk of corrosion, bolts, nuts and studs shall be designed so that the maximum stress does not exceed half the yield stress of the material under any conditions.

The Contractor shall supply all holding down, alignment levelling bolts complete with anchorages, nuts washers and packing required to fix the plant to its foundations, bed plates, frames and other structural parts.

The Contractor shall procure and keep at site, reasonable excess quantities to cover wastage of those materials which will be normally subject to waste during erection, commissioning and setting to work.

SUPPLY OF DI / UPVC PIPES, SPECIALS, VALVES AND LAYING OF PIPES FOR WATER SUPPLY

General

Standards

Except as otherwise specified in this technical specification, the Indian/International Standards and Codes of Practice in their latest version shall be adhered to for the design, manufacturing, inspection, factory testing, packing, handling and transportation of product. Should any product be offered conforming to other standards, the equipment or products shall be equal to or superior to those specified and the documentary confirmation shall be submitted for the prior approval of the Engineer in Charge.

This specification requires a reference to the following standard specifications

IS: 4985	Unplasticized PVC pipes for potable water supplies
IS: 10151	PVC and its copolymers for its safe use in contact with foodstuffs, pharmaceuticals, and drinking water
IS: 10500	Drinking water specification
IS: 12235	Methods of test for unplasticized PVC pipes for potable water supplies
IS: 4669	Methods of test for PVC resin
IS: 12818	Unplasticized PVC screen and casing pipes for bore/tube well
IS: 3400	Methods of test for vulcanized rubber (part-1 to 22)
IS: 1387	General requirements for the supply of metallurgical material
IS: 210	Grey iron casting
IS: 1536	Centrifugally cast (spun) iron pressure pipe for water, gas and sewage
IS: 1537	Vertically cast iron pressure pipe for water, gas and sewage
IS: 1538	Cast iron fittings for pressure pipes for water, gas and sewage
IS: 5531	CI specials for Asbestos cement pressure pipes for water gas & sewage
IS: 1363	Hexagon head bolts, screws and nuts of product grade A and B (part:1-5)
IS: 1367	Technical supply conditions for threaded steel fasteners
IS: 780	Sluice valve for water works purposes

IS: 2906	Specifications for sluice valves for water works purposes
IS: 318	Leaded tin bronze ingots and casting
IS: 8543	Methods of testing plastics: Determination of density of solid plastics
IS: 7181	Horizontally cast iron double flanged pipes for water, gas and sewage.
IS: 8794	CI detachable joints for use with Asbestos cement pressure pipes
IS: 5382	Rubber sealing rings for gas mains, water mains and sewers
IS: 5531	Cast iron specials for asbestos cement pressure pipes for water, gas and sewage
IS: 779	Water meters
IS: 3624	Pressure and vacuum gauges
IS: 341	Black japan, types A, B and C
IS: 9862	Ready mixed paint, brushing, bituminous, black, lead free, acid, alkali, water and chlorine resisting
IS: 1239	Mild steel tubes, tubular and other wrought steel fittings
IS: 7328	High density polyethylene materials for moulding and extrusion
IS: 4984	Specification for high density polyethylene pipes for potable water supplies; sewage and industrial effluents
IS: 554	Dimensions for pipe threads where pressure tight joints are required on the threads
IS: 1592	Asbestos cement pressure pipes - Specifications
IS: 778	Specifications for copper alloy gate, globe and check valves for water works purposes
IS: 12820	Dimensional requirements for rubber gaskets for mechanical joints and push on joint for use with cast iron pies and fittings for carrying water, gas and sewage.
IS: 9523	Specification for DI fittings for pressure pipes for water, gas, and sewage.
ISO: 2045	Single socket for uPVC and uPVC pressure pipes with elastic sealing ring type joints - Minimum depth of engagement
ISO: 2507	PVC pipes and fittings- Vicat softening temperature - Test method and specification
ISO: 3603	Fittings for PVC pipe with elastic sealing ring joints pressure test for leak profanes
ISO: 1167	Thermoplastics pipes for the transport of fluids - Resistance to internal pressure - Test method and basic specification
ISO 3451-5	Determination of Ash: Part-5 - Poly vinyl chloride
ASTM: D 2152	Standard test method for degree of fusion of extruded PVC pipe and moulded fittings by Acetone immersion
MTNL	Mahanagar Telephone Nigam Limited; Technical specifications for cable ducts.
BS: 4772	Specification for DI fittings
IS: 7634- Parts 1-3	Code of practice for plastic pipe works for potable water supplies
IS: 8329	Centrifugally cast (spun) ductile iron pressure pipes for water, gas and sewage.
IS: 12288	Code of practice for use and laying of ductile iron pipes

CPHEEO Manual on Water Supply and Treatment, III edition, Ministry of Urban Development, New Delhi- May 1999.

Ductile Iron Pipe:-

The pipes will be centrifugally cast (spun) Ductile Iron pipes for Water and Sewage confirming to the IS 8329: 2000. The pipes used will be either with push on joints (Rubber Gasket Joints) or Flanged joints. The class of pipe to be used shall be of the class K-7.

The pipes shall be coated with bitumen as per appendix C and have factory provided cement mortar lining in the inside as per the provisions of Appendix B of the IS 8329: 2000.

The pipes will be supplied in standard length of 5.50 and 6.00 meters length with suitably rounded or chamfered ends. Each pipe of the push on joint variety will also be supplied with a rubber EPDM gasket. Any change in the stipulated lengths will be approved by the Engineer – in charge. The gaskets will confirm to the IS 5382:1985.

The gaskets should also be supplied by the manufacturer of the pipes. They should preferably be manufactured by the manufacturer of the pipes. In case they are not, it will be the responsibility of the manufacturer of the pipes to have them manufactured from a suitable manufacturer under it's own supervision and have it tested at his/sub contractors premises as per the contract. The pipe manufacturer will however be responsible for the compatibility and quality of the products.

The flanged joints will confirm to the Clause 6.2 of IS 8329. The pipe supply will also include one rubber gaskets for each flange.

Inspection and Testing:

The pipes will be subjected to following tests for acceptance:

Visual and dimensional check as per Clause 13 and 15 of IS 8329

Mechanical Test as per Clause 10 of IS 8329

Hydrostatic Test as per Clause 11 of IS 8329

The test reports for the rubber gaskets shall be as per acceptance tests of the IS 5832 and will be in accordance to Clause 3.8

The sampling shall be as per the provisions of the IS 8329

Marking

All pipes will be marked as per Clause 18 of IS 8329 and show as below:

Manufacturer name/ stamp

Nominal diameter

Class reference

A white ring line showing length of insertion at spigot end

Packing and Transport:

The pipes should be preferably transported by road from the factory and stored as per the manufacturer specifications to protect damage.

Specials for Ductile Iron Pipes

General

This section covers the general requirements for Ductile Iron (DI) fittings suitable for Tyton joints to be used with Ductile Iron pipes with flanged and Tyton jointing system.

Types of specials

The following types of DI fittings shall be manufactured and tested in accordance with IS: 9523 or BS: 4772.
flanged socket
flanged spigot
Double socket bends (900, 450, 22 1/2 0, 11 1/4 0)
Double socket branch flanged tee
All socket tee.
Double socket taper.
All Flanged Tee.
All Flanged taper.

Supply

All the DI fittings shall be supplied with one rubber ring for each socket. The rubber ring shall conform to IS: 12820 and IS: 5382 as described in the preceding chapter. Flanged fittings shall be supplied with one rubber gasket per flange and the required number of nuts and bolts.

General

This section covers the requirements for lubricant for the assembly of Ductile Iron pipes and specials suitable for Tyton push-in rubber ring joints

Specification

The lubricant has to have the following characteristics:
must have a paste like consistency and be ready for use
has to adhere to wet and dry surfaces of DI pipes and rubber rings
to be applied in hot and cold weather; ambient temperature 0 - 50 °C, temperature of exposed pipes up to 70 °C
must be non toxic
must be water-soluble
must not affect the properties of the drinking water carried in the pipes
must not have an objectionable odour
has to inhibit bacterial growth
must not be harmful to the skin
must have a shelf live not less than 2 years

Acceptance tests

They shall be conducted in line with the provisions of the IS 9523

Packing

All the DI fittings shall be properly packed with jute cloth. Rubber rings shall be packed in polyethylene bags. Rubber rings in PE bags and nuts, bolts etc. shall be supplied in separate jute bags.

The fittings should also be supplied by the manufacturer of the pipes. They should preferably be manufactured by the manufacturer of the pipes. In case they are not, it will be the responsibility of the manufacturer of the pipes to have them manufactured from a suitable manufacturer under it's own supervision and have it tested at his/sub contractors premises as per the contract. The pipe manufacturer will however be responsible for the compatibility and quality of the products.

Laying and jointing of DI pipes

Pipes should be lowered into the trench with tackle suitable for the weight of pipes. For smaller sizes, up to 200 mm nominal bore, the pipe may be lowered by the use of ropes but for heavier pipes suitable mechanical equipment have to be used.

All construction debris should be cleared from the inside of the pipe either before or just after a joint is made. This is done by passing a pull-through in the pipe, or by hand, depending on the size of the pipe. All persons should vacate any section of trench into which the pipe is being lowered

On gradients of 1:15 or steeper, precautions should be taken to ensure that the spigot of the pipe being laid does not move into or out of the socket of the laid pipe during the jointing operations. As soon as the joint assembly has been completed, the pipe should be held firmly in position while the trench is back filled over the barrel of the pipe.

The designed anchorage shall be provided to resist the thrusts developed by internal pressure at bends, tees, etc.

Where a pipeline crosses a watercourse, the design and method of construction should take into account the characteristics of the watercourse to ascertain the nature of bed, scour levels, maximum velocities, high flood levels, seasonal variation, etc. which affect the design and laying of pipeline.

The assembly of the pipes shall be made as recommended by the pipe manufacturer and using the suitable tools.

The socket and spigot ends of the pipes shall be brushed and cleaned. The chamfered surface and the end of the spigot end have to be coated with a suitable lubricant recommended by the manufacturer of the pipes. Oil, petroleum bound oils, grease or other material which may damage the rubber gasket shall not be used as lubricant. The rubber gasket shall be inserted into the cleaned groove of the socket. It has to be checked for correct positioning.

The two pipes shall be aligned properly in the pipe trench and the spigot end shall be pushed axially into the socket either manually or with a suitable tool specially designed for the assembly of pipes and as recommended by the manufacturer. The spigot has to be inserted up to the insertion mark on the pipe spigot. After insertion, the correct position of the socket has to be tested with a feeler blade

Deflection of the pipes -if any- shall be made only after they have fully been assembled. The deflection shall not exceed 75 % of the values indicated by the pipe manufacturer.

Anchoring of the pipeline

Thrust blocks shall be provided at each bend, tee, taper, end piece to prevent undue movements of the pipeline under pressure. They shall be constructed as per design of ENGINEER- IN- CHARGE according to the highest pressure during operation or testing of the pipes, the safe bearing pressure of the surrounding soil and the friction coefficient of the soil.

Leakage Test

After laying and jointing the pipeline shall be tested for tightness of barrels and joints, and stability of thrust blocks in sections approved by the Engineer in Charge. The length of the sections depends on the topographical conditions. Preferably the pipeline stretches to be tested shall be between two chambers (air valve, scour valve, bifurcation, other chamber). At the beginning, the Contractor shall test stretches not exceeding 2 km. After successful organization and execution of tests the length may be extended to more than 2 km after approval of the Engineer in Charge.

The water required for testing shall be arranged by the contractor himself. The Contractor shall fill the pipe and compensate the leakage during testing. The Contractor shall provide and maintain all requisite facilities, instruments, etc. for the field testing of the pipelines. The testing of the pipelines generally consists in three phases: preparation, pre-test/saturation and test immediately following the pre-test. Generally, the following steps are required which shall be monitored and recorded in a test protocol if required

The testing conditions for the pipelines are summarized as follows:

Maximum hydrostatic test pressure for DI K-7 pipes shall be 2.0 times of maximum design pressure in the pipeline.

Pre test and saturation period with addition of make-up water

Pressure:	Test pressure
Duration:	3 hrs for DI pipes without cement mortar lining / 24 hrs for DI pipes with cement mortar lining

Pressure test with addition of make-up water

Pressure:	Test pressure
Duration:	3 hrs

Test criteria for DI pipes: Q = 1 liter per km per 10mm of pipe per 30 m test pressure per 24 hrs.

All pressure testing at site should be carried out hydrostatically. The pipes shall be accepted to have passed the pressure test satisfactorily, if the quantity of water required to restore the test pressure as per the latest codal provisions does not exceed the amount ‘Q’, calculated by the above formula.

If it is required to test a section of a pipeline with a free end, it is necessary to provide temporary support against the considerable end thrust developed by the application of the test pressure. The end support can be provided by inserting a wooden beam or similar strong material in a short trench excavated at right angle to the main trench and inserting suitable packing between the support and pipe end.

The pipeline stretch will pass the test if the water added during the test period is not exceeding the admissible limits. No section of the pipe work shall be accepted by the Engineer in charge until all requirements of the test have been obtained.

On completion of a satisfactory test any temporary anchor blocks shall be broken out and stop ends removed. Backfilling of the pipeline shall be completed.

Failure to pass the test

All pipes or joints which are proved to be in any way defective shall be replaced or remade and re-tested as often as may be necessary until a satisfactory test shall have been obtained. Any work, which fails or is proved by test to the unsatisfactory in any way, shall be redone by the Contractor.

Flushing and disinfecting of pipelines

After testing and commissioning the contractor shall flush the pipes with a velocity not less than 1 m/s or as approved by the Engineer in Charge. Disinfection of drinking water pipelines shall be made by engineer- in charge.

Supply of Ductile Iron Pipes:-

The Contractor will have to supply DI pipes manufactured by manufacturer who has been in business of supply of DI pipes rubber ring jointed and have proven record of successful supply and testing of pipeline for minimum one year.

PVC Pipes

Scope

This section of the document specifies the required properties of the pipes made of unplasticized polyvinyl chloride (uPVC) with socket(s) suitable for elastomeric sealing ring type joints for conveyance of water under pressure for supply of drinking water. The pipes are intended to be used for buried water mains with ambient atmospheric temperature reaching up to 50°C and soil surface temperature rising more than 65°C. The stipulations given in this document for uPVC pipe which are not covered by any other code/standard, shall be governed by the provisions of IS 4985

The pipes will be supplied with one end plain with chamfer and other end socket suitable for elastomeric sealing ring type joints in accordance with IS: 4985.

Each pipe shall be supplied along with a rubber ring suitable for the socket for elastomeric sealing ring type joints.

Material

The material from which the pipes are made shall consist substantially of unplasticized polyvinyl chloride conforming to IS: 10151, to which may be added only those additives that are absolutely needed to facilitate the manufacture of the polymer, and the production of sound, durable pipes of good surface, finish, mechanical strength and opacity. The total quantity of additives like plasticizers, stabilisers, lubricants and fillers shall not exceed more than the percentage specified in IS 4985.The bulk density of uPVC pipe shall be 1.39 to 1.44 g/ cm^3.PVC resin of suspension grade K-66/K-67 shall be used for extrusion of uPVC pipe.

Classification

The pressure rating of pipes shall be of class-3 and class-4 in accordance with IS: 4985 with a maximum continuous working pressure at 27 ^{0} C of 6 and 8 kg/cm^2

Dimensions of the pipes and the sockets

The dimensions and tolerances of pipes shall comply to clauses of IS: 4985.

The tolerance on outside diameter and wall thickness of pipe shall be as per Table-1 given in IS: 4985.

The dimensions of the socket for elastomeric sealing ring type joint shall be in accordance with Clause 7.2.1.2 and Tables 4 and 5 of the IS 4985

The pipe shall be supplied in straight lengths of 6 m with tolerance of + 20 mm and -0 mm. The effective length of socket pipe shall be considered as shown in Figure-3 of IS: 4985.

Physical & chemical properties

The pipe shall confirm to the Clause 10 of IS 4985-2000 for its physical and chemical properties except for the density and ash content provisions which shall be as per the stipulations of Clause 1.2.2 of this chapter.

The colour of the pipes shall be dark grey.

Influence on water intended for human consumption shall be governed by IS: 12235.

All plastic and non plastic material for components of the uPVC piping system e. g. Elastomeric sealing ring, lubricants, when in permanent or in temporary contact with water which is intended for human consumption, shall not adversely affect the quality of the drinking water.

Mechanical properties

Hydrostatic strength of the pipes

The pipes and integral sealing ring will confirm to internal hydrostatic pressure in accordance with Clause 11.1 and sampling as per annex D of IS 4985

Tests and conformity criteria

Quality assurance from the manufacturer

The following in house tests shall be carried out on the raw material:
Grade (K-value)
Particle size distribution
Bulk density of resin
Bulk density of compound

The manufacturer will also have the following tests conducted from Standard Test Laboratory
Effect on water quality
Internal Hydrostatic Test (Type)

Acceptance Test

All uPVC pipes of the same size and class manufactured on a particular machine shall be considered as a lot for quality control inspection. However, the maximum size of a lot shall not be more than 1000 pipes.

The sampling procedure and scale of sampling for visual inspection and dimensional requirements shall be as per given in Annexure-D of IS: 4985.

The pipes shall be tested for lot acceptance.

The following acceptance tests shall be conducted in accordance with IS: 4985 and IS: 12235.
Visual and dimensional check
Reversion test.
Vicat Softening test
Ash Content
Bulk density
Resistance to external blows
Internal hydrostatic pressure test for pipes and joints
Opacity

Markings

Each pipe shall be clearly marked as indicated below:
Manufacturers name and trademark
Outside diameter in mm.
Class of pipe and pressure rating
Month and year of manufacturing
Length of pipe
Marking of insert depth of spigot

Each pipe shall also be marked in centre strip as circumference 1" wide at intervals not more than 3 meters to show the class of pipe.

Class 3 – Green
Class 4 – Brown

Packing and transport

The socket and spigot end of all the pipes shall be provided with tightly fitted end caps, protecting the inside of the pipes effectively against dirt etc. The end caps shall be of suitable high density (HD) plastic material in any colour other than black. They shall be fitted to the pipes prior to packing and transportation.

The pipes shall be transported to the store and site by trucks in pre packed bundles to ensure adequate protection during transport. At the time of packing and stacking of pipes the sockets shall be alternated within the pile and shall project sufficiently for the pipes to be correctly supported along their whole length. The pipes shall rest uniformly on the vehicle bed over their whole length during transport, carefully placed and firmly secured against unwarranted movement during transportation to the satisfaction of Engineer In charge.

Supply of uPVC Pipes:-

The Contractor will have to supply uPVC pipes manufactured by manufacturers having ISO 9000-2000 certification and who has been in the business of supply of uPVC pipes with elastomeric rubber ring joints and have proven record of successful supply and testing for minimum one year. The Contractor will have to present a certified photocopy of this certification for manufacturer he propose to procure his material from before starting supplies.

Rubber Rings for PVC Pipes and Specials

Scope

This section prescribes the requirements for materials used for vulcanized solid rubber sealing rings for water supply at ambient temperature. It covers rubber rings for uPVC pipes.

Material

The rubber shall be free from extractable substances which impart taste, odour or toxicity to water. The rubber or its compound shall not content toxic materials, such as compounds of mercury, antimony, manganese, lead or copper.

The rubber rings shall be vulcanized from Ethylene propylene (EPDM). The colour of material shall be black.

The rubber ring shall be long term termite resistant.

The sealing ring shall have no detrimental effect on the properties of the pipe and shall not cause the test assembly to fail the functional requirements

Appearance and homogeneity

The rings shall be homogeneous, free from porosity, grit, excessive blooms, blisters, or other visible surface imperfections. The fin or flash shall not exceed 0.4 mm and width 0.8 mm.

Rubber rings shall be made of a properly vulcanized virgin rubber compound containing no scrap or reclaim.

The surface of the rubber rings shall be smooth, free from pitting cracks, blisters, air marks, and any other imperfection that may affect its behavior in service. The body of the rubber ring shall be free from porosity and air pockets.

Dimensions and tolerances.

The profile and dimensions of the rubber ring shall be such that under normal circumstances efficient sealing can be expected for the socket dimensions.

The nominal measurements and the tolerances shall be in accordance with the figures stated by the manufacturer and they shall be laid down in a drawing.

Physical requirements.

The rubber ring shall have the ISI mark and will confirm to IS: 5382 and comply with the following physical properties when tested in accordance with IS: 3400

Properties	EPDM
Tensile Strength	11 MPa
Hardness	50, +5, -4 IRHD
Elongation at break	Min. 400%
Compression Set Test condition 27degree C., 72h, Max. permanent deformation	12%
Water absorption Test	Max. 10%
Accelerated ageing Test Hardness Tensile Strength Elongation at break	 -5 to +8 IRHD ± 20% -30% to +10%

Marking

Each sealing ring shall be permanently marked with:
The Manufacturer's name or trade mark.
The month and year of manufacture
Diameter of pipe for which the ring is suitable.
Type of rubber material

Testing

The scale of sampling and criteria for conformity shall be in accordance with IS: 5382. The following tests shall be conducted for conformity.
Hardness
Tensile strength
Elongation at break
Compression set
Accelerated ageing
Water absorption
Stress relaxation

The test pieces shall be cut from the finished product. Where this is not possible because the sample would be too small, the manufacturer shall provide test slabs from the same batch of rubber and vulcanized to the same degree and in the same manner as that of the rubber from which the rubber rings have been manufactured.

Wherever it is not possible to cut standard test piece from the rings, for determination of tensile strength and elongation at break, test piece in the shape of dumb bell as shown in Figure - 2 of IS: 5382 shall be used with the rate of traverse of moving grip as 15 cm/min.

Packing

Maximum 10 pieces of rubber ring shall be packed in one polyethylene bag. The colour of the polyethylene bags shall be preferably black or dark grey. The rubber rings packed in polyethylene bags shall be supplied in bituminized polyethylene lined jute bags to protect them from undue exposure to light and heat.

The rubber rings should also be supplied by the manufacturer of the pipes. They should preferably be manufactured by the manufacturer of the pipes. In case they are not, it will be the responsibility of the manufacturer of the pipes to have them manufactured from a suitable manufacturer under its own supervision and have it tested at his/sub contractors premises as per the contract. The pipe manufacturer will however be responsible for the compatibility and quality of the products.

Specials for uPVC Pipe System

uPVC specials

Manufacturing and type of sealing joint

All the uPVC fittings shall be fabricated from class-4 uPVC pipes only.

The socket dimensions shall be in accordance with the pipe sockets. The rubber sealing rings for pipe/specials shall be in accordance with the specifications .

Type of specials

Double sockets
The double socket special shall be suitable for elastomeric sealing ring type joint as per the enclosed drawing. The dimensions of the fitting shall be as given in Table below.

Table for dimensions of Double Sockets

S No.	Suitable for pipe OD (mm)	Min. length of fitting (h) mm	Min. spacer (l) mm
1	63	235	20
2	90	266	20
3	110	288	20
4	140	314	20
5	160	334	20
6	225	404	30
7	280	460	30
8	315	485	30

Double Socket Bends:

The fabricated bends shall be suitable for elastomeric sealing ring type joint as per the enclosed drawing. The dimensions of the double socket bends shall be as given below:

S.No.	Outside diameter in mm	Radius (r) mm	Angle of bend in degrees	L1 = L2
1	63	221	90	359
		221	45	230
2	90	315	90	469
		315	45	285
3	110	385	90	551
		385	45	326
4	140	490	90	674
		490	45	387
5	160	560	90	756
		560	45	428
6	225	788	90	1023
		788	45	562
7	280	980	90	1268
		980	45	674
8	315	1100	90	1410
		1100	45	746

Quality control tests

All the fitting shall be tested for socket dimension, workmanship/surface finish and leak tightness in accordance with for uPVC pipes.

Supply of specials

All the PVC fittings shall be supplied along with necessary rubber rings. The rubber rings shall be supplied in black coloured polyethylene bags. The fittings shall be packed and supplied in jute bags or in cardboard or wooden boxes according to their size.
The fittings should also be supplied by the manufacturer of the pipes. They should preferably be manufactured by the manufacturer of the pipes. In case they are not, it will be the responsibility of the manufacturer of the pipes to have them manufactured from a suitable manufacturer under it's own supervision and have it tested at his/sub contractors premises as per the contract. The pipe manufacturer will however be responsible for the compatibility and quality of the products.

Valves

General

The sluice valve will confirm to IS: 780/ IS: 2906.
The material to be supplied under this sub-section shall include but not be limited to the following:

All necessary fittings including bolts, nuts, gaskets, backing rings, counter flanges, jointing material, strainers etc. as required.

Sluice Valves

Scope

This section covers the requirements for non rising stem type sluice valve from 50 mm to 600 mm size. The valves will be used for water supply on line installations in upright positions, up to 450 C working temperature, with double flange and cap or hand wheel, for manual operation.

Nominal pressure and dimensions

The working pressure of the valves shall be 10 kg/cm2 (1 MPa)

The dimension and mass of the sluice valves shall be in accordance with IS: 780 for sizes from 50 to 300 mm and IS: 2906 for sizes 350 to 600 mm.

The flanges and their dimensions of drilling shall be in accordance with IS: 1538 (part-I to XXII).

Material

The material for different component parts of sluice valve shall conform to requirements given below:

S No.	Component	Material	Ref. to IS	Grade / designation
1	Body, bonnet, wedge, stuffing box, gland, thrust plate, hand wheel cap. etc.	Grey cast iron	210	FG 200
2	Stem	Stainless steel	6603	AISI 431, AISI 410
3	Wedge nut	Leaded tin bronze	318	LTB 2
4	Body seat ring, wedge facing ring	Leaded tin bronze	318	LTB 2
5	Bolt	Carbon steel	1363	Class 4.6
6	Nut	Carbon steel	1363	Class 4
7	Bonnet gasket	Compressed fiber board	2712	C
8	Gland packing	Asbestos	4687	Nil

Coating

All sluice valves shall be coated by dipping in a bath of tar base composition as given in Clause 7 of IS: 780 for sizes from 50 mm to 300 mm and Clause 8 of IS: 2906 for sizes from 350 mm to 600.

All components susceptible to corrosion attack shall be coated internally and externally. Protective coating shall always be applied to the individual components before they are assembled, following shot blasting to give good adhesion.

Marking, testing and inspection

The standard marking and packing of the valves shall be done as per Clause 10 and 11 of IS: 780. The direction of rotation for OPEN, CLOSE position shall be marked on the hand wheel and on the bonnet of the valve.

Testing of sluice valve shall be done for close end in accordance with IS: 780 for sizes from 50 mm to 300 mm and IS: 2906 for sizes from 350 mm to 600.

All the valves shall be inspected for flaw detection test in accordance with IS: 780. for sizes from 50 mm to 300 mm and IS: 2906 for sizes from 350 mm to 600.

The design, construction material, manufacture, inspection, performance and testing shall comply with all applicable Indian Standards and Codes. Nothing in the specification will be construed to relieve the supplier of this responsibility.

Air valves

Scope and general design feature

This section covers the requirements of automatic double ball air valves to be used for evacuation of accumulation of air in water mains under pressure, for the exhaust of air when such mains are being charged with water and for inlet of air when they are emptied of water.

The Air Valves shall conform to IS14845. The design shall be such that higher the rate of flow the greater the resultant down thrust keeping the ball 'glued' to its seat until the last drop of air is expelled from the pipe system.

The valves shall have an integrated sluice valve. If required, they shall be installed on a flange welded on the MS pipe / special. The possible air velocity (inflow and outflow) must be at least 10 m/s. The working pressure of the air valves shall be 10 kg / cm^2 (1Mpa).

Construction feature

The flow of air should be as unobstructed as possible. The low-pressure orifice shall be in the same axis as the main discharge/incoming airflow and must have a diameter sufficiently large.

The cone angle in the low-pressure (large orifice) chamber should be carefully calculated and there should be adequate height to allow for free movement of the vulcanite ball in the low chamber. The annulus around the low-pressure vulcanite covered ball is to be generously proportioned for discharge of air under various differential pressures.

The orifice shall be carefully profiled to allow the requisite flow of air under varying differential pressure. It shall be in moulded synthetic rubber such that even after extended contact the vulcanite covered ball does not stick to it when the line pressure becomes zero.

In the high-pressure chamber the orifice shall be in profiled in such a manner that the rubber-covered ball is not damaged even after extended contact. There should be machined guide in the chamber, which ensures that the ball travels vertically and makes contact with the nipple and seals off the orifice without fail.

Material

The material for different component parts of the air valve shall conform to requirements given below:

S No.	Component	Specifications
1	Body	Cast Iron conforming to IS: 210 GR FG 200
2	High Pressure Cover	Cast Iron confirming to IS 210 GR FG 200
3	Low Pressure Cover	Cast Iron confirming to IS 210 GR FG 200
4	Cowl	Cast iron confirming to !S 210 GR FG
5	High Pressure Orifice Plug	Stain less steel conforming to AISI 410
6	Low pressure ball	Vulcanite covered seasoned timber
7	High pressure ball	Rubber covered seasoned timber
8	Lower pressure seat ring	Dexine (Nitrile rubber)
9	Isolating sluice valve	Conforming to IS: 780 – 1984
10	Spindle for sluice valve	Stainless steel conforming to AISI 410
11	Bolts and nuts	Mild steel

The body and seat of the valve shall withstand a working pressure of 10 kg/cm^2 for at least 15 minutes.

Inspection

Third Party Inspection:

The following items of supply will be got inspected from approved inspecting agency (CEIL, SGS. RITES) at manufacturers premises before dispatch at his own cost.

1. Ductile Iron pipes, rubber gaskets & specials
2. Sluice valves,
3 upvc pipes

Specifications for Laying and Jointing of Pipe Line System for Water Supply

Preparatory work

The contractor will inspect the route along which the pipe line is proposed to be laid. He should observe/ find out the existing underground utilities/ construction and propose an alignment along which the pipeline is to be laid. He should make all efforts to keep the pipe as straight as possible with the help of ranging rods. Wherever there is need for deviation, it should be done with the use of necessary specials or by deflection in pipe joints (limited to 75% of permissible deflection as per manufacturer). The alignment as proposed should be marked on ground with a line of white chalk and got approved from Engineer In-Charge. The Contractor will than prepare an L-Section along this alignment showing the location of proposed pipeline. The L-section should be got approved from the site Engineer. The position of fittings, valves, should be shown on the plan.

Alignment and the L-Sections

The alignments, L-section (depth of laying) and location of specials, valves and chambers may be changed at site in co-operation with and after approval of the Engineer in Charge. The minimum cover to the top of the pipe shall be 1 m.

Standards

Except as otherwise specified in this technical specification, the Indian Standards and Codes of Practice in their latest version, National Building code, PWD specification of the state of Rajasthan and Manual of water supply of GOI shall be adhered to for the supply, handling, laying, installation, and site testing of all material and works.

Tools and equipment

The contractor has to provide all the tools and equipment required for the timely, efficient and professional implementation of the work as specified in the various sections of the contract and as specified by the instructions of manufacturers of the pipes and other material to be handled under this contract. On demand he shall provide to the Engineer in Charge a detailed list of tools and equipment available. If in the opinion of the Engineer in Charge the progress or the quality of the work cannot be guaranteed by the available quantity and type of tools and equipment the contractor has to provide additional ones to the satisfaction of the Engineer in Charge. The Contractor will always have a leveling instrument on site.

Handling and laying of pipes

Transportation of pipes and specials & Storage:-

The Contractor has to transport the pipes and other materials from manufacturer to the site of laying as indicated by the Engineer in Charge. Pipes should be handled with care to avoid damage to the surface and the socket and spigot ends, deformation or bending. Pipes shall not be dragged along the ground or the loading bed of a vehicle. Pipes shall be transported on flat bed vehicles/trailers. The bed shall be smooth and free from any sharp objects. The pipes shall rests uniformly on the vehicle bed in their entire length during transportation. Pipes shall be loaded and un-loaded manually or by suitable mechanical means without causing any damage to the stacked pipes.

The transportation and handling of pipes shall be made as per IS 12288. Handling instructions of the manufacturers of the pipes shall be followed. All precautions set out shall be taken to prevent damage to the protective coating, damage of the jointing surfaces or the ends of the pipes.

Whatever method and means of transportation is used, it is essential that the pipes are carefully placed and firmly secured against uncontrolled movement during transportation to the satisfaction of engineer in charge.

Cranes or chain pulley block or other suitable handling and lifting equipment shall be used for loading and un-loading of heavy pipes. However, for pipes up to 400 mm nominal bore, skid timbers and ropes may be used. Where using crane hooks at sockets and spigot ends hooks shall be broad and protected by rubber or similar material, in order to avoid damage to pipe ends and lining. Damage to lining must be repaired before pipe laying according to the instructions of the pipe manufacturer. Pipes shall not be thrown directly on the ground or inside the trench.

When using mechanical handling equipment, it is necessary to employ sufficient personnel to carry out the operation efficiently with safety. The pipes should be lifted smoothly without any jerking motion and pipe movement should be controlled by the use of guide ropes in order to prevent damage caused by pipes bumping together or against surrounding objects.

Rolling or dragging pipes along the ground or over other pipes already stacked shall be avoided.

The pipe should be given adequate support at all times. Pipe should be stored on a reasonably flat surface free from stones and sharp projections so that the pipe is supported through out its length. In storage, pipe racks should provide continuous support and sharp corners of metal racks should be avoided. Socket and Spigot pipes should be stacked in layer with sockets placed in alternate ends of the stack to avoid lop sided stacks.

Pipes should not be stored inside another pipe. On no account the pipes should be stored in stressed or bent condition or near the sources of heat. Pipes should not be stacked more than 1.5 m high and pipes of different sizes and classes should be stacked separately. The ends of the pipes should be protected from abrasion. The pipes should be protected from U.V. rays and excessive heat at all times. Their storage facility should be well ventilated.

The Contractor shall provide proper and adequate storage facilities to protect all the materials and equipment's against damage from any cause whatsoever and in case of any such damage/theft, the Contractor shall be held responsible.

The contractor will lay the pipelines along the alignments as per the layout given by the Engineer in Charge. The layout shall be given keeping in view the information available regarding existing services like water lines, sewers, telephone and electric lines/ cables. In the event some services fall in the alignment of lines to be laid, the contractor shall have to shift such services for which a provision has been made in the BOQ. The contractor shall take all due care to avoid damage to any such services and, in case of any damage occurring to them in progressing the work, the Contractor shall make good the same at his own cost. No additional time shall, however, be allowed on this account.

Stringing of pipes along the alignment

The pipes shall be laid out properly along the proposed alignment in a manner that they do not create any significant hindrance to the public and that they are not damaged.

Stringing of the pipe end to end along the working width should be done in such a manner that the least interference is caused in the land crossed. Gaps should be left at intervals to permit the passing of equipment across the working area. Pipes shall be laid out that they remain safe where placed and that no damage can occur to the pipes and the coating until incorporated in the pipeline. If necessary, pipes shall be wedged to prevent accidental movement. Precautions shall be made to prevent excessive soil, mud etc. entering the pipe.

Generally, the pipes shall be laid within two weeks from the date of their dispatch from the manufacturer /store .

Pipe trench

Trench excavation

The trench excavation of pipeline shall be in accordance with IS 12288. Pipe trenches shall be excavated to the lines and levels shown on the drawings or as directed by the Engineer in Charge. The depth of the excavated trench shall be as given in the drawings or as directed by the Engineer in Charge. The width of the trench at bottom between the faces of sheeting shall be such as to provide 200 mm clearance on either side of the Diameter. No pipe shall be laid in a trench until the section of trench in which the pipe is to be laid has been approved by the Engineer in Charge.

The depth should be sufficient to provide a cover not less than 1000 mm. It may be necessary to increase the depth of pipeline to avoid land drains or in the vicinity of roads, railways or other crossings. Care should be taken to avoid the spoil bank causing an accumulation of rainwater.

The bottom of the trench shall be trimmed and leveled to permit even bedding of the pipes. It should be free from all extraneous matter, which may damage the pipe or the pipe coating. Additional excavation shall be made at the joints of the pipes, so that the pipe is supported along its entire length.

All excavated material shall be stacked in such a distance from the trench edge that it will not endanger the work or workmen and it will avoid obstructing footpaths, roads and driveways. Hydrants under pressure, surface boxes, fire or other utility controls shall be left unobstructed and accessible during the construction work. Gutters shall be kept clear or other satisfactory provisions made for street drainage, and natural watercourses shall not be obstructed.

To protect persons from injury and to avoid damage to property, adequate barricades, construction signs, torches, red lanterns and guards, as required, shall be placed and maintained during the progress of the work and until it is safe for traffic to use the roadways. All materials, piles equipment and pipes which may serve as obstruction to traffic shall be enclosed by fences or barricades and shall be protected by illuminating proper lights when the visibility is poor.

As far as possible, the pipe line shall be laid below existing services, like water and gas pipes, cables, cable ducts and drains but not below sewers, which are usually laid at greater depth. Where it is unavoidable, pipeline should be suitably protected. A minimum clearance of 150 mm shall be provided between the pipeline and such other services.

Trees, shrubbery fences, poles, and all other property and surface structures shall be protected. Tree roots shall be cut within a distance of 50 cm from pipe joints in order to prevent roots from entering them. Temporary support, adequate protection and maintenance of all under ground and surface structures, drains, sewers and other obstructions encountered in the progress of the work shall be provided. The structures, which will be disturbed, shall be restored after completion of the work.

Where water forms or accumulates in any trench the Contractor shall maintain the trench free of water during pipe laying.

Wherever necessary to prevent caving, trench excavations in soils such as sand, gravel and sandy soil shall be adequately sheeted and braced. Where sheeting and bracing are used, the net trench width after sheeting shall not be less than that specified above. The sides of the excavation shall be adequately supported at all times and, except where described as permitted under the Contract, shall be not battered.

The Engineer in Charge in co-operation with the Contractor shall decide about the sheeting/ bracing of the trench according to the soil conditions in a particular stretch and taking into account the safety requirements of the Contractor's and Engineer- In- Charge's staff. Generally, safety measures against caving have to be provided for trenches with vertical walls if they are deeper than 2.0 m.

Trench excavation to commensurate with the laying progress

The work of trench excavation should be commensurate with laying and jointing of the pipeline. It should not be dug in advance for a length greater than 500 m ahead of work of laying and jointing of pipeline unless otherwise permitted by the Engineer in Charge. The Contractor has to ensure the following:

- safety protections as mentioned above have to be incorporated in the work process
- hindrances to the public have to be minimized
- the trench must not be eroded before the pipes are laid
- the trench must not be filled with water when the pipes are laid
- the trench must not be refilled before laying of the pipes

The bed for the laying of the pipes has to be prepared according to the L-Section immediately before laying of the pipes.

Bedding of the pipes

The trench bottom shall be even compact and smooth so as to provide a proper support for the pipe over its entire length, and shall be free from stones, lumps, roots and other hard objects that may injure the pipe or coating. Holes shall be dug in the trench bottom to accommodate sockets so as to ensure continuous contact between the trench and the entire pipe barrel between socket holes.

Laying and jointing of pipes

General

The pipes will be cleaned in the whole length with special care of the spigot and sockets on the inside/ outside to ensure that they are free from dirt and unwarranted projections. The whole of the pipes shall be placed in position singly and shall be laid true to profile and direction of slope indicated on longitudinal sections. The pipes shall be laid without deflection in a straight alignment between bends and between high and low points. Vertical and horizontal deflections between individual pipes need the approval of the Engineer in Charge. In no case the deflection shall be more than 75 % of those recommended by the manufacturer.

Before pipes are jointed they shall be thoroughly cleaned of all earth lumps, stones, or any other objects that may have entered the interior of the pipes, particularly the spigot end and the socket including the groove for the rubber ring.

Pipes and the related specials shall be laid according to the instructions of the manufacturers and using the tools recommended by them.

Cutting of pipes shall be reduced to a minimum required to conform to the drawings. Cutting has to be made with suitable tools and according to the recommendations of the manufacturer. The spigot end has to be chamfered again at the same angle as the original chamfered end. Cutting shall be perpendicular to the Centre line of the pipe. In case of ductile iron pipes the cut and chamfered end shall be painted with two coats of epoxy paint. If there is no mark for the insertion depth on the spigot end of the (cut) pipe it shall be marked again according to the instructions of the manufacturer.

Before pipes are jointed they shall be thoroughly cleaned of all earth lumps, stones, or any other objects that may have entered the interior of the pipes, particularly the spigot end and the socket including the groove for the rubber ring. End caps are removed only just before laying and jointing

All specials like bends, tees etc. and appurtenances like sluice or butterfly valves etc. shall be laid in synchronization with the pipes. The Contractor has to ensure that the specials and accessories are ready in time to be installed together with the pipes.

At the end of each working day and whenever work is interrupted for any period of time, the free ends of laid pipes shall be protected against the entry of dirt or other foreign matter by means of approved plugs or end caps.

When pipe laying is not in progress, the open ends of installed pipe shall be closed by approved means to prevent entrance of trench water and dirt into the line.

No pipe shall be laid in wet trench conditions that preclude proper bedding, or when, in the opinion of the Engineer in Charge, the trench conditions or the weather are unsuitable for proper installation.

The pipeline laid should be absolutely straight unless planned otherwise. The accuracy of alignment should be tested before starting refilling with the help of stretching a string between two ends of the straight stretch of pipes to rectify possible small kinks in laying.

Special Cast Iron fittings and Accessories

Normally when pipeline is laid, a certain number of cast iron fittings such as tees, bends, reducers, etc, and special fittings such as air or sluice valves are required.

Laying of Fittings – All cast iron fittings shall be plain ended to suit the outside diameter of Asbestos cement pressure pipes and to the class and diameter of pipe manufactured. When using such cast iron fittings, they are jointed by cast iron detachable joints only. For cast iron specials having flanges, they are jointed in the pipeline with cast iron flange adaptors having one end flanged and the other plain ended.

Anchorages - It should particularly be noted that the cast iron joints do not hold pipe ends within it firmly. During working or test pressure, there will be tendency for the pipe ends or special ends to slip out of the joint, more so with the case of blank end cap used for closure of pipeline and all degree bends and tees. In order to keep them firmly in the pipeline, anchoring of these specials are necessary against the direction of thrust.

The anchorage shall consist of either concrete cast-in-situ or masonry built in cement mortar. The anchors shall be extended to the firm soil of the trench side. The shape of the anchors will depend on the kind of specials used. They shall be spread full width of trench and carried vertically by the side and over the special to about 15 cm. The bearing area on sides of the trench will be proportional to the thrust and to bearing capacity of the sides of the trench.

Back filling and tamping

The soil under the pipe and coupling shall be tamped in order to provide a firm and continuous support or the pipeline. Tamping shall be done either by tamping bars or by using water to consolidate the back fill material.

The initial back fill material used shall be free of large stones and dry lumps. In stony areas the material for initial back fill can be shave from the sides of the trenches. In bogs and marshes, the excavated material is usually little more than vegetable matter and this should not be used for bedding purposes. In such cases, gravel or crushed stone shall be hauled in.

The initial back fill shall be placed evenly in a layer of about 100 mm thick. This shall be properly

Consolidated and this shall be continued till there is a cushion of at least 300 mm of cover over the pipe.

If it is desired to observe the joint or coupling during the testing of mains they shall be left exposed.

Sufficient back fill shall be placed on the pipe to resist the movement due to pressure while testing.

Balance of the back fill need not be so carefully selected as the initial material. However, care shall be taken to avoid back filling with large stones, which might damage the pipe when spaded into the trench.

Pipes in trenches on a slope shall have extra attention to make certain that the newly placed back fill will not become a blind drain in effect because until back fill becomes completely consolidated, there is a tendency for ground or surface water to move along this looser soil resulting in a loss of support to the pipe. In such cases, the back fill should be tamped with extra care and the tamping continued in 100 mm layers right up to the ground level.

Anchoring of the pipeline

Thrust blocks shall be provided at each bend, tee, taper, end piece to prevent undue movements of the pipeline under pressure. They shall be constructed as per actual design and approval of Engineer in Charge according to the

highest pressure during operation or testing of the pipes, the safe bearing pressure of the surrounding soil and the friction coefficient of the soil.

Testing of the upvc pipelines

Sectional tests:- After laying and jointing the pipeline shall be tested for tightness of barrels and joints, and stability of thrust blocks in sections approved by the Engineer in Charge as per IS Code.

Executive Engineer (PHE-1)
JDA, Jaipur

Scope of work and Special Condition Of Contract for Operation & Maintenance Of Water supply arrangements for BSUP flats, Jaisinghpura from Bisalpur, JDA, Jaipur.

Definitions-

- **Equipment-** is the contractors machinery and vehicles brought temporarily to the site to construct the works.

- **Facilities-** Shall mean all works and its equipment(s), components which have been supplied and/ or installed or designed, and/or constructed in the contract for works.

- **Plant-** is any integral part of the works, which is to have a mechanical, electrical, electronic, chemical functions.

1 - Administrative Provision

The following additional clauses shall apply only during the Operation and Maintenance period.

1.1 "Maintenance Standard" shall mean the requirements for maintaining, repairing, and renewing the Facility :

a) As set forth in the O & M Manual: bidder shall enclose this with the bid document
b) Required pursuant to applicable law:
c) As may be necessary for keeping the facility in a satisfactory condition such that the Facility will continuously, comply with the Operation Standard; and
d) As may be necessary to ensure that the Facility shall continuously be in an optimum condition and state in relation with the lifetime of the Facility.

1.2 "O & M Manual" shall mean the final Manual for the Operation and Maintenance of the Facility to be prepared in accordance with the Bid Documents.

1.3 Non revenue water shall mean the difference between the volume of water produced through tube wells as recorded by bulk meter installed on the delivery of each tube well and volume of water distributed, as recorded through the consumer meters.

Brief scope under this contract will be as described below:

1.4.1 To schedule daily operations
1.4.2 To schedule inspection of machinery viz. lubrication, servicing, etc.
1.4.3 To keep records for daily operation and activities
1.4.4 To keep records of spare parts, equipment, tools, consumables, etc.
1.4.5 Inventory of stores
1.4.6 To keep records of staff in position
1.4.7 To prepare O & M manual

1.4.8 To provide necessary tools, tackles and instruments

2.0 OBJECT OF CONTRACT :

2.1 RISKS AND OBLIGATION OF THE CONTRACTOR :

FOR THE DURATION OF O & M PERIOD, CONTRACTOR SHALL RENDER AND MAKE AVAILABLE TO JDA THE FOLLOWING SERVICES :

2.1.1 Pump water from Tube wells/Bisalpur Water supply network near Mahindra SEZ KHATWADA RCC SUMP to CWR AT JAISINGHPURABAS BSUP FLAT SITE..

2.1.2 Control and Operate the Pumping machinery.

2.1.3 Routine Maintenance of pumping station and HT switch room buildings, electrical, mechanical and instrumentation installations, equipment and areas;

2.1.4 Management of the plant in administrative and financial operation connected to plant management;

2.1.5 Supply all spares & consumables for routine, preventive & break down maintenance, No extra payment shall be made for these supply of spares & consumables.

2.1.6 If any loss or damage happens to the Facility, or any part thereof, or materials or Plant for incorporation therein, during the period for which the Contractor is responsible for the care thereof, from any cause whatsoever, other that the risks, the Contractor shall, at his own cost, rectify without loss or damage so that the Facility conforms in every respect with the provisions of the Contract to the satisfaction of JDA. The contractor shall also be liable for any loss or damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligation.

2.1.7 All material for the repair and maintenance of pumping machinery, pipeline, electrical equipment shall be arranged by the contractor at his own cost.

2.1.8 Power charges shall be borne by JDA. However it shall be responsibility of the contractor to collect the bills from JVVNL seven days before due date of payment by cheque and handing over to Engineer in charge, also collecting the cheque from JDA and deposit it in JVVNL within due date. Any late payment, penalty will be on the part of contractor.

2.1.9 In the event of any damage/ loss of life and property in the SR, CWR and Pump House of Pumping stations, the contractor shall be solely responsible for compensation and damages as per the rules.

2.1.10 The agency is fully responsible for sweeping and cleaning of complete head works including pump houses, lawns, plants and office.

2.1.11 In case of any break down of pump machinery or starters, the contractor shall have to inform the JEN/AEN concerned. In no case the information shall take more than six hours to reach the engineer in charge staff of JDA. However, simultaneously he shall make the arrangements to install the stand by units to restore the supply. The contractor shall always keep the stand by readily available units in respect of all important item/installation Viz. Pump motor, starter ICTP switches etc, originally provided by JDA or supplier under the contract. The contractor shall keep stores of all essential items as site.

2.1.12 In case of power break down, the contractor shall lodge complaint to the concerned JVVNL office/ station and get the problem solved. In case of major power problem, the contractor shall immediately inform the JEN/AEN (PHE 1st) concerned for seeking their help. However, it would be responsibility of the contractor to get the electric problem rectified through proper pursuance. In case, it is unavoidable to restore the water supply, the contracting agency would arrange to get it properly announce to the public taking advance action for water storage/alternative arrangement.

2.1.13 As built drawing' of water supply scheme showing location of tube wells, SR, CWR, Pump House, pipe lines shall be framed and displayed at appropriate place (s) in pump houses/ office building (s).

2.1.14 Necessary tools required in repairing of Tube Wells and conveyance vehicles such as jeep, tractor, mini truck etc. shall be arranged by the contractor at his own cost. No payment in lieu of conveyance or tools shall be admissible.

3.0 Risk & Obligations of the JDA

- For the duration of O & M Period, the employer will be responsible to bear of the costs for electricity and supply of Sodium hypo-chloride, as may be required.

4. Commencement And Duration Of O & M Contract :

4.1 The O & M period shall commence upon issuing of Taking Over Certificate as per clause 4.2 under the construction phase of the project and shall Continue for a period of Sixty (60) months. Should JDA wish to propose an extension to the O & M Period, after completion of initial 60 moths O & M contract a prior notice of its intention to exercise such option shall be given to the contractor.JDA MAY HAND OVER THE WSS TO ANOTHER AGENCY/PHED BEFORE 60 MONTH FOR O&M,ACCORINGLY O&M PERIOD SHALL BE REDUCED

5. Liability:

The contractor will not under any circumstances, be liable for costs or loss of profit that JDA may incur as a result of the unavailability of the plant on account of force major.

6. Personnel :

The contractor shall depute following minimum staff to carry out the O & M Work efficiently and satisfactorily. (Contractor may choose to provide more staff if need be as per his assesment)

DESCRIPTION	QUALIFICATION	REQUIRED NO.
PUMP OPERATOR cum Electrician	ITI certificate holder in Electrical/ Mechanical trade or person having 3 years experience of operation & maintenance of pumping machinery.	One person per shift.
Watch man cum Helper	8th Pass and minimum 1 year Experienced	As per requirement
Fitter	ITI certificate holder in Electrical/ Mechanical trade or person having 3 years experience of operation & maintenance of pumping machinery.	As per requirement
Helper	12th Pass	1 Nos.

JDA is not liable for any personnel provided by the contractor in any way and cannot be held responsible in the event of litigation of any sort between the Contractor and members of plant personnel or their representatives. Round the clock (24 hours) watch and ward shall be the responsibility of contractor throughout the contract period. The above staff may be reduced or increased as per requirement as approved by EIC.

All decisions related to staff numbers and qualifications should be approved by JDA. The number of shifts for pump operation will be decided by the contractor in accordance with the operations requirements.

The Contractor shall undertake to comply with applicable legislation and the code of labour law on the matters of health, hygiene and safety, and shall assume responsibility for works required in the event of any change in applicable regulations.

7. Assignment :

The Contractor will not be entitled to sub-contract any part of his obligation to any third party without prior approval of JDA.

8. Completion Of The Contract :

On the date of Contract Completion or if the Contract is terminated, all the installations, works and equipment placed under the Contractor's responsibility shall be handed over to JDA or any agency, orgnisation specified by it, at no cost, in good working order, except for normal wear and tear. JDA may perform any inspections tests or expert appraisals as may be considered necessary with a view to checking that the property is in good working order. If the works, equipment, plant and/or property is not found in working condition or acceptable condition, the contractor will replace / repair / rectify the same at his own cost to the satisfaction of JDA or third party inspector to be appointed by JDA at its cost.

At the end of O&M period, the Contractor shall be entitled to receive an Operation and Maintenance Completion Certificate within twenty-one (21) days, of the completion of the Contract.

The delivery of such Completion Certificate will relieve the Contractor from his responsibility as regard to the Operation and Maintenance and confirm that the Contractor has fulfilled all of his obligations under the contract.

9. Technical Provisions

The Contractor shall be responsible for corrective maintenance of civil, mechanical, electrical and measuring equipment as well as miscellaneous equipment. The contractor shall properly repair during any leakage, bursts in rising and distribution pipelines, valves, specials etc.. The contractor shall ensure that the water losses are not more than 5%, in pipe line network of rising main/ distribution system laid by it.

The Contractor shall be responsible for carrying out regular servicing and lubrication of all machinery and equipment, complying with maintenance instructions as defined in the Operation and Maintenance manual and ensuring that electromechanical equipment and motors operate correctly at all times.

The brief scope will be:

- Operation of submersible pumps at TW’s to provide adequate water to meet the daily demand.
- Operate the sub. centrifugal pumps at Rcc sump to CWR at jaisinghpurab as per the demand of water.
- distribution system. Daily observations like leakage, bearing temperature, noise, vibration, readings of pressure, voltage and current
- Maintenance of rising and distribution pipe line for leakage free system.

- Semi annual or monthly inspection for items such as gland of stuffing box, cleaning of gland bolts, inspection of packing, alignment of pump and drive, condition and quantity of grease or oil for bearings, motors, circuit breakers, ATS, etc., contacts of relay and circuit breakers, level of oil in transformer, GO/DO contacts and over current relay, settings of over current relay, no volt coil and tripping mechanism, temperature of oil and windings, connections of equipment etc.
- Annual inspection like checking of shaft sleeves for wear, checking of clearances, pump test, end play of bearings, impeller condition, calibration of instruments, resistance of earth pit, insulation resistance of switches, bus bars, auto transformer, phase to earth & phase to phase resistance.
- Watering of lawn & plants in the campus, cutting of lawns every fortnight or earlier, providing manure as per the requirement to ensure that the grass is maintained green & healthy sweeping & cleaning of complete head works including Pump House, Lawns, plants etc.

10.0 Performance Standards :

THE CONTRACTOR WILL OPERATE AND MAINTAIN IN A STATE OF CONTINUOUS OPERATIONAL READINESS ALL PLANT AND SYSTEMS TO MEET THE FLOW REQUIREMENTS. IT SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE PLANT SYSTEMS ARE AT ALL TIMES ABLE TO OPERATE TO THE MAXIMUM CAPACITY OF THE INSTALLED EQUIPMENTS. ALL PLANT AND PLANT INSTALLATION SHALL BE OPERATED WITHIN THEIR DESIGNED LIMITS. THE CONTRACTOR SHALL OPERATE THE PLANT STRICTLY WITHIN THESE OPERATING RANGES AND SHALL MANAGE THE OPERATION OF THE PLANT TO ACHIEVE OPTIMUM PERFORMANCE AS FAR AS POSSIBLE.

11.0 Consumables And Spare Parts:

Unless stipulated otherwise elsewhere in the document, for the duration of O & M period, the Contractor will be responsible for the supply and control of lubricants, spare parts and consumable materials excluding electrical power charges & chemicals, necessary for the continuous operation of the works.

The stores inventory, the issuing and recording of spare parts will be the responsibility of the Contractor.

The contractor is also responsible for providing spare parts and material required for the operation and maintenance during the operation period and shall bear the cost for the same, including the cost of storing and safeguarding.

The contractor will make all necessary arrangements to ensure the continuous supply of spare parts and material for the works, and the rate of supply of these materials shall be in such quantities and amounts as would ensure uninterrupted operation.

Spare parts shall be supplied by the Contractor without any additional charge and the same will be used during O & M period.

12. Documents To Be Provided By The Contractor :

12.1 Operation Log Book :

The Contractor shall keep a permanent record of plant operation (log book). This log book shall be kept at the site and shall be presented on request to agents approved by JDA.

The log book shall be provided by the contractor.The contractor shall also indicate any significant modification to the set-up characteristics of the installation, shut-downs anomalies or incidents that have occurred with respect to operation.

The log book shall also contain the following :

- Daily report
- Weekly report
- Readings of meters Gauges (voltmeter, ammeter, Flow meter, energy meter, pressure gauges at TW's and Pump House
- Record of break down
- Staff attendance `
- Stock of spare parts, lubricants, consumables
- List of tools, tackles and instruments
- Trouble identification for the installation

12.2 MONTHLY REPORT :

The monthly report shall include but not be limited to :

a) volume of water produced and distributed

b) all the problem areas in the facility,

.

13.0 Reduction in Rates

13.1 On account of poor upkeep of pump house and campus

A token penalty of Rs 100 per day would be levied on account of each day of poor upkeep of the pump house or the campus plantation, lawn etc. Decision of Engineer In Charge shall be final in this regard.

Signature of Contractor

Executive Engineer
(PHE-1st) JDA, Jaipur

Section A-5
Annexure

SPECIAL CONDITIONS

SCHEDULE 'H'

01. Use of Bitumen mixture Tar mechanical lime grinder, cement concrete mixer & vibrator is essential for the work. Which shall have to be arranged by the contractor at his own level/cost?
02. If there is any typographical error or otherwise in the 'G' Schedule the rates given in the relevant BSR on which schedule 'G' has been prepared, shall prevail.
03. The contractor shall follow the contractor labour regulation and abolition Act 1970 & Rule 1971.
04. The JDA shall have right to cause on audit and technical examination of the work and the final bills of the contractor including all supporting vouchers, abstract etc. to be made within two years after payment of the final bills and if as a result such audit any amount is found to have been over paid/excess in respect of any work done by the contractor under the contract or any work claimed by him to have been done under this contract and found not to have been executed the contractor shall be liable to refund such amount and it shall be lawful ;for the JDA to recover such sum from him in ;the manner prescribed in special condition no. 8 or any other manner legally permissible and if it is found that the contractor was paid less then that was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be paid by the JDA to the contractor.
05. The contractor shall not work after the sunset and before sunrise without specific permission of the authority Engineer.
06. Whenever any claim against the contractor for the payment of a sum of money arises out or under the contracts, the JDA shall be entered to recover the sum by appropriating in part or whole of the performance security of the contractor. In the event of the security being insufficient or if no security has been taken from the contractor then the balance of the total sum recoverable as the case may shall be deducted from any sum then due or which a any time there contract with the JDA should this sum be sufficient to recover the full amount recoverable, the contractor shall pay to JDA on demand the balance remaining due. The JDA shall further have the right to affect such recoveries under P.D.R. Act.
07. The rate quoted by the contractor shall remain valid for a period of 120 days from the date of opening of the tenders.
08. By submission of this tender the contractor agree to abide with all printed conditions provided in the PWD manual from 64 (Chapter 3-para 36) and subsequent modification.
09. No conditions are to be added by the contractor and conditional tender is liable to be rejected.
10. All transaction in the execution of this work and this tender will be liable to sale-tax vide section 2(B) read with sub clause (4) Sale-tax Rule, 1954.

11. If any tenderer withdraws his tender prior to expiry of said validity period given at S.No. 7 or mutually extended prior or makes modifications in the rates, terms and conditions of the tender within the said period which are not acceptable to the department or fails to commence the work in the specified period, fails to execute the agreement the department shall without prejudice to any, other right or remedy, be at liberty to forfeit the amount of earnest money given in any form absolutely. If any contractor, who having submitted a tender does not execute the agreement or start the work or dose not complete the work and the work has to be put to retendering, he shall stand debarred for six months from participating of tendering in JDA in addition to forfeiture of Bid security / Performance Security and other action under agreement
12. Rules regarding enlistment of contractors provide that work ;upto five times limit for which they are qualified for tendering can be allotted to them Therefore, before tender the contractors will keep this in mind, and submit the details of work. Tenders with incomplete or incorrect information are liable to be rejected.
13. Any material not conforming to the specifications collected at site shall have to be removed by the contractor within a period of 3 days of the instructions, issued by the Engineer-In-charge in writing. Failing which, such material shall be removed by the Engineer-In-charge at risk and the contractor after expiry of 3 days period.
14. The material collected at site and paid provisionally shall remain under the watch and ward of the contractor till it is consumed, fully on the work.
15. The rates provided in tender documents are inclusive of all Taxes royalty.
16. No extra lead of earth/material shall be paid over and above as specified in 'G' schedule. Source/borrow pit area for earth shall have to be arranged by the Contractor at his own cost.
17. Undersigned has full right to reject any or all tenders without given any reasons.
18. Mortar of Masonry work and lean concrete will be permitted mixer with hopper.
19. As per Supreme Court decision "All contracts with Governments shall require registration of workers under the building and other construction workers (Regulation of Employment and Conditions of Service) Act, 1996 and extension of benefits to such workers under the act."
20. The tenderer are required to submit copy of their enlistment as contractor.
21. Conditions of RPWA-100 will be mandatory & acceptable to the contractor.
22. Any tender received with unattested cutting/overwriting in rates shall be rejected and such bidder will be debarred from tendering for three months in JDA.
23. All the provisions of THE RAJASTHAN TRANSPARENCY IN PUBLIC PROCUREMENT ACT, 2012 and Rules, 2013 will be applicable. If there is any contradictions in existing special conditions and provisions of THE

RAJASTHAN TRANSPARENCY IN PUBLIC PROCUREMENT ACT, 2012 and RULES, 2013, provisions of THE RAJASTHAN TRANSPARENCY IN PUBLIC PROCUREMENT ACT, 2012 and RULES 2013 shall be applicable.

24. **"If any bidder quotes a rate below than the schedule 'G' rates, i.e. rates below than at par, then the bidder has to deposit the difference amount i.e. amount between the rates as per at par and below, as work performance guarantee. This amount has to be deposited before the commencement of work and will be refunded after successful completion of work. Lowest bidder will be issued LOA (Letter of Acceptance) and within 7 days period he has to deposit difference amount in the form of B.G/FDR/NSC. The validity of these shall be for a period three months beyond the stipulated date of completion/actual date completion. In case of non deposition of the same in specified period, the 2% bid security will be forfeited. In case work is not completed satisfactory, the work performance security will be forfeited along with Bid security."**

Signature of Contractor
with full address & Mobile No.

Executive Engineer (PHE-I)
JDA, Jaipur

Annexure A : Compliance with the code of Integrity and No Conflict of Interest
Any person participating in a procurement process shall –

(a) Not offer any bribe, reward or gift or any material benefit either directly or indirectly in exchange for an unfair advantage in procurement process or to otherwise influence the procurement process;
(b) Not misrepresent or omit the misleads or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation;
(c) Not indulge in any collusion, Bid rigging or anti-competitive behavior to impair the transparency, fairness and progress of the procurement process;
(d) Not misuse any information shared between the procuring Entity and the Bidders with an intent to gain unfair advantage in the procurement process;
(e) Not indulge in any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any party or to its property to influence the procurement process;
(f) Not obstruct any investigation or audit of a procurement process;
(g) Disclose conflict of interest, if any; and
(h) Disclose any previous transgressions with any Entity in India or any other country during the last three years or any debarment by any other procuring entity.

Conflict of Interest :-

The Bidder participating in a bidding process must not have a Conflict of interest.

A conflict of interest is considered to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations.

i. A Bidder may be considered to be in Conflict of Interest with one or more parties in a bidding process if, including but not limited to:

a. Have controlling partners/shareholders in common ; or
b. Receive or have received any direct or indirect subsidy from any of them; or
c. Have the same legal representative for purposes of the Bid; or
d. Have a relationship with each other; directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder, or influence the decisions of the Procuring Entity regarding the bidding process; or
e. The Bidder participates in more than one Bid in a bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the Bidder is involved. However, this does not limit the inclusion of the same subcontractor, not otherwise participating as a Bidder, in more than one Bid; or
f. The Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the Goods, Works or Services that are the subject of the Bid; or
g. Bidder or any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as engineer-in-charge/ consultant for the contract.

Annexure B : Declaration by the Bidder regarding Qualifications
Declaration by the Bidder

In relation to my/our Bid submitted to Executive Engineer (PHE-I), Jaipur Development Authority, Jaipur for "Water supply arrangements for BSUP flats, Jaisinghpura from Bisalpur, JDA, Jaipur.

In response to their Notice inviting Bids No. **9/2015-16** I/We hereby declare under Section 7 of Rajasthan Transparency in Public Procurement Act, 2012, that:-

1. I/We possess the necessary professional, technical, financial and managerial resources and competence required by the Bidding Document issued by the Procuring Entity;
2. I/We have fulfilled my/our obligation to pay such of the taxes payable to the Union and the State Government or any local authority as specified in the Bidding Document;
3. I/We are not insolvent, in receivership, bankrupt or being wound up, not have my/our affairs administered by a court or a judicial officer, not have my/our business activities suspended ant not the subject of legal proceeding for any of the foregoing reasons;
4. I/We do not have, and our directors and officers not have, been convicted of any criminal offence related to my/our professional conduct or the making of false statements or misrepresentations as to my/our qualifications to enter into a procurement Contract within a period of three years preceding the commencement of this procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;
5. I/We do not have a conflict of interest as specified in the Act, Rules and the Bidding Document, which materially affects fair competition;

Date: Signature of bidder

Place: Name:

Designation:

Address:

Annexure C: Grievance Redressal during Procurement Process

The designation and address of the First Appellate Authority is Addl. Chief Secretary, Department of Urban Development and Housing (UDH) Govt. of Rajasthan, Jaipur

The designation and address of the Second Appellate Authority is Nominated Offer of Finance Department, Govt. of Rajasthan, Jaipur.

(1) Filing an appeal

If any Bidder or prospective bidder is aggrieved that any decision, action or omission of the Procuring Entity is in contravention to the provisions of the Act or the Rules or the Guidelines issued there under, he may file an appeal to First Appellate Authority, as specified in the Bidding Document within a period of ten days from the date of such decision or action, omission, as the case may be, clearly giving the specific ground or grounds on which he feels aggrieved:

Provided that after the declaration of a Bidder as successful the appeal may be filed only by a Bidder who has participated in procurement proceedings:

Provided further that in case a Procuring Entity evaluates the Technical Bids before the opening of the Financial Bids, an appeal related to the matter of Financial Bids may be filed only by a Bidder whose Technical Bid is found to be acceptable.

(2) The officer to whom an appeal is filed under para (1) shall deal with the appeal as expeditiously as possible and shall endeavor to dispose it of within thirty days from the date of the appeal.

(3) If the officer designated under para (1) fails to dispose of the appeal filed within the period specified in para (2), or if the Bidder or prospective bidder or the Procuring Entity is aggrieved by the order passed by the First Appellate Authority, the Bidder or prospective bidder or the Procuring Entity, as the case may be, may file a second appeal to Second Appellate Authority specified in the Bidding Document in this behalf within fifteen days from the expiry of the period specified in para (2) or of the date of receipt of the order passed by the First Appellate Authority, as the case may be.

(4) Appeal not to lie in certain cases

No appeal shall lie against any decision of the Procuring Entity relating to the following matters, namely :-

(a) Determination of need of procurement;

(b) Provisions limiting participation of Bidders in the Bid process;

(c) The decision of whether or not to enter into negotiations;

(d) Cancellation of a procurement process;

(e) Applicability of the provisions of confidentiality.

(5) Form of Appeal

(a) An appeal under para (1) or (3) above shall be in the annexed form along with as many copies as there are respondents in the appeal.

(b) Every appeal shall be accompanied by an order appealed against, if any, affidavit verifying the facts stated in the appeal and proof of payment of fee.

(c) Every appeal may be presented to First Appellate Authority or Second Appellate Authority, as the case may be, in person or through registered post or authorized representative.

(6) Fee for filing appeal

(a) Fee for first appeal shall be rupees two thousand five hundred and for second appeal shall be rupees ten thousand, which shall be non-refundable.

(b) The fee shall be paid in the form of bank demand draft or banker's cheque of a Scheduled Bank in India payable in the name of Appellate Authority concerned.

(7) Procedure for disposal of appeal

a) The First Appellate Authority or Second Appellate Authority, as the case may be, upon filing of appeal, shall issue notice accompanied by copy of appeal, affidavit and documents, if any, to the respondents and fix date of hearing.

b) On the date fixed for hearing, the First Appellate Authority or Second Appellate Authority, as the case may be, shall,-

(i) Hear all the parties to appeal present before him; and

(ii) Peruse or inspect documents, relevant records or copies there of relating to the matter.

c) After hearing the parties, perusal or inspection of documents and relevant records or copies thereof relating to the matter, the Appellate Authority concerned shall pass and order in writing and provide the copy of order to the parties to appeal free of cost.

d) The order passed under sub-clause (c) above shall also be placed on the State Public Procurement Portal.

FORM No. 1

[See Rule 83]

Memorandum of Appeal under the Rajasthan Transparency in Public Procurement Act, 2012

Appeal No. …… of …… Before the ……..…….. (First/Second Appellate Authority)

1. Particulars of appellant :
   (i) Name of the appellant :
   (ii) Official address, if any :
   (iii) Residential address :
2. Name and address of the respondent (s) :
   (i)
   (ii)
   (iii)
3. Number and date of the order appealed against and name and designation of the officer/authority who passed the order (enclose copy), or a statement of a decision, action or omission of the Procuring Entity in contravention to the provisions of the Act by which the appellant is aggrieved:
4. If the Appellant proposes to be represented by a representative, the name and postal address of the representative:
5. Number of affidavits and documents enclosed with the appeal :
6. Grounds of appeal : ……..
   (Supported by an affidavit)
7. Prayer : ……

Place ……..
Date ……..

Appellant's Signature

Annexure D : Additional Conditions of Contract

1. Correction of arithmetical errors

Provided that a Financial Bid is substantially responsive, the Procuring Entity will correct arithmetical errors during evaluation of Financial Bids on the following basis:

a. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Procuring Entity there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

b. It there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected ; and

c. If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (i) and (ii) above.

If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be disqualified and its Bid Security shall be forfeited or its Bid Securing Declaration shall be executed.

2. Procuring Entity's Right to Vary Quantities

(i) At the time of award of contract, the quantity of Goods, works or services originally specified in the Bidding Document may be increased or decreased by a specified percentage, but such increase or decrease shall not exceed twenty percent, of the quantity specified in the Bidding Document. It shall be without any change in the unit prices or other terms and conditions of the Bid and the conditions of contract.

(ii) If the Procuring Entity does not procure any subject matter of procurement or procures less than the quantity specified in the Bidding Document due to change in circumstances, the Bidder shall not be entitled for any claim or compensation except otherwise provided in the Conditions of Contract.

(iii) In case of procurement of Goods or services, additional quantity may be procured by placing a repeat order on the rates and conditions of the original order. However, the additional quantity shall not be more than 25% of the value of Goods of the original contract and shall be within one month from the date of expiry of last supply. If the supplier fails to do so, the Procuring Entity shall be free to arrange for the balance supply by limited Bidding or otherwise and the extra cost incurred shall be recovered from the supplier.

3. Dividing quantities among more than one Bidder at the time of award (In case of procurement of Goods)

As a general rule all the quantities of the subject matter of procurement shall be procured from the Bidder, whose Bid is accepted. However, when it is considered that the quantity of the subject matter of procurement to be procured is very large and it

may not be in the capacity of the Bidder, whose Bid is accepted, to deliver the entire quantity or when it is considered that the subject matter of procurement to be procured is of critical and vital nature, in such cases, the quantity may be divided between the Bidder, whose Bid is accepted and the second lowest Bidder or even more Bidders in that order, in a fair, transparent and equitable manner at the rates of the Bidder, whose Bid is accepted.

Signature of Contractor
with full address & Mobile No.

Executive Engineer (PHE-I)
JDA, Jaipur

Tender Inviting Authority: Executive Engineer (PHE-I)				
Name of Work: Water supply arrangements for BSUP Flats, Jaisinghpura from Bisalpur JDA, Jaipur				
Contract No: NIB No. EE (PHE-I)/09/2015-16				
Bidder Name:		**Excess (+)**		**%**

SCHEDULE OF WORKS

(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.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
1.00	Providing laying & Jointing of ISI mark centrifugally cast (Spun) ductile iron pressure pipe for water with socket and spigot end and Tyton joint confirming to IS 8329/2000 and departmental specification in standard length (As required) for (Class K-7) suitable for push on joint (rubber gaskets jointing) with side cement mortar lining with cutting of pipe and fixing of C.I. special joint where ever required. This also include the excavation of trench up to 1.5 Meter depth in all type of soil cutting of road surface pavement where required lift up to 1.5 Mt. stacking the soil clear form the edge of excavation and refiling of soil after laying and jointing of pipe line with proper compaction and disposing of all surplus soil as directed with in lead of 30 Meter. This also include getting the pipe line tested and site clearance etc.(D-878 dt.01.09.2008)					
1.10	200 mm	9990.000	P.Mtr.	2455.00	Rupees Two Thousand Four Hundred & Fifty Five Only	24525450.00

2.00	Providing/fixing/testing KG of DI specials (K-7) i.e. bend, tees, tail pieces, flanges etc. of various size as per the site condition and requirement including all jointing material in all respects, As per PHED specification. (D-306 dt. 28.04.2009)	1000.000	Kg	90.00	Rupees Ninety Only	90000.00
3.00	Labour charges for inter connection of proposed pipe line with existing, pipe line by digging of Pit, cutting of pipe, dewatering through pumps and satisfactory testing of inter connectin and site clearance.(D-547 dt. 20.12.2011)	2.000	Each	2512.00	Rupees Two Thousand Five Hundred & Twelve Only	5024.00
4.00	Supply and fixing of cast iron Dismentiling joint as per PHED Specifiction including cost of rubber flange gaskit and nut bolts complete as required for following sizes. (D-547 dt. 20.12.2011)					
4.10	200 mm	2.000	Each	6036.00	Rupees Six Thousand & Thirty Six Only	12072.00
5.00	Supply and fixing of cast Iron Air valves 14845/20 specification (ISI marked) including cost of MS clamp, GI pipe, MS/GI flange, rubber flange gaskit and nut bolts complete as required for following sizes. (D-547 dt. 20.12.2011)					
5.10	50 mm Double air valve	3.000	Each	3730.00	Rupees Three Thousand Seven Hundred & Thirty Only	11190.00
6.00	Providing, fabricating and installing MS specials including rolling, cutting, welding in different shape and size. (D-547 dt. 20.12.2011)	1300.000	Kg	80.00	Rupees Eighty Only	104000.00
7.00	Supply of cast iron detachable joints class-10 as per ISI specification (IS 8794-1988) along with rubber ring (ISI marked) and nut bolts complete as per PHED specificatins. (D-547 dt. 20.12.2011)					

7.10	200 mm	10.000	Each	652.00	Rupees Six Hundred & Fifty Two Only	6520.00
8.00	Earth work in excavation by mechanical means (Hydraulic Excavator)/manual means in foundation trenches or drains(not exceeding 1.5 m in width or 10 sum on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including taking out the excavated soil and depositing and refilling of jhiri with watering & ramming and disposal of surplus excavated soil as directed with in a lead of 50 meter. All kinds of soils	40.758	Cum	124.00	Rupees One Hundred & Twenty Four Only	5053.99
9.00	Providing and laying in position cement concrete including curing, compaction etc. complete in specified grade excluding the cost of centering and shuttering - All work up to plinth level.					
9.10	M15 grade Nominal Mix 1: 2: 4 (1 cement : 2 coarse sand : 4 graded stone aggregate	13.050	Cum	3203.00	Rupees Three Thousand Two Hundred & Three Only	41799.15
9.20	1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	1.164	Cum	2287.00	Rupees Two Thousand Two Hundred & Eighty Seven Only	2662.07
10.00	Centering and Shuttering with plywood or steel sheets including strutting, propping bracing both ways and removal of formwork for foundation , footings, strap beam, raft , bases of columns etc.	25.620	Sqm	110.00	Rupees One Hundred & Ten Only	2818.20
11.00	Providing and fabricating reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding (including cost of binding wire) all complete up to floor five level.					
11.10	Cold twisted deformed bars (IS : 1786).	62.496	Kg	68.00	Rupees Sixty Eight Only	4249.73

12.00	Brick masonry with F.P.S. bricks of class designation 75 in foundation and plinth with bricks					
12.10	Cement mortar 1 : 6 (1 cement : 6 coarse sand)	4.637	Cum	2894.00	Rupees Two Thousand Eight Hundred & Ninety Four Only	13419.48
13.00	Plaster on new surface on walls in cement sand mortar 1:4 including racking of joints etc. complete fine finish :					
13.10	20mm thick .	40.320	Sqm	119.00	Rupees One Hundred & Nineteen Only	4798.08
14.00	Providing and fixing of Reinforced Ferro cement Drain cover designed for class "AA" loading duly marked on cover with adequate steel reinforcement having thickness 75 mm to 150 mm anti-corrosive bitumen painted M.S. plate Rim and on M.S. lifting hooks admixture like plasticizer bond improving compound shrinkage resistance compound abrasion resistant complete as per approved design etc.					
14.10	for drain Opeining Size 1201 to 1500 mm Standard Drain Cover Size 2100mm x 500mm x 150mm	10.500	Sqm	3190.00	Rupees Three Thousand One Hundred & Ninety Only	33495.00
Total Estimated Cost in Figures						**24862551.70**
Quoted Amount					**24862551.70**	**24862552.00**
Quoted Rate in Words	**Rupees Two Crore Forty Eight Lakh Sixty Two Thousand Five Hundred & Fifty Two Only**					

Tender Inviting Authority : JAIPUR DEVELOPMENT AUTHORITY, JAIPUR

Name of work :-Water supply arrangements for BSUP Flats, Jaisinghpura from Bisalpur JDA, Jaipur

Contract No: NIB NO. EE (PHE-I)/09/2015-16

Bidder Name :	

SCHEDULE OF WORKS

(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.	Description of work	No.or Qty.	Unit	RATE In Figures To be entered by the Bidder Rs.		AMOUNT Rs. P
				Figures	Words	
1.00	Design & Construction of (Rectangular) Clear Water Reservoir SUMP of required capacity at following places, including its piping, fitting, etc complete in all respect as per the scope of work & specifications given in the tender Documents(Rectangular shape) for the following sizes near campus CWR for installation of Submersed centrifugal Pump sets for Jaisinghpura including all piping work as per scope of work (200 KL)	200.000	K.Ltr.		Rupees only	0.00
2.00	Supply & Installation of submersed centrifugal pump set couple At CWR sump for Jaisinghpura flats for Jaisinghpura Flat pumpsof 26 lps capacity at 70 MWC with accessories for Node 100-101(30 KW)	2.000	Each		Rupees only	0.00
3.00	Providing, installation, testing and commissioning of LT MCC with panels housing motor starters relays, MCB/MCCBs, bus-bar for all pump sets including all internal cabling and cable/bus-bar from switchyard, up to panels, etc. complete in all respect as per the scope of work & specifications.	60.000	KWh		Rupees only	0.00

4.00	Providing, installation, testing and commissioning of capacitor control panels, housing power factor control system panel/capacitors (APFC Panel), other accessaries including all internal cabling and cable/bus-bar from switchyard, up to panels, etc. complete in all respect as per the scope of work & specifications.	60.000	KWh		Rupees only	0.00
5.00	Providing, installation, testing and commissioning of soft starters, for each pump-set, complete in all respect as per the scope of work & specifications.	60.000	KWh		Rupees only	0.00
6.00	"NON RETURN VALVE: Providing, installation, testing and commissioning of of Dual Plate type Check valves on delivery side of pumps, complete in all respect as per the scope of work & specifications given in the tender document. Dual plate check valves conform to API 594 and API 598. They shall have resilient sealing. The spring action shall optimise the equal closing rates of each plate especially when the friction coefficients are uneven due to one plate resting upon one another. The plates shall not drag on the seat while opening. The plates shall not vibrate under full or partial flow condition. The minimum body-wall thickness shall conform to those given in Table 1B of API Standard 594.The face-to-face dimensions ofvalves (including valves with ring-joint facings) shall conform to those mentioned in Table 2B of API Standard 594. Pressure rating of valves shall be decided as per the surge analysis but in any case it shall not be less than PN-1.6." (200 mm)	2.000	Nos.		Rupees only	0.00
7.00	Providing, installation, testing and commissioning of glycerin filled Pressure gauge of following ranges with isolation valve and tap off pipe complete in all respect as per technical specification and as per direction of Engineer. 0 to 10.0 kg/cm²	2.000	Each		Rupees only	0.00
8.00	Required HT/LT cabling for pump house	1.000	Lumpsum		Rupees only	0.00

9.00	Providing, installation, testing and commissioning of DI Sluice valves / gate with hand wheel of PN 1.6 rating . The valves shall be resilient seated, bubble-tight, straight and pocket less body passage, inside stem screw and electrostatic epoxy powder (EP-P) coated INSIDE AND OUTSIDE. The face to face dimensions shall conform to provisions of IS 14846/EN 558-1, 200mm dia	4.000	Each		Rupees only	0.00
10.00	Providing supplying , erection and commissioning of Electro-magnetic flow meters with transmitter, & flow Integrator (with Digital display in Instrument Panel in Control Rom) complete in all respect as per the scope of work & specifications of following sizes (250 mm).	2.000	Each		Rupees only	0.00
Total in Figures						**0.00**
Total in Words				**Rupees only**		

Tender Inviting Authority : JAIPUR DEVELOPMENT AUTHORITY, JAIPUR

Name of work :-Water supply arrangements for BSUP Flats, Jaisinghpura from Bisalpur JDA, Jaipur

Contract No: NIB NO. EE (PHE-I)/09/2015-16

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SCHEDULE OF WORKS

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Sl. No.	Description of work	No.or Qty.	Unit	RATE In Figures To be entered by the Bidder Rs.		AMOUNT Rs.
				Figures	Words	
1.10	Provision for operation & maintenance of water supply scheme as per scope of work & direction of EIC.	60.000	P.Month		Rupees only	0.00
Total in Figures						**0.00**
Total in Words				**Rupees only**		