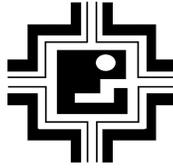


JAIPUR DEVELOPMENT AUTHORITY



Tender Document

For

**Construction of 2 Nos TW's ,SR, CWR & Pump house, P/L/J of DI pipe
line for Raising Main & GI Distribution network for Kitchen's and
Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II
Jaipur, Jaipur**

Estimated Cost: Rs 134.00 Lacs

NIT No. 04/2016-17

Due On: 09.11.2016

**Executive Engineer (PHE-II)
Jaipur Development Authority
Jaipur**

t; ij fodkl ikf/kdj.k] t; ij

bflnj k l fdj] tokj yky ug: ekx] t; ij&302004

Øekd%tfoik@vf/k/vfhk ¼h, pb&AA%@2016&17@Mh&238

fnukd%& 17-10-2016

vYidkytu fcm+l puk l a vf/k vfhk ih, pb&AA@ 04@2016&17

vf/k vfhk ih, pb&AA] t; ij ds vlr xz [kys ds guæku th eflhj ifjlj ea fLFkr j l kbz k , o /keZkkykvs ds fy, 2 uydil k mPp tyk'k;] LoPN tyk'k; , oaiEi gkÅI ds fueZk dk; Z ds fy, fnukd 04-11-2016 dks 06-00 cts rd vkuykbzu fufonk vkef=r dh tkrh gA fufonk ckyh ds nLrkost ks dk foLrr foog.k v | kgLrk(kj drkZ ds dk; ky; ea vFkok jktLFkku ljdkj ds mikiu ikV/y www.sppp.rajasthan.gov.in, www.eproc.rajasthan.gov.in 0 www.jaipurjda.org ij n[th tk l drh gA

fufonk ea Hkkx yus okys dks fuEu 'krk dh i firZ djuh gkxh%

- 1- fufonk nkrk t; ij fodkl ikf/kdj.k dh os l kbZ ij iathdr gk , o fufonk ea Hkkx yus ds fy, ckyh nkrk dks vkonu djus ds fy, nLrkost 'kyd] vekur jk'k] vkj-vkbZ, l-, y- i k l x 'kyd vkuykbzu tek djuh gkxhA
- 2- vkuykbzu fufonk iLrr djus ds fy, fufonknkrkvs dk jktLFkku ljdkj ds b&i kD; eV ikV/y ij iathdr gkA

-sd-

vf/k'kk"kh vfhk; Ur-k¼ h, pb&AA½
t; ij fodkl ikf/kdj.k]
t; ij

ifrfyfi%

- 1- l gk; d funskd ¼tul Ei dZ] tfoik] dks fcm izk'kukFkZ i f"kr gA

vf/k'kk"kh vfhk; Ur-k¼ h, pb&AA½
t; ij fodkl ikf/kdj.k]
t; ij

JAIPUR DEVELOPMENT AUTHORITY

Room No. 302, Citizen Care center Building, Ram Kishore Vyas Bhavan, Indira Circle, Jawaharlal Nehru Marg,
Jaipur – 302 004

Telephone: +91-141-2569696 email: ee.phe2@jaipurjda.org

No: - JDA/EE/PHE-II/2016-17/D-238

Dated: 17.10.2016

SHORT TERM TENDER NOTICE INVITING BID

NIB No. : EE (PHE-II)/04/2016-17

Online Bids are invited up-to 6.00 PM of 04.11.2016 for “ **Construction of 2 Nos TW's ,SR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II Jaipur** ”. Details may be seen in the Bidding Document at our office or the website of State Public Procurement Portal website www.sppp.rajasthan.gov.in, www.eproc.rajasthan.gov.in and www.jaipurjda.org.

To participate in the bid, bidder has to be:

1. Registered on JDA website www.jaipurjda.org for participating in the Bid, the Bidder has to apply for the Bid and pay the Bidding Document Fee, RISL Processing Fee and Bid Security Deposit, online only.
2. Registered on e-Procurement Portal of Government of Rajasthan www.eproc.rajasthan.gov.in for online e-Bid submission.

-sd-

(Manoj kumar singh)
Executive Engineer (PHE-II)
JDA, Jaipur

Copy to:-

1. Assistant Director (PRO), JDA, Jaipur for NIB Publication.

(Manoj kumar singh)
Executive Engineer (PHE-II)
JDA, Jaipur

Annexure: 2

Detail NIB for uploading on SPP Portal, e-Procurement, JDA Portal & as part of NIB Document

JAIPUR DEVELOPMENT AUTHORITY

Room No. 302, Citizen care center Building, Ram Kishore Vyas Bhavan, Indira Circle, Jawaharlal Nehru Marg,
Jaipur – 302 004

Telephone: +91-141-2569696 email: ee.phe2@jaipurjda.org

Bid No: - JDA/EE/PHE-II/2016-17/D-238

Dated: 17.10.2016

SHORT TERM NOTICE INVITING BID

NIB No. : EE(PHE-II)/04/2016-17

Name & Address of the Procuring Entity	<ul style="list-style-type: none"> ➤ Name: Executive Engineer (PHE-II), Jaipur Development Authority ➤ Address: 302, Citizen care center Building, Ram Kishore Vyas Bhavan, Indira Circle, Jawaharlal Nehru Marg, Jaipur – 302 004 (Rajasthan) ➤ Email: ee.phe2@jaipurjda.org
Subject Matter of Procurement	➤ Construction of 2 Nos TW's ,SR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE-PHE-II Jaipur
Completion period of work	➤ 06 Months
Bid Procedure	➤ Single-stage Two part (envelope) open competitive eBid procedure at http://eproc.rajasthan.gov.in
Bid Evaluation Criteria (Selection Method)	➤ Least Cost Based Selection (LCBS) -L-1
Websites for downloading Bidding Document, Corrigendum's, Addendums, etc.	➤ Websites: www.sppp.rajasthan.gov.in , www.eproc.rajasthan.gov.in , www.jaipurjda.org
Website for online Bid application and payment *	<ul style="list-style-type: none"> ➤ Website: www.jaipurjda.org ➤ For participating in the Bid, the Bidder has to apply for this Bid and pay the Bidding Document Fee, RISL Processing Fee and Bid Security Deposit, online only. <ul style="list-style-type: none"> ○ Bidding document fee: Rs. 1000/- Rupees (One thousand only) ○ RISL Processing Fee: Rs. 1000/- (Rupees One Thousand only) ➤ Requisite Bid Security Deposit
Estimated Procurement Cost	➤ INR 1,34,00,000/- (Rupees One crore thirty four Lacs only)
Bid Security Deposit	➤ Amount (INR) : 2% (Rs. 2,68,000/-) of Estimated Procurement Cost, for A & AA class contractor registered in other department 0.5% of S.S.I. of Rajasthan, 0.5% (Rs. 67,000/-) for Bidder registered as contractor in JDA, 1% for Sick Industries, other than S.S.I., whose cases are pending with Board of Industrial & Financial Reconstruction
Bid Procedure	➤ Single-stage Two part (envelope) open competitive eBid procedure at http://eproc.rajasthan.gov.in
Publishing date on SPPL Portal	➤ 20.10.2016
Document sale/Download/Bid participation amount deposit start date on JDA portal	➤ 20.10.2016
Bid submission start Date on eProc Portal of GOR	➤ 20.10.2016 at 05.00.PM onwards
Document sale/Download/Bid participation amount deposit End date on JDA portal	➤ 04.11.2016 at 06.00.PM

Bid submission End date on eProc Portal of GOR	➤ 04.11.2016 at 06.00.PM
Physical BG submission Start date	➤ 08.11.2016 at 10.00.AM onwards
Physical BG submission End date	➤ 09.11.2016 at 03.00.PM
Date/ Time/ Place of Financial Bid Opening	➤ 09.11.2016/ 04.00 PM ➤ CCC TF 302, Third Floor, Customer Care Building, Ram Kishore Vyas Bhavan, Indira Circle, Jawaharlal Nehru Marg, Jaipur – 302 004 (Rajasthan)
Bid Validity	➤ 120 days from the bid submission deadline
Job No.	➤ 2016-17/Jul/107 dated 27.07.2016
<p>*The amount is to be deposited online by bidder. In case the amount exceeds the online payment limit the payment may be made through RTGS/NEFT in ICICI BANK LTD Bank Account Number 675401700586 IFSC Code ICIC0006754. After successful payment, update the UTR/Instrument number on JDA Tender portal against the tender you want to participate. The amount deposited will be confirmed by JDA and will be updated online.</p>	
<p>Note:-</p> <ol style="list-style-type: none"> 1. Bidder (authorized signatory) shall submit their offer on-line in Electronic formats both for technical and financial proposal. 2. In case, any of the bidders fails to pay the Tender Fee, BSD, and RISL Processing Fee, online (subject to confirmation), its Bid shall not be accepted. 3. To participate in online bidding process, Bidders must procure a Digital Signature Certificate (Type III) as per Information Technology Act-2000 using which they can digitally sign their electronic bids. Bidders can procure the same from any CCA approved certifying agency, i.e. TCS, Safecrypt, Ncode etc. Bidders who already have a valid Digital Signature Certificate (DSC) need not procure a new DSC. Also, bidders must register on http://eproc.rajasthan.gov.in (bidders already registered on http://eproc.rajasthan.gov.in before 30-09-2011 must register again). 4. JDA will not be responsible for delay in online submission due to any reason. For this, bidders are requested to upload the complete bid well advance in time so as to avoid 11th hour issues like slow speed; choking of web site due to heavy load or any other unforeseen problems. 5. Bidders are also advised to refer "Bidders Manual Kit" available at eProc website for further details about the e-Tendering process. 6. Training for the bidders on the usage of e-Tendering System (eProcurement) is also being arranged by DoIT&C, GoR on a regular basis. Bidders interested for training may contact e-Procurement Cell, DoIT&C for booking the training slot. Contact No: 0141-4022688 (Help desk 10 am to 6 pm on all working days) e-mail: eproc@rajasthan.gov.in Address : e-Procurement Cell, JDA, YojanaBhawan, Tilak Marg, C-Scheme, Jaipur 7. The procuring entity reserves the complete right to cancel the bid process and reject any or all of the Bids. 8. No contractual obligation whatsoever shall arise from the bidding document/ bidding process unless and until a formal contract is signed and executed between the procuring entity and the successful bidder. 9. Procurement entity disclaims any factual/ or other errors in the bidding document (the onus is purely on the individual bidders to verify such information) and the information provided therein are intended only to help the bidders to prepare a logical bid-proposal. 10. The provisions of RTPPA Act 2012 and Rules thereto shall be applicable for this procurement. Furthermore, in case of any inconsistency in any of the provisions of this bidding document with the RTPPA Act 2012 and Rules thereto, the later shall prevail. 	

-sd-
(Manoj kumar singh)
Executive Engineer (PHE-II)
JDA, Jaipur

Jaipur Development Authority, Jaipur

Office Order

No. : JDA/IT(1074501)/E-Services/2015-16/D-399

Dated: 4-10-2016

Subject: Payment mechanism for participating in tender.

Jaipur Development Authority has decided to receive Earnest Money Deposit (EMD) (Bid Security), Tender Fee and RISL processing fee online through JDA Portal. The bid security options available in tender for participants are as mentioned below:

A. Payment Options:

Option-1: Bank Guarantee (BG) against EMD / Bid Security

Bidder may opt Bank Guarantee (BG) against EMD (Bid Security), for which bidder requires to prepare BG before applying in the tender. The details of BG requires to be fed on JDA portal before paying balance amount (Tender Fee + RISL Processing Fee). This amount will be paid through **Payment Gateway only**, option to make balance payment through EFT (RTGS/NEFT) will not be available.

If bidder does not opt for BG against EMD, options of making complete payment through Payment Gateway or through EFT (NEFT / RTGS) will be available.

Option-2: Electronic Fund Transfer (EFT: NEFT/RTGS)

If the bidder selects payment mode as EFT (NEFT/RTGS), "**Paying Slip for EFT (NEFT/RTGS)**" will be generated by the system for the complete amount. The payment can be made from **any Bank any Branch** using this Paying Slip through NEFT/RTGS (Claim against payment made through EFT in any other JDA bank account will not be acceptable and bidder stands disqualified from participation in the bid applied for). After successful transaction through NEFT/RTGS, as per the standard procedures it may take 4 to 24 hours in process of confirmation of EFT through Auto-Process depending on the time of EFT done. Therefore, option to make payment through EFT (NEFT/RTGS) will be available till 2 days prior to closing date of bid participation.

Option-3: Payment Gateway (Aggregator)

The facility to make payment through Debit Card, Credit Card, Net banking etc., will be available. User can use this facility from **anywhere any time** till the closing date & time of bid participation.

B. Bid Participation Receipt

After confirming payment, the bidder will get Bid Participation Receipt on the basis of which user will get the payment details along with other details for bidding on e-Procurement portal of GOR.

- In case of BG as the remaining payment will be done through Payment Gateway, on successful transaction the "**Bid Participation Receipt**" will be generated on real time basis.

Annexure: 4

Template of Online Receipt as part of NIB Document

- In case complete payment is done through Payment Gateway, on successful transaction the “**Bid Participation Receipt**” will be generated on real time basis.
- In case complete payment is done through EFT (NEFT/RTGS), on confirmation of payment from ICICI Bank (Auto Process) “**Bid Participation Receipt**” will be available on Login of Bidder on JDA portal.

This payment mechanism will come into force w.e.f 15/10/2016. Thereafter, old payment mechanism related to NEFT/ RTGS in which the bidder makes direct payment without “**Paying Slip for EFT (NEFT/RTGS)**” in JDA’s bank account will be discontinued.

All procuring entities are hereby directed to clearly mention this procedure in NIB document.


(Pawan Arora)
Secretary

Copy for information and further necessary action to:

1. P.S. to JDC, JDA, Jaipur.
2. P.S. to Secretary, Secretary, JDA, Jaipur.
3. Director (Law / Finance / Town Planning / Engineering-I / Engineering-II), JDA, Jaipur.
4. All Additional Chief Engineer _____, JDA, Jaipur
5. DC (Administration)/DC(Store)/DC (Vehicle), JDA, Jaipur
6. System Analyst, JDA, Jaipur
7. Analyst-cum-Programmer, JDA to ensure integration of software w.e.f 01/10/2016.
8. All Xen _____, JDA, Jaipur.
9. Officer-in-charge, SPPP Portal, Jaipur.
10. OSD (Public Relation) / PRO, JDA, Jaipur.


(Brijesh Kishore Sharma)
OSD (RM)

Paper Cutting

Section A-1

Instructions to Bidders

JAIPUR DEVELOPMENT AUTHORITY JAIPUR

SCHEDULE AND SPECIFICATIONS

Name of work : Construction of 2 Nos TW's ,ESR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II Jaipur.

1. NIB No. :- E.E.(PHE-II)/04/2016-17
2. Approximate cost :- Rs. 134.00 Lacs
3. Cost of the tender documents :- Rs 1,000.00
4. Earnest Money :- Rs. @ 0.5 % Rs. 67,000.00
(For Contractors Enlisted in JDA, Jaipur)
:- Rs. @ 2 % Rs. 2,68,000.00
(For Contractors Enlisted in other Govt. Deptts. –“A” & “AA” Category)
5. Download of tender documents :- 20.10.2016 to 04.11.2016 (upto 6:00 PM)
6. Date & Time of upload of tenders :- 04.11.2016 (upto 6:00 P.M.)
7. Date & Time of opening tenders :- 09.11.2016 at 04:00 P.M.
8. Completion period of work :- 06 Months.

SCHEDULE 'A' : INFORMATION USEFUL FOR THE CONTRACTORS :

The tenderer should see the site and fully understand the condition of the site before tendering and include all lead, lifts etc. **Percentage above/Below or equal to be quoted on the rates as given in the 'G' Schedule Part-A, Part-C and Part-D (BSR Items) and Rates to be quoted by Agency on Items of Part-B and Part-E (Non BSR Items).** The work shall be carried out in accordance with the Rajasthan PWD, PHED and JDA detailed specification and to the entire satisfaction of the Engineer-In charge of the work.

The bid will be opened only of those bidders deposit proper bid security, processing fee, tender fee, VAT clearance certificate (Valid upto Six months back from the opening of Bid) and copy of registration of contractor in required category are found to be in order. The Bid security, tender fee will be accepted only in from of demand draft/banker cheque in the name of Secretary JDA, Jaipur.

SCHEDULE 'B' : LIST OF THE DRAWING TO BE SUPPLIED BY THE DEPARTMENT:

The drawings may also be seen in the office of undersigned.

SCHEDULE 'C' : LIST OF THE DRAWING TO BE SUPPLIED BY THE CONTRACTOR:

List of the drawing to be supplied by the contractor NIL. But the contractor shall have to arrange at his own cost drawings required for the work after depositing necessary cost within JDA.

SCHEDULE 'D' : TEST OF THE MATERIALS :

The test of the material and workmanship shall be conducted by the JDA staff as necessary, The result of such tests should confirm to the standard laid down in the Indian standards and or the standards laid

down in the detailed specification of the Public Works Deptt,. Proper quality control is required to be maintained by the contractor. Qualified personnel as required under the contractor enlistments rules duly approved by the Deptt. shall have to be engaged at site by the contractor. The deptt. reserves the right to engage such staff and recover the expenses from the contractor on such account in case of his failure to do so.

SCHEDULE 'E' : SAMPLES OF THE MATERIALS :

The samples of the material to be used by the contractor shall be deposited 15 days in advance with the Engineer In charge and be got approved by him before use.

SCHEDULE 'F' : TIME OF COMPLETION :

The work should start within Ten days of issue of work order and complete within **06 months**.

SCHEDULE 'G' : ATTACHED SEPARATELY BASED ON JDA PHE APPROVED RATES AND JDA PWD BESR BUILDING 2016/ JDA PWD ELECTRICAL 2016, JAIPUR.

SCHEDULE 'H' : SPECIAL CONDITION.

Annexure A : Compliance with the code of Integrity and No Conflict of Interest

Annexure B : Declaration by the Bidder regarding Qualifications

Annexure C : Grievance Redressal during Procurement Process

Annexure D : Additional Conditions of Contract

Annexure E : DLP period for various type of works. Office order D-29 dated 11.03.2016

Annexure F : Payment mechanism for participating in tender: Office order D-399 dated 04.10.16.

SIGNATURE OF CONTRACTOR

EXECUTIVE ENGINEER (PHE-II)
Jaipur Development Authority,
Jaipur

With full address & Mobile No. :

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. 134.00Lacs**
- (c) **Earnest money** : **Rs. 2,68,000.00** for enlisted contractors outside JDA and
: **Rs. 67,000.00** @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 06 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
Witness's address & Occupation

Signature of Contractor
Address of Contractor

Date:

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

Date:

EXECUTIVE ENGINEER (PHE-II)
Jaipur Development Authority,
Jaipur

Section A-2

General Conditions of Contract

(Appendix XI of PWF & AR. Govt. of Rajasthan
effective up to date shall be applicable)

Section A3

Special Conditions of Contract

Special Conditions of Contract

CONTRACT

1.1 Type of Contract

THE WORK DESCRIBED IN THIS TENDER DOCUMENTS CONSIST OF FIVE PARTS;

PART "A"	P/L/J & COMMISSIONING OF DI/GI PIPE LINE FOR RISING MAIN, CWR TO ESR, T-POINT TO EXISTING GLR/ESR AND CONSTRUCTION OF TUBE WELLS UNDER WATER SUPPLY SCHEME FOR KHOLE KE HANUMAN JI TEMPLE CAMPUS.
PART "B"	CONSTRUCTION OF ESR, CWR, SUPPLY AND INSTALLATION OF SUBMERSED CENTRIFUGAL PUMP SET, ELECTRIC PANEL, VALVES ETC. UNDER WATER SUPPLY SCHEME FOR KHOLE KE HANUMAN JI TEMPLE CAMPUS (NON BESR ITEMS)
PART "C"	CONSTRUCTION OF 2 NOS TUBE WELLS
PART "D"	CONSTRUCTION OF GUARD ROOM
PART "E"	PROVISION FOR OPERATION AND MAINTENANCE WORKS (NON BESR ITEM)

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 ESR, CWR and installation of pumping machinery and its piping in CWR.

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 or other Govt. Engineering collage approved by EIC.

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.No.	Items	Category
1.	Cast Iron specials	B
2	DI pipes, submersed centrifugal pump sets for CWR and pump sets for tubewell with cable.	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, Contractor 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 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 **06 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 3 Years, 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 and as per JDA office order no. JDA/Ex.En. (TA to Dir. Eng.-1)/2016/D-29 dated 11.03.16 (Annexure 'E').

4.4 Cost of water and electricity for testing

Water and electricity for construction and testing of all structures and all other purpose shall be arranged by the contractor at his own cost.

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 for guard room, RCC ESR and RCC CWR.

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 ESR

1	After excavation, laying PCC and casting of foundation tank staging upto GL	20%
2	After completion of first half staging	10%
3	After completion of second half staging including bracing below the ring beam.	10%
4	After completion of bottom dome with ring beam, cone wall and balcony	10%
5	After completion of vertical wall and inside column if any.	10%
6	After completion of top dome, ventilator, stair case and fixing of DI pipes & Fittings in top dome complete.	20%
7	After fixing of DI Pipes & fittings, lightening conductor railing painting and miscellaneous works complete in all respect and satisfactory testing as per standards	20%

Breakup of Payment for construction of RCC CWR

1	After excavation, laying PCC and casting of foundation slab	15%
2	After completion of outer vertical wall, RCC stair case inside and outside	30%
3	After completion of top dome, Head room, railing	30%
4	After fixing of Pump sets and inlet, outlet CI/DI pipes with fittings, painting and miscellaneous works complete in all respect and satisfactory testing as per standards	25%

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

1	After Supply laying jointing, installation and testing of DI/GI 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 of defect liability period of 3 years and as per JDA office order no. JDA/Ex.En. (TA to Dir. Eng.-1)/2016/D-29 dated 11.03.16 (Annexure 'E').

11. 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.
12. The contractor shall not work after the sunset & before sunrise without specific permission of the Engineer In Charge in-charge
13. 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.
14. 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.
15. **Price escalation shall be admissible as per GF & AR rule and clause 45 applicable time to time.**

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

- (a) Labour Percent.
- (b) Material Percent.
- (c) Bitumen Percent.
- (d) Diesel and Petrol Percent.
- (e) CementPercent.
- (f) Steel Percent.

Total 100 % Percent.

16. **No Price Escalation shall be payable on the Items of G-Schedule in which the rates are to be quoted by the bidder. Price Escalation shall be payable on BSR Items only.**
17. 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.
18. 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.
19. 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.
20. Excise Duty Exemption on DI pipe line shall be applicable as per rules and bidder has to consider this while quoting the rates.
21. The contractor shall submit the proof of ownership of suitable machinery for laying of pipeline in all type of strata.
22. The quantity of work can be increased or decreased. However, no guarantee is given about the actual quantity of work.
23. 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.
24. 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.
25. The electric connection, if required, for construction and testing purpose shall be arranged by the contractor at his own cost.
26. 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.
27. Water for construction / testing purpose shall have to arranged by contractor at his own cost.

28. The contractor shall be fully responsible for structural safety and water tightness of pipeline as well as ESR and CWR when tested.
29. No secured advance against material procured at site will be allowed.
30. 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 Assistant engineer. After taking layout, the contractor shall submit day to day schedule of work to the Engineer-in-charge in advance.
31. 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.
32. 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.
33. 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.
34. The surplus earth and damaged materials will be immediately removed from the site of work and dumped as per instruction of Engineer-in-charge.
35. 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.
36. 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.
37. The contractor/firm/company is bound to get the workmen insured against accident from the Insurance Company at his own cost.
38. 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.
39. If there is any typographical error or otherwise in the 'G' Schedule. The nomenclature and the rates as given in the relevant BSR and JDA approved items/rates on which schedule 'G' is based, shall prevail.
40. According to the alignment of pipe line thrust blocks shall be constructed as per IS code for which no extra payment shall be payable. The cost of thrust blocks shall be deemed to be considered in the rates quoted by bidder.
41. Cement concrete roads required to be dismantled for laying of pipe line shall be done by mechanical means / breaker in the manner such that pavement in required width is only dismantled. No extra payment for cutting of payment shall be made and it shall be deemed to be considered in the rates quoted by bidder.
42. 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.
43. The contractor shall be solely responsible for all kind of liaison before starting the work with PHED/Other JDA zone/JVVNL & BSNL etc. which is required to avoid any damage of already laid pipe lines, Electric, BSNL cables. The contractor shall also liaison for the inter connection work with existing PHED system.
44. Before start of work contractor has to inform concerned JDA zone officers to avoid/minimize road damage.

Safety aspects associated with the work.

45. Safety And Accident Prevention Officer: Due precautions shall be taken by the Contractor, at his own cost, to ensure the safety and protection against accidents of all staff and Labour engaged on the works, local residents in the vicinity of the works, and the public traveling through the works. The contractor shall deploy at least one officer from his staff, qualified to promote and maintain safe working practices. This/these officer(s) shall has/have authority to issue instructions and shall take protective measures to prevent accidents, including but not limited to the establishment of safe working practices and the training of staff and labor in their implementation. The contractor shall furnish to the department the name(s) of such officer(s) before the start of the work.
46. 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 borne by the contractor only and JDA will not be responsible in any way.

47. 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 borne by the contractor only .
48. Electric and water connections, if needed, shall be arranged by the contractor himself at his own cost.
49. 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 JDA and its representatives will not be responsible in anyway.
50. Demolishing of concrete road work will be done by mechanical means in the proper way.

Special conditions for Tube well work

1. The tenderers are advised to study geographical, geological, hydrological and geo-physical condition prevailing in the jurisdiction of JDA for which they are tendering for the work of drilling of 200 mm tube well for power pump with development etc. complete. The rates shall be quoted based on their own assessment of the above features including the nature of the strata to be encountered and approachability of the site etc.
2. No extra charges for higher size drilling in collapsible strata will be paid by the JDA. The tenderers shall have to make their own arrangement for completing the work and no claim in this respect will be entertained.
3. Payment will be made on completion of individual tube well in all respect including development.
4. The boring shall be accepted only when its Yield is as per report of state GWD/ PHED or more for 200 mm diameter TUBE WELL. Only payment of Drilling shall be made for the tube wells having discharge less than above. It is responsibility of contractor to fill up bore holes of such unsuccessful tube wells up to the ground level immediately.
5. **Inspection and Checking of work**
As material are collected and the construction of each section of work is completed it will be checked by Engineer-in-Charge or his authorized representative and the representative of the contractor will assertion from the engineer from time to time that what part and portion he wishes to check over and pass out. Such approval shall in no way release the contractor of his responsibility regarding completion of work, as per required specification until the contract being completed.
6. **Water Supply for Work and Drilling Purposes**
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 enforce, shall also be provided by the contractor at his own cost.
7. **Time of Working**
The contractor will be required to see that the usual hours of work are adhered too. No work shall be done in the night without prior permission of Engineer – in – Charge except when it is absolutely necessary in the public interest. In this case contractor shall immediately inform the Engineer-in-Charge and get it approved.
8. **Release of Electric connection from JVVNL**
The contractor shall be responsible for getting electric connection released from JVVNL on behalf of JDA. For this JDA shall provide duly signed application form which shall be produced by contractor in JVVNL office. In normal case the final payment shall not be passed till electric connection is released and testing as per norms is done, however in case of non-feasibility of electric connection area the decision of EIC shall be final. The amount required for release of electric connection shall be deposited by contractor to JVVNL office at first stage which shall be reimbursed to him on producing of original receipt of JVVNL.
9. Electric and water connections for construction and testing purpose if needed, shall be arranged by the contractor himself at his own cost.
10. The following information's shall be furnished on completion by the contractor in accordance with clause No. of 12.2 of IS 2800 (Part I) : 1991, while handing over the tube well
 - a) Total depth of tube well drilled.
 - b) Strata chart of tube well indicating different type of soil formation met with at different depths and indicating the depths of each type of soil formation from hydrologist.
 - c) Samples of strata collected, neatly packed and correctly marked in sample bags.
 - d) Position of every joint in well assembly.
 - e) Method used for development.
 - f) Total hours of development done.
 - g) Developed discharge in L.P.S.

- h) Discharge is totally sand free or presence of sand particles is there.
 i) PPM and turbidity after development.
 j) Pumping water level at developed discharge, and
 k) Static water level
11. The format as per IS: 2800 (Part I): 1991 for furnishing the details is given as below-
- a) Agency drilling the tube well.....
 b) Location of tube well.....
 c) Method of drilling adopted.....
 d) Date of starting
 e) Date of completion
 f) Pilot hole and test hole Bit Size.....
- Bit typeHours.....fromto
- g) Coring doneBit size..... Bit type
 Hoursrecovery.....from.....to.....
 h) ReamingBit Size.....Bit Type
 Hours.....from.....to.....
 i) Lithological data

From	To	Formation
.....
.....
.....

 j) Total length of tube well drilled.....
 k) Assembly of production well Size.....
 Lengthtype
 Perforation per meter
- Housing pipe
- Blind pipe
- Strainer pipe.....
 Bail plug.....
- l) Top of tube well above/below ground level.....
 m) Size of gravel.....
 n) Quantity used before
 o) Development.....Quantity used during development.....
 p) Method used for development.....
- Total hours of testing.....
- q) Development discharge.....
 r) Turbidity.....
 s) Further details appended
 i) Sample of strata, neatly packed in sample bags
 ii) Chart of pipe assembly lowered
 Results of mechanical analysis of samples of unconsolidated strata.
12. No running payment shall be made for incomplete tube well. Payment shall be made after completion of development, testing of tube well.

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

Executive Engineer (PHE-II)
JDA, Jaipur

I/we confirm above

Signature of contractor

Section A-4

Scope of work & Specifications of Work

Name of work:- Construction of 2 Nos TW's ,SR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II Jaipur.

(1) SCOPE OF WORK

1.1 Extent of Scope of Work

The scope of work under this Contract includes construction of 2 No Tube Well's, Providing,Laying & Jointing of 100 mm & 150 mm dia DI pipe line, Construction of 300 KL RCC CWR, Construction of 200 KL RCC ESR, Construction of Guard room along with all Electro Mechanical & Instrumentation (EMI) works under water supply scheme for Khole ke hanuman ji temple campus. The contractor shall also undertake operation and maintenance of system developed under this contract for 3 years.

1.2 General Principles

The contractor shall carryout all works, wholly, in accordance with the terms and conditions of the contract to fulfill the requirement of the components. All the material used, and the equipment installed shall be as per the specifications defined in the contract (**where the specifications are not mentioned then the respective IS specifications shall be followed**) the work shall be executed with good engineering practices.

Generally the following activities shall be carried out for each component of this contract but shall not be limited to:

- (i) Submission of all documents required according to the Contract
- (ii) Submission of Action Plan/Execution Schedule in accordance with the provisions of Special Conditions Part-A for approval of the Engineer in Charge.
- (iii) Getting approval of all design and drawings for material to be used, equipment specifications and the samples, prior to dispatching / installing /commissioning of work on site or submitting the acceptance to department design & drawings.
- (iv) Submission of the specifications, catalogs and the technical data sheets of all the equipment, electrical/ instrumentation,
- (v) Carrying out the SBC at ESR & CWR location through MNIT Jaipur or other Govt. Engineering Collage. Review and submission of structural designs and reinforcement drawings for all civil structures of the work ESR /CWR/ Guard room. The modified structural designs and drawings of CWR/ESRs, should be submitted to EIC after approval from MNIT, Jaipur or other Govt. Engineering Collage. All expenses for this shall be borne by the contractor.
- (vi) Preparation and submission of all detailed working drawings on the basis of designs and plans provided/approved by the Engineer-in-Charge in six copies for issuance for execution.
- (vii) To co-ordinate with the O&M staff and concerned officers of PHED, PWD, Forest, Mining, electric supply company and personnel of local water supply system (for carrying out the installation of new equipment), with the district administrative offices and other offices for necessary approvals and certificates.
- (viii) Construction of Guard room and water retaining structures.
- (ix) Ancillary Civil works required for guard room.
- (x) Construction, testing & commissioning of ESR, CWR and all the newly laid pipe line including Civil works as per scope of work, as per approved drawings & detailed specifications.
- (xi) The submission of the as-built drawings of the works is the pre condition for the final payment of execution part.
- (xii) **O & M period:**

O&M period shall commence after completion of the works and issuance of completion certificate.

- (xiii) **Defects liability period:**

The defects liability period shall be of 3 year from the date of issue of the certificate for completion of works. This 3 year period shall run parallel to the 3 year of O & M period. The O & M charges shall be paid in this period however any major defects shall be replaced by contractor at his own cost.

1.3 Major Components of Work

The works under this contract are broadly divided in to the following components:

- (i) Carryout required Topographical & Campus Survey & Geotechnical investigations.
- (ii) Construction of 2 no Tube Well's along with all allied works.
- (iii) Providing, Laying & Jointing of 150 mm & 100 mm dia DI pipe line.
- (iv) Construction of RCC ESR of capacity 200 KL at Khole ke hanuman ji temple Campus.
- (v) Construction of RCC CWR of capacity 300 KL with all EMI works including all arrangements at Khole ke hanuman ji temple Campus.
- (vi) Construction of Guard room at Khole ke hanuman ji temple Campus.
- (vii) Supply & Installation of Submersed centrifugal Pump sets inside CWR and as per the duty conditions given in BOQ.
- (viii) Required civil work for guard room, Air valve chambers and Meter/ Valve chamber as per items taken in BOQ.
- (ix) Operation and Maintenance of works created under this contract for a period of 3 years.

The detailed scope of work and specifications of above components is as under:

(A) Specifications of ESR & CWR

1.0 Location and site Condition

Khole ke hanuman ji temple Campus.

2.0 Scope / Volume of work for Contractor

Job Work for ESR & CWR

The work consists of construction of RCC Elevated Service reservoirs capacity 200 KL & CWR of 300 KL as per BOQ:

S. No.	Particulars	No.	Capacity
1	Elevated service Reservoir of 20 mtr. Staging	1	200 KL
2	Clear Water Reservoir	1	300 KL

The present work 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. Reconnaissance and investigation of site is necessary. Detailed soil investigation at the location of tank at site for confirming the safe bearing capacity of so that the contractor is equally responsible for the value adopted in the design. SBC be got conducted through MNIT or any other Govt. Engineering collage.

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 from natural ground level 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 designed 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.

Design mix

Mix design of concrete shall be submitted by contractor with due identification of material to be used for concrete work. This mix design shall be checked/vetted for correctness by MNIT Jaipur/other Govt. Engineering collages. The charge of proof checking of mixed design of concrete done by MNIT Jaipur/Other Govt. engineering colleges shall be born by the contractor and no additional payment shall be done in excess of quoted lump sump cost in G-schedule part-B.

3. 0 Job Work for ESR

The shape and scope of work is given in the General Arrangement drawing. The main scope of work is given below-

A. Construction of RCC ESR (Elevated Service Reservoir) of 20 mtr. Staging at Khole ke hanuman Ji temple campus.

Following are the works covered in the Job of ESR:

- SBC test of the soil for determination of SBC of the site. The structural design of the reservoir shall be based on the actual SBC or 10 MT/Sqm. whichever is less.
- Submission of structural design and drawing as per specification and general arrangement drawing for the ESR and get checked from MNIT Jaipur or other Govt. Engineering Collage as per approval of EIC
- Construction of RCC ESR as per design approved.
- Providing and fixing of all DI K-9 riser pipes, puddle collars, sluice valves, dismantling piece, ventilator and level indicator as per specifications.
- Size of riser pipes (DI K-9) shall be as below:-

ESR of 200KL capacity with 20 meter staging

Location	Size	Length	Duck foot Band	Sluice Valve	Dismantling Joint
Inlet	150 mm	Upto 2 M outside plinth protection	1	1	1
Outlet	150 mm	Upto 2 M	1	2	2

		outside plinth protection			
Overflow	200 mm	Over flow connected to supply line with NRV	1	1	
Washout	100 mm	Upto nearest available nallha		1	1

- The Contractor shall be fully responsible for the soundness of the construction, structural safety & water tightness of the structure based on the specifications, sound engineering practices, and latest I.S. provisions.
- Providing & installation of Two sluice valve (resilient seated soft sealing type) on out let, one ordinary sluice valve each on inlet, washout pipe for reservoir. Inter connection of Inlet and Outlet pipe as shown in drawing of ESR including installation of vales, dismantling piece etc. shall be made.
- Providing scour / washout pipes & its interconnection with overflow pipe including P/F of sluice valve as shown in detailed drawing of ESR.
- Valve chamber for valve of out let pipe shall have to be constructed.
- Excavation for all structures including working spaces, trench excavation for pipes & other ancillary works in all sorts of soils, refilling & disposal of surplus earth at suitable site & dressing as per direction of Engineer-in-charge.
- Providing plinth protection works as per specifications and approved drawing.
- Providing lightning arrester on the top of ESR.
- Providing access to the top and inside the reservoir as per the drawing.
- Providing ventilation for the reservoir as per the specifications
- Providing 32 mm diameter GI pipe (Class B) in two rows with 50 mm GI pipe post welded at each junction along the top of reservoir, on the sides of the staircase and balcony, and at other suitable points for the requirement of safety of maintenance and execution staff.
- The outer surface of top dome shall be painted with suitable anti-carbonation paint.
- The over flow should be connected in supply line.
- **By pass arrangements should be done at ESR for direct supply in case of emergency.(Pumping main to supply line with necessary sluice valve)**
- Testing of tank for water tightness and structural stability by filling it with water and in accordance to the procedure laid down in tender document/IS code.
- Colour washing using cement paint of approved make & quality as per specifications
- Painting the metallic surface & putting slogan on tank as per specifications.
- Final clearance of site before handing over the work, including leveling of earth and disposal of surplus earth as per directions of the Engineer in Charge.
- Submission of 'As Built' drawings.
- Cleaning, washing & disinfecting the reservoir and making its interior free of all foreign material, loose particles, debris etc and making it fit for storage of potable water, once in a year.

Float Valve (For ESR)

- The float valve system shall be installed at inlet pipe inside the container portion. The material of construction for different components, are given below:

Part No.	Name of Part	Material	Specification
1.	Body	Cast Iron	ISD 210, FG 200
2.	Valve	Cast Iron	ISD 210, FG 200
3.	Bottom Plate	Cast Iron	ISD 210, FG 200
4.	Washer Plate	Gun metal	IS 318
5.	Seat ring	Gun metal	IS 318
6.	Link	Gun metal	IS 318
7.	Liner	Brass	-

8.	Eye Bolt for Valve	Brass	-
9.	Lever fork	Mild steel	-
10.	Valve face	Synthetic rubber	-
11.	Float Ball	Copper	-

The float ball is to be suspended in cylindrical vessel fabricated from 4 mm hot-dip galvanized MS sheet, so that free upward / downward movement is offered to the ball as the water level rises / falls in the cylindrical vessel. The tank shall be hot dipped galvanized after fabrication. The valve shall provide watertight closing with an upward movement of 165-175 mm in the vessel.

The auxiliary float valve shall be installed at the bottom of the cylindrical vessel. It shall be of copper alloy. Corydon pattern with rough body and screwed male ends. The material of ball shall be copper and shall be installed at the bottom of the vessel as shown in the drawing. The size of the float and the length of the lever must ensure a watertight closing at a pressure of 6 kg/cm². The valve design must with view to a permanent withdrawal at pressures reaching 6 kg/cm². This relates to cavitations of the seat, the piston and the washers.

The material of construction for different components, are as under:

Part No.	Name of Part	Material	Specification
1.	Float ball	Copper	-
2.	Ball Cap	Gun metal	BS 1400 LG 2
3.	Lever	Brass rod	BS 2872 or 2873 CZ 114
4.	Split Pin	Brass	-
5.	Piston	Gun metal	BS 1400 GL
6.	Piston Cap	Gun metal	-
7.	Washer	Nitrile rubber	-
8.	Body	Gun metal	BS 1400 GL

The above valves shall be tested for the following hydrostatic pressure. The lever and its connections to the ball must be designed for heavy-duty function.

Body of valve : 10 kg/cm²

Seat of valve: 6 kg/cm²

1. **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.

2. **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.

3. **Location**

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

4 **CIVIL WORKS**

4.1 **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:

5.	Earth work
	IS 3764 – Safety code for excavation works
	IS 3720 – Methods of tests for soils
6.	Soil Investigation
	IS – 1888 – Load test on soil
	IS – 2131 – Standard Penetration Test for soil method
7.	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.
8.	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
9.	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.
10.	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.
11.	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 M30
	Lean concrete in foundation M15
12.	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	150 mm
	Thickness of bottom dome for ESR	200mm
	Thickness of platform, landings	200 mm
	Thickness of Water retaining walls, slabs <2m	200 mm
	Thickness of Water retaining walls, slabs >2m	200 mm
	Thickness of Other structural walls (load bearing)	150 mm
	Thickness of Non structural walls	200 mm
	Free board depth for ESR	300 mm
	Dead storage depth for ESR	250 mm
	Thickness of lean concrete below foundation	200 mm
	Depth of foundation for ESR	3.00 m from natural G.L.
	Age factor shall not be more than	1 (one)

13. 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, hessian 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.

14. 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). Cube testing for PCC/ CC should be done from authorized laboratory of central Govt./State Govt. or any other Govt. laboratory approved by JDA. The testing result should be submitted with every running account bills. These testing charges will be paid by the bidder only at his own cost.

15. 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 coarse aggregates, bulking of sand of fine aggregate.

Determination of fines and deleterious materials, organic impurities and light weight places in coarse 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.

16. 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 meet 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.
17. **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.
18. **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 Junior 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.
19. **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.
20. **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.
21. **Puddle Collar**
 All puddle collars shall be of D.I. The length and size of the puddle collars shall be as shown in drawings.
22. **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.
23. **Railing**
 Hand railing around the platforms, Balcony, stairs and landings shall be consisting of 32mm diameter medium B class GI pipes in two rows (one at the top and other at middle level) and 1000mm high vertical post of 50mm GI pipe (B-Class) connected by welding at each junction @ 1500mm center to center (At least two vertical posts 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.
24. **Water level indicator**

- The level will be transferred at suitable and visible place.
25. **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.
26. **Lightening arrester**
Lighting arrester shall be of copper bar of 25mm dia and 2m. long to be provided at the top of ESR. This is to be connected by a GI strip of 25 mm wide & 3mm thick. This conductor strip shall be connected to a 450mm x 450mm x 450mm x 3mm thick copper plate to be embedded below the average ground level y digging a pit as shown in drawing. The Earthing system shall comply with Indian Electricity Rules and shall confirm to IS 3043. The pit shall be refilled by alternate layers of salt and coke as shown in the drawing and balance shall be filled with loose soil. The 40 mm dia GI watering pipe shall be provided in the pit. Care shall be taken that earth pit does not sink.
27. **Painting**
If not otherwise stated metallic surfaces shall receive one initial coat at the manufacturer's workshop. After 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
- | | |
|--|---|
| | Primer of red oxide, two under coats and one finishing coat of an approved enamel paint and of approved shades. |
|--|---|
28. **Plinth Protection**
Plinth protection works are to be constructed below the Elevated Service Reservoir, it shall be extended up to 1m from fall of balcony or edge of raft slab, whichever is more all around service reservoir. It shall consist of laying lean concrete 150 mm thick in M15 with CC 1:2:4 30 cm thick flooring over compacted soil. Sectional details shall be as indicated in the drawing including included with the document.
The minimum free space between plinth protection and the first bracing of the EESR shall be 1.60 mtr.
29. **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.
30. **Water bars (for ESR)**
PVC/ Aluminum sheet water stop of 320 mm. wide will be fixed between foundation of wall and base slab. PVC/ Aluminum sheet 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.
31. **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.
32. **Pipe Clamp**
The clamp shall be 10 mm thick 55mm wide MS flat fixed on pipe & column as shown in drawing.
33. **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.
34. **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.

B. Construction of CWR of Capacity 300 KL at Khole ke hanuman Ji temple campus.

Following are the works covered in the Job of CWR

- SBC test of the soil for determination of SBC of the site. The structural design of the reservoir shall be based on the actual SBC or 10 MT/sqM, whichever is less below one meter ground level.
- Submission of structural design and drawing as per specification and general arrangement drawing for the CWR and get checked from MNIT Jaipur or other Govt. Engineering Collage as per approval of EIC.
- Construction of RCC CWR as per design approved.
- Providing and fixing of all puddle collars, valves, ventilator, dismantling piece and level indicator as per specifications.
- Size of Puddle collars/ DI pipes/CID/F pipes shall be as approved design /actual site requirement.
- Plinth protection of the RCC CWR as per GA drawing.
- The Contractor shall be fully responsible for the soundness of the construction, structural safety & water tightness of the structure based on the specifications, sound engineering practices, and latest I.S. provisions.
- Valve chamber for valve of out let pipe SV shall have to be constructed.
- Excavation for all structures including working spaces, trench excavation for pipes & other ancillary works in all sorts of soils, refilling & disposal of surplus earth at suitable site & dressing as per direction of Engineer-in-charge.

- Providing access to the top and inside the reservoir as per the drawing.
- Providing ventilation for the reservoir as per the specifications.
- The outer surface of top dome shall be painted with suitable anti-carbonation paint.
- Testing of tank for water tightness and structural stability by filling it with water and in accordance to the procedure laid down in tender document/IS code.
- Colour washing using cement paint of approved make & quality as per specifications.
- The over flow should be connected in supply line.
- **Bypass arrangement should be done at CWR to fill the ESR from T.W's.**
- **The top of the CWR should be as flat slab, no extra payment shall be payable to the bidder for this work. It shall be deemed to be considered in the rates quoted by bidder.**
- Painting the metallic surface & putting slogan on tank as per specifications.
- Final clearance of site before handing over the work, including leveling of earth and disposal of surplus earth as per directions of the Engineer in Charge.
- Submission of 'As Built' drawings.
- Cleaning, washing & disinfecting the reservoir and making its interior free of all foreign material, loose particles, debris etc and making it fit for storage of potable water, once in a year.

DESIGN CONDITIONS FOR UNDERGROUND OR PARTLY UNDERGROUND LIQUID RETAINING STRUCTURES

Ground or partly underground liquid containing structures shall be designed for the following conditions:

Liquid depth up to full height of wall : no relief due to soil pressure from outside to be considered;

Structure empty (i.e. empty of liquid, any material, etc.): full earth pressure and surcharge pressure wherever applicable, to be considered;

Structures shall be designed for uplift in empty conditions with the water table as indicated in geo-technical report & due care should be taken for seasonal variation on higher side.

Walls shall be designed under operating conditions to resist earthquake forces from earth pressure mobilization and dynamic water loads;

Ground or partially underground structures shall also be checked against stresses developed due to any combination of full and empty compartments with appropriate ground/uplift pressures from below to base slab. The design shall be such that the minimum gravity weight exceeds the uplift pressure at least by 20%.

An increase cover of 15 mm is recommended for walls and roof bottom to account for contact with chlorinated water in side the reservoir. The increase cover is not proposed for the base slab as cement concrete screed topping is proposed to provide protection to the RCC Structure.

FOUNDATIONS

The minimum depth of foundations for the structures, frame foundations and load bearing walls shall be as per IS 1904.

Bearing capacity of soil shall be determined as per IS: 6403.

Care shall be taken to avoid the foundations of adjacent buildings or structure foundations, either existing or not within the scope of this contract. Suitable adjustments in depth, location and sizes may have to be made depending on site conditions. No extra claims for such adjustments shall be accepted.

A structure subjected to groundwater pressure shall be designed to resist floatation. The dead weight of empty structure shall provide a factor of safety of 1.2 against uplift during construction and service.

Where there is level difference between the natural ground level and the foundations of structure or floor slabs, this difference shall be filled up in the following ways

In case of liquid retaining structures, the natural topsoil shall be removed as described above and the level difference shall be made up with Plain Cement Concrete not weaker than M 10.

DESIGN REQUIREMENTS

The following are the design requirements for all reinforced or plain concrete structures.

- All blinding and leveling concrete shall be a minimum 75 mm thick in concrete grade M10 unless otherwise specified. **The roof slab of the CWR should be flat slab.**

The following minimum thickness shall be used for different reinforced concrete members, irrespective of design thickness.

Walls for liquid retaining structures	: 200 mm
Roof slabs for liquid retaining structures (other than flat slabs)	: 125 mm
Bottom slabs resting on Ground for liquid retaining structures	: 150mm
Floor slabs including roof slabs, walkways, canopy slabs	: 100 mm
Wall of cables/ pipe trenches, underground pits etc.	: 150 mm
Column footings	: 300 mm
Parapets, Chhajja	: 100 mm

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 flat slab for CWR shall be taken as 3.00 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.

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 platform in the reservoir and roof.	M30
Other structural concrete	M30
Lean concrete in foundation	M10

(B) Specifications of D.I. Pipe line work

SUPPLY OF DI 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.

The work consists of Providing, Laying & Jointing of 150 mm & 100 mm DI pipe line in approximately 2800.00 mtr length as per BOQ:

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 life 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 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.

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 be 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.

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 then 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 rest 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.

Anchorage - 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.

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.

(C) Specifications of Tube well Works

The work consists of Construction of 2 no Tube Well's and allied works as per BOQ.

SPECIFICATIONS FOR TUBE WELL WORK

Specification and scope of tube well work

The work of construction of tube wells is to be done in JDA jurisdiction and accordingly G schedule has been prepared.

The work of drilling of bores is suitable for 200mm diameter casing pipes and strainer pipes in all type of soils and rocks including fixing of casing and strainer pipes, Gravel Packing, Wrapping coir rope and development by compressor. The boring will be done as per relevant IS : 2800-1979, 4097-1970, 4270-1967, IS : 8110 amended up to date and any other relevant code applicable along with notifications.

Definition of Strata

Rocky area shall mean, area where the strata essentially comprises of the rock formation with over burden of less than 30 M and the aquifer is to be tapped in rock. The rock may be with or without fissures and faults, joints and bedding, Planes may have fractured and weathered zones, Rocks may be soft, medium or hard and may comprise of shales, sand stone, lime stone, dolomite, quartzite, basalts, granite, sciests, fillities slates, cheisses etc. and their intercalation, intrusive and conglomerates of these hut shall exclude clays, sand silts, pebbles cables, murrum and silt stones. The depth of drilling can be increased or decreased as per site conditions.

All alluvium area shall mean, areas where the strata comprises of loose, unconsolidated material like clay, silts, sands, gravel's, pebbles, cobbles 10 cms. Diameter and 2 M thickness and boulders (Upto beds of 1.0 meter thickness and less than 15 cms. Diameter).

Installation of well assembly

Aquifer study is to be done by the tenderer and accordingly he has to design the gravel pack, blind pipe, housing pipe and slotted pipe to be used shall be made of mild steel conforming to IS : 4270/1967 and approved class. The pipes may be seamless or electric resistance welded (ERW) with specified threads.

The slotted pipe to be used shall be lined slots (Vertical or Horizontal) with an opening area equal to as arrived at is design. The slots size should not exceed the thickness of slotted pipe. This slots size shall be specific depending on the result by actual mechanical analysis of the aquifer samples, which shall have to be done by the tenderer. The length of the slotted pipe/strainer shall normally be not less than 3 M. It shall actually be arrive at from the thickness of the aquifer encountered. It is not necessary to screen the whole part of the aquifer and such depth should be drilled so as to give at least 9000 LPH discharge for 200 mm diameter tube well.

The slotted pipe shall be attached to the housing pipe/blind pipe by means of strong M.S. Coupling/reducers as the case may be of quality ad design approved by Engineer-in- charge. The bottom plow shall be such as to suit the design of pipe assembly.

The design of well assembly should be got approved from the Engineer-in-Charges before lowering is started.

Painting

Before lowering, coat of approved corrosion resistance paint shall be given to all the mild steel parts of the well assembly.

Gravel Packing

Gravel to be used shall be confirming with IS : 2800 (Part-II) 1979(latest). These shall be hard, well rounded and of reasonable size free from dust and foreign material as well as flaky particles. The uniformity coefficient should not be more than 2 (uniformity coefficient = D_{60}/D_{10}).

The size of gravel shall finally depend on the mechanical analysis of the aquifer. The Gravel will have to be cleaned and washed before use. A tolerance of 10% shall be allotted in respect of grading of Gravel.

The Gravel filling of the annular space between the pipe assembly and the bore holes shall start from the bottom of bore holes and shall be done upto ground level. The gravel packing will have to be done as per IS : 2800.

Development of the tube well

The tube well may be developed as per clause 9.3 of IS : 2800 (Part I)-1991 (latest). The water coming out should be silt/sand free after completion of development. The tube shall be developed by using a compressor of minimum capacity 600 cfm and pressure 7.0 kg/cm². Final discharge should be totally sand free as per IS: 2800 (Part –I) 1991 (amended upto date). The payment shall be made for actual working hours for development subject to ceiling of maximum 24 hours for each tube well. The contractor has to bear the cost of development work needed beyond 24hrs, at his own cost.

Lowering of Riser pipe in Tube Well

Providing & lowering of G.I. Pipes, flange pipe including rubber washer and nuts of 8 mm dia complete in all respect I.S.1239 Marked. B Class 50/65 mm diameter shall be lowered in required length. The flange shall have required suitable size of holes and slot for cable.

(D) Specifications of Electrical and mechanical works

1. Submersed centrifugal pump, Suction & Delivery Piping Work:

The work includes following but not limited to:

Work of providing & installation of Submersed centrifugal pumps set coupled with suitable motors inside CWR includes design, manufacture and Testing at manufacturer's Works, packing for shipment, delivery to the Site, Supply, unloading, storing, complete erection, setting to work, Installing, pre-commissioning, trial runs, commissioning, rectification of defects during defect liability period of Three year from date of successful commissioning of the pumps and including defect liability period Details of Pump sets to be installed inside CWR is as mentioned below:

Type	Discharge(LPS)	Head(M)	NUMBER
Submersed centrifugal Pump Sets coupled with suitable motors	5.0	80	02

The work includes:

- a) Providing and fixing two nos 5.0 lps and 80 mtr, Submersed Centrifugal Pumps coupled with energy efficient Class I motors (1W+1SB) as per detailed specification and Drawing, including supply and fixing with suitable size soft seated Gate valves, Dual Plate NRV and dismantling joint on each pump set on delivery sides. MS/DI/CI Delivery pipe of suitable size & of suitable length to connect from Pump delivery side to Common Header etc.
- b) Casting of **2 foundation blocks** for installation of pumping sets in side CWR in cement concrete (M20) at a spacing of as required.
- c) Providing and fixing of suitable size MS/DI/CI delivery pipe of suitable length on delivery side and MS fabrication works as required to complete the job. Providing and fixing of valves, specials & fittings on suction side of pump as detailed below.
- d) Suitable size Delivery piping work shall be carried out along with suitable size enlarger, spring loaded check valve, one motor operated Butterfly valve, dismantling joint and a sectional Soft Seated valves, with necessary supports etc.
- e) The delivery Pipe from working & standby pumps set shall extend outside the CWR up to the valve & meter chamber which are one meter from the edge of plinth protection of CWR.
- f) **Size of common header is equal to 250 mm dia with 3 nos. outlet of 150 mm dia pipe line.**
- g) **During maintenance, the lowering of pump set from inside CWR, the required lifting arrangement with opening at CWR top should be done as per indicative drawing attached.**
- h) Construction of RCC Chamber with provisions of manhole, locking arrangement, and access ladders etc for housing Soft Seated valve & flow meters.
- i) Providing & installation of Soft Seated valve, dismantling joint, full bore electromagnetic flow meter with all specials, tees, bends of same size of common delivery of each pumping main,
- j) Providing and fixing of one Pressure Gauge on delivery of each submersed Centrifugal Pump Sets and two nos. on the main header pipe. MS Fabrication works as per requirement of site and direction of EIC.
- k) All pipes, special shall be suitably coated & lined as per requirement of technical specifications. All exposed pipe works shall be enamel painted and all buried pipe works shall be epoxy painted. All CI/DI/MS Piping and interconnection work as per requirement (i.e from ESR, CWR, Sump etc.) shall be carried out by the bidder and shall leave all the CI/DI Rising and Distribution outlet pipes outside upto one meter from the edge of plinth protection of **CWR** for further interconnection work as per the direction of EIC. No AC/ UPVC pipe line work shall be allowed for laying and interconnection work inside the head work premissies .
- l) Contractor shall supply & install a glycerin filled 150 mm diameter pressure gauges on each delivery manifold pipe near the bulk meter in all the pumps installed in side CWR.
- m) **A token compensation of Rs 1000 per day shall be leviable after notice issued by the epartment, In case it is observed that pumps are operating at efficiency lower than 80% of the approved efficiency at operating head**

The sizes of suction manifold, individual pump suction line, individual pump delivery line, combined delivery line, type of appurtenances & their sizes to be installed on suction & delivery side are of minimum size and contractor has to work out by designing the same as per the prescribed velocity range and can modify (no

decrease in size allowed) and submit the same for approval of EIC.

1.1 Motor Control Centers and Cabling work

- a) Bidder shall provide, install, test and commission Electrical Panels with required MCCB's, soft starter power control center cum motor control center suitable for two submersed centrifugal pump sets, cubical type floor mounted panel with all required accessories including cabling and related materials.
- b) Bidder shall provide suitable size HT and LT Cable 11/0.44 KV from DP to CT/PT panel to transformers to Soft Starter to each Motor Pump sets.
- c) Bidder shall provide two incoming air circuit breakers (with one working and one standby).

1.2 Earthings

Separate earthing for motors & MCC shall be designed by the contractor based on soil resistivity and shall be got approved by EIC.

All other items & Accessories

The work shall include all other items & accessories not specified above but required to complete the work of Mechanical & Electrical Equipment & accessories as part of price schedule on turnkey basis to achieve the intended objectives in safe, secure, reliable manner adopting best engineering practices.

1.3 Electric Connection

- a) Bidder shall carry out all the efforts to release Electric Power Connection HT/LT from JVVNL authorities.
- b) The amount of Demand note received from JVVNL for HT/LT new connection shall be paid by the department (JDA).

2.0 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.

2.1 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.

2.2 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)

2.3 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. 45⁰ and 90⁰ 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

2.4 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.

3.0 SPECIFICATIONS OF PVC SUBMERSED CENTRIFUGAL CABLE

1.5Sq mm to 50Sqmm (IS 94-1990) (Amended up to date)

1. SCOPE

These specification cover the supply of ISI marked three core flexible flat PVC insulated and PVC Sheathed cable conforming to IS 694:1990 (amended up to date) to be used with the Submersed centrifugal pumping sets inside and outside water for working voltage up to and including 1100 volts. These cables are to be used as cables suitable for outdoor use having bunched plain high conductivity copper conductor conforming to IS: 8130-1984 (amended up to date) and insulated and sheathed with PVC compound conforming to IS: 5831-1984 (amended up to date).

2. MATERIAL OF CONSTRUCTION

2.1 COPPER CONDUCTOR

The bunched conductor shall be composed of plain annealed high conductivity copper wires complying with Class 5 of Copper Conductor as per IS 8130-1984 (amended up to date). The nominal max. diameter of wires and corresponding minimum number of wires in a strand and maximum allowable resistance shall be as follows:

S.No.	Size of cable in sq. mm	Maximum dia. & corresponding wires in a Core		Max. resistance of conductors at 20 ^o centigrade (ohms/Km.)
		Maximum dia. in Mm	Minimum No. of wires in core	
1	1.5	0.26	29	13.30
2	2.5	0.26	47	7.98
3	4.0	0.31	53	4.95
4	6.0	0.31	80	3.30
5	10.0	0.41	76	1.91
6	16.0	0.41	122	1.21
7	25.0	0.41	190	0.78
8	35.0	0.41	266	0.554
9	50.0	0.41	379	0.386

NOTE: THE CROSS SECTIONAL AREA OF EVERY CORE SHOULD BE SAME AS PER PRESCRIBED SIZE OF CABLE (WHEN CALCULATED ON THE BASIS OF DIA OF EACH WIRE & NUMBER OF WIRES IN A CORE).

2.2 INSULATION & SHEATH

The insulation shall be of PVC compound conforming to the requirement type 'A' of IS 5831:1984 (Specification for PVC insulation and sheath of electric cable) (amended up to date). The sheath shall be of PVC compound conforming to the requirement of type ST-I of IS: 5831-1984 (amended up to date). Cores shall be identified by different coloring of PVC insulation. Colour of cores shall be identified by Red, Yellow and Blue and the colour of sheath shall be Black only.

Three cores shall be laid side by side. Average thickness of insulation shall not be less than the nominal value (t_i) mentioned below and the smallest of measured values of thickness of

insulation shall not fall below the nominal value t_i mentioned below by more than $(0.1 \text{ mm} + 0.1 t_i)$.

The sheath where applicable, shall be applied by extrusion. It shall be applied over the laid up cores. It shall be so applied that it fits closely on the laid up cores and it shall be possible to remove it without damage to the insulation. The thickness of sheath determined by taking the average of a number of measurements, shall not be less than the nominal value (t_s) specified below, and smallest of the measured values shall not fall below the nominal value(t_s) specified below by more than $0.2\text{mm} + 0.2 t_s$.

S.No.	Size of cable (mm ²)	Nominal thickness of insulation (mm) (t_i)	Nominal thickness of sheath t_s (mm)
1	1.5	0.6	0.9
2	2.5	0.7	1.0
3	4.0	0.8	1.1
4	6.0	0.8	1.1
5	10.0	1.0	1.2
6	16.0	1.0	1.3
7	25.0	1.2	1.5
8	35.0	1.2	1.6
9	50.0	1.4	1.7

3. TESTING

3.1 ACCEPTANCE TESTS

The following tests shall constitute acceptance tests:

S.No.	Test	Test method as per
(A)	Annealing Test (for copper)	Part No.1 of IS:10810
(B)	Conductor Resistance Test	Part No.5 of IS:10810
(C)	Test for thickness of insulation and sheath.	Part No. 6 of IS:10810
(D)	Tensile strength and elongation at break of insulation and sheath.	Part No. 7 of IS:10810
(E)	Insulation resistance test	Part No. 43 of IS:10810
(F)	High Voltage Test	Clause 16.3 of IS: 694 The cable shall withstand without breakdown an ac voltage of 3 kV (rms) or a dc voltage of 7.2 kV applied for a period of 5 minutes for each test connection.
(G)	Flammability test	Clause 16.5 of IS: 694 & Part No. 53 of IS: 10810 (The period of burning after removal of flame shall not exceed 60 seconds and the unaffected (uncharged) portion from the lower edge of the top clamp shall be at least 50mm).

3.2 ROUTINE TESTS

The following shall constitute routine tests;

- a) Conductor resistance test, and
- b) High voltage test.

4. TYPE TEST

The following tests shall constitute type tests:

S.No.	Type Test	For Requirements, Ref	Test Method
a)	Tests on Conductor		
	i) Annealing Test (for copper)	IS 8130: 1984	As per Part 1 of IS: 10810
	ii) Resistance Test	IS 8130: 1984	As per Part 5 of IS: 10810
b)	Test for overall dimensions and thickness of insulation and sheath	10, 13, 14 Table 1 to 5 of IS 8130: 1984	As per Part 6 of IS: 10810
c)	Physical tests for insulation and sheath		
	i) Tensile strength and elongation at break	IS 5831: 1984	As per Part 7 of IS: 10810
	ii) Loss of mass test	IS 5831: 1984	As per Part No.10 of IS:10810
	iii) Ageing in air oven	IS 5831: 1984	As per Part No.11 of IS:10810
	iv) Shrinkage test	IS 5831: 1984	As per Part No.12 of IS:10810
	v) Heat Shock test	IS 5831: 1984	As per Part No.14 of IS:10810
	vi) Hot deformation	IS 5831: 1984	As per Part No.15 of IS:10810
d)	Insulation resistance	IS 5831: 1984	As per Part No.43 of IS:10810
e)	High voltage test (Water immersion test)	16.2 of IS 694	As per Part No.45 of IS:10810 i) ac test The core(s) shall be carefully removed from a sample approximately 3 M long from the finished cable. They shall be so immersed in a water bath at 60 ± 3 degree C that their ends protrude at least 200mm above the water level. After 24 hours, a voltage of 3 kV (rms) shall be applied between conductors and water. This voltage shall be raised to 6 kV (rms) within 10 seconds and held constant at this value for 5 minutes. If the sample fails in this test, one more sample shall be subjected to this test, which should pass. ii) dc test

S.No.	Type Test	For Requirements, Ref	Test Method
			The cores which have passed the preliminary test mentioned above shall be subsequently tested with a dc voltage of 1.2 kV in the same water bath at the same temperature. The conductors shall be connected to the negative pole and water to the positive pole of dc supply by means of a copper electrode. The core shall withstand this dc voltage test for 240 hours without breakdown. The voltage shall be applied continuously, but if there are any unavoidable interruptions during the 4 hours period, that period shall be increased by the time of interruptions. The total of such interruptions shall not exceed 1 hour otherwise the test shall be started again.
f)	Flammability test	16.5 of IS 694	As per Part 53 of IS: 10810

g)	Cold bend test for diameter $\leq 12.5\text{mm}$	IS 5831:1984	As per Part No.20 of IS:10810
h)	Cold impact test for diameter more than 12.5mm	IS 5831:1984	As per Part No.21 of IS:10810
i)	Additional ageing test	16.6 of IS 694	<p><u>Ageing of Sample</u> A sample, 6 mtrs. long of the finished cable shall be suspended in a heating chamber and exposed to a temperature of 80 ± 2 degree C during a period of 168 hours. Immediately after this, the sample shall be placed in a bath of boiling water for a period of 8 hours and in a water bath at 25°C for 16 hours. This procedure shall be repeated on 5 successive days. The ends of the sample shall protrude at least 200mm above the water level.</p> <p><u>Testing and Evaluation</u> A sample, 5 mtrs. long, taken from the conditioned sample shall be tested for high voltage test in accordance with clause 16.3 of IS 694:1990. The test has however, to be carried out on the finished cable and in a water bath at 60 ± 3 degree C. The remaining conditioned sample shall be submITBed to cold bend and cold impact test as appropriate.</p>

5. The inspection including stage inspection and testing of the material shall be got done by the inspecting agency at the works of manufacturer. All acceptance test mentioned above shall be conducted by inspecting agency.

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	Leaded tin bronze	318	LTB 2

	facing ring			
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 / cm² (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 conforming to IS 210 GR FG 200
3	Low Pressure Cover	Cast Iron conforming to IS 210 GR FG 200
4	Cowl	Cast iron conforming to IS 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/cm² 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, Submersed centrifugal pump sets for CWR and pump sets for tubewell with cable.

Executive Engineer (PHE-II)
JDA, Jaipur

(E) Scope of work and Special Condition Of Contract for Operation & Maintenance Of Newly developed Water Supply assets under this contract & existing assets for 36 Months.

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 to CWR's and further pump water from CWR to new ESR & existing GLR/ESR at Khole ke hanuman ji temple campus. Maintain D.I./G.I. Pipe lines, Pumping machinery of Tube wells and centrifugal pump inside CWR, Electric panels, valves, flow meters and all the other assets created under this contract.
- 2.1.2 Control and Operate the Pumping machinery.
- 2.1.3 Routine Maintenance of DI/GI pipe line, 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 than 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 ESR, CWR and Guard room, 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 Guard room.
- 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-III) 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, ESR, CWR, Pump House, pipe lines shall be framed and displayed at appropriate place.
- 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.

4. Commencement And Duration Of O & M Contract :

- 4.1.1 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 Thirty Six (36) months. Should JDA wish to propose an extension to the O & M Period, after completion of initial 36 months O & M contract a prior notice of its intention to exercise such option shall be given to the contractor.

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 assessment)

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 per pump house.
Watch man cum Helper	8 th Pass and minimum 1 year Experienced	One person per shift per pump house.

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.

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, organisation 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, maintenance and repairing as and when required of Submersed centrifugal pumps at TW's to provide adequate water to meet the daily demand.
- Operation, maintenance and repairing as and when required of the Submersed centrifugal pumps inside CWR to pump water from CWR to ESR as per the demand of water.
- Weekly, fortnightly, monthly and yearly maintenance and repair of all the electrical, mechanical instrumentation and civil structures created under this contract. Cost of repair and consumables shall be born by the contractor.

- **In case of failure of system, contractor has to supply drinking water through tanker for emergency to maintain the supply in temple campus. The payment will be made as per prevailing rates in PHED/JDA.**
- **If on the particular day, on the occasion of fair/ Mela for religious purpose in temple campus, it is responsibility of contractor to supply extra drinking water through tanker. The payment will be made as per prevailing rates in PHED/JDA.**

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, chemicals and consumable materials excluding electrical power charges, 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 CWR
- 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 water supply

A token penalty of Rs 100 per day would be levied on account of each day of poor water supply in the khole ke hanuman ji temple campus. Decision of Engineer In Charge shall be final in this regard.

Signature of Contractor

**Executive Engineer (PHE-II)
JDA, Jaipur**

Section A-5

Annexure

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 for procurement of in response to their Notice inviting Bids No.Dated 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 and 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 :
Place :

Signature of bidder

Name :
Designation :
Address :

Annexure C:**Grievance Redressed during Procurement Process**

The designation and address of the **First Appellate Authority is Commissioner, JDA, Jaipur.**

The designation and address of the **Second Appellate Authority is Executive Committee (E.C.), JDA, Jaipur.**

(1) Filing an appeal

- a. 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:
- b. 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:
- c. 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 Endeavour 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

- (f) 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.
- (g) 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.
- (h) 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:

- (i) 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;
- (ii) If 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
- (iii) 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-II)
JDA, Jaipur**

Annexure E:

JAIPUR DEVELOPMENT AUTHORITY, JAIPUR

No. JDA/Ex.En. (TA to Dir. Engg.-I)/2016/D-29

Dated: 11/3/2016

Office Order

Subject: - DLP period for various type of works.

As per the decision taken in the 201st meeting of Executive Committee held on 23.02.2016 w.r.t. agenda no. 201:22, DLP period of various natures of works amounting more than Rs. 25 lakhs has been revised as per following time periods based on nature of works.

This order will supersede the earlier orders issued in this regard i.e. order No. JDA/TA to D(E)/2010-11/D-317 dated 28.04.2011 including Special Condition No. 2.2.2 & 2.2.3 of Annexure-I related to SD refund & forfeiture (other Special Condition of annexure-I of this order will remain valid) and order No. JDA/Ex.En.(Pr-5 & TA)/2013/D-43 dated 27.02.2013 and also all pertaining orders, in contract agreements or in PWF&AR having DLP period different than what is being enforced through this present order for concerned type of work.

Table-I

S.No.	Type of Work	Existing DLP Period	As per approved in E.C. held on 23.02.2016
1.	Bridge Work	3 years	5 Years
2.	CD Work	3 years	5 Years
3.	CC Road, PQC Work	3 years	5 Years
4.	CC tiles/Kerbs/medians	3 years	5 years
5.	Drains	6 months	3 years
6.	Roads		
	(i) Two layer WBM/CSB	3 years	6 Months or one full rainy season which ever is later
	(ii) For Renewal/Strengthening		
	(a) BT upto 30 mm thickness	3 years	1 year
	(b) BT above 30 mm to upto 40 mm	3 years	2 years
	(c) BT above 40 mm to upto 90 mm	3 years	3 years
	(d) ET Above 90 mm	3 years	5 years
	(iii) New Roads		
	(a) BT upto 90 mm	3 years	3 years
	(b) BT more than 90 mm	3 years	5 years
7.	Compound wall	6 months	3 years
8.	Buildings work		
	(i) Work pertaining to Sanitary works electrical works, Joinery works and painting works.	6 months	2 years
	(ii) Work pertaining to Building structure and other civil works.	6 months	5 years
9.	Electric work except maintenance	6 months	3 years
10.	Sewer/Water supply all including STP and water supply related work except maintenance works.	6 months	3 years ^{4.7}

The release of SD amount shall be as per following table:-

Table-II

S. No.	Released SD	1 st year	2 nd year	3 rd year	5 th year
	DLP period				
1.	Upto 1 year	100%	40%	20% ✓	10%
2.	Upto 2 year		60%	20% ✓	10%
3.	Upto 3 year			60% ✓	10%
4.	Upto 4 year				20%
5.	Upto 5 year				50%

Various conditions for managing DLP are as under:-

- (i) At the time of completion of work, final component shall be worked out for each individual item like BT/CC/tiles/drains etc (as per different categories in Table I), DLP shall be operative based upon type of individual item ex- CC-5 years, BT- 1/2/3/5 years, Drain- 3 years etc.
- (ii) Similarly for all new works, these components should be calculated at the time of TS itself, which should be made part of BID document.
- (iii) If any work, amount is less than Rs. 25 lakhs but later on due to extra/excess work, if amount of final work crosses more than Rs. 25 lakhs, DLP shall be operative as per rule for each individual item.
- (iv) Similarly if any work is more than Rs. 25 lakhs but after finalization amount of work is less than Rs. 25 lakhs, DLP should be operative for six months or rainy season whichever is late.
- (v) During DLP period if contractor fails to repair any work even after issue of 7 days written notice, same work shall be got executed by respective Executive Engineer at the contractor's risk and cost. This process shall be applicable throughout the DLP period. After completion of DLP period in such works contractor should be debarred and blacklisted from JDA for three years as per RIPP Rule 2012 and 2013 where he defaults twice in a single agreement or in two different works.
- (vi) Quarterly inspection as per rules shall be carried out and DLP registers shall be maintained by respective Executive Engineers to monitor the DLP repairs.
- (vii) Special and regular inspection shall also be carried out as per order no. JDA/Ex.En & TA to DE-I/2014-15/D-223 dated 12.03.2015 and order no. SE (PMGSY) CIRCULAR 2006/D-115 dated 04.05.2006 Point no. 3.
- (viii) In case JDA feels to take up work on any existing DLP road due to any reason, following procedure should be adopted:
 - (a) At the time of withdrawal total liability of repairs as per DLP conditions to be carried out and contractor shall be asked to complete the same. After completion of assessed repairs DLP period shall be released after deduction amt. as per table III.

Table-III

% Recovery on Withdrawal of DLP, of work order DLP period	1 year	2 year	3 year	4 year	5 year
1 year	1.12	-	-	-	-
2 year	2.55	1.43	-	-	-
3 year	4.38	3.26	1.83	-	-
5 year	9	7.88	6.45	4.62	2.47

Note:- Calculation is to be done on quarterly basis.

- (b) In case Contractor fails to carry out these repairs, same shall be carried out at his risk and cost. If the total amt. of such repairs works out to be more than total retained amt. of SD, same shall be recovered from other works and as per PDR rules. The amount as per Table III is also to be deducted in addition to this amount.
- (ix) Based upon type of work, DLP conditions for works to be carried out during DLP period with their frequency of respective type of work shall be prepared by respective SE's after approval of these periods.

This order shall come in force with immediate effect and will be applicable on all new works whose NIB is to be called.

Sd/-
Director (Engineering-I)
JDA, Jaipur

Copy to following for information and necessary action:-

1. PS to IDC, JDA, Jaipur.
2. PS to Secretary, JDA, Jaipur.
3. Director Engineer I/II, JDA, Jaipur.
4. Director (Fin.), JDA, Jaipur.
5. C.F, JDA, Jaipur.
6. All Add. Chief Engineers, JDA, Jaipur.
7. All Superintendent Engineers, JDA, Jaipur.
8. OSD (RM), JDA, Jaipur.
9. Additional Director (REV.&DP.)
10. CAO (P&A) JDA, Jaipur.
11. Sr. Horticulturist, JDA, Jaipur
12. All Executive Engineer, JDA, Jaipur.
13. DD (E&B) JDA, Jaipur.
14. All AOs, JDA, Jaipur.
15. All AAOs, JDA, Jaipur.
16. System Analyst
17. All Contractors' Association, JDA, Jaipur.
18. Guard file

Sd/-
S.E. & TA to Dir. (Engg-I)
JDA, Jaipur

Annexure F:**Jaipur Development Authority, Jaipur****Office Order**

No. : JDA/IT(1074501)/E-Services/2015-16/D-399

Dated: 4-10-2016

Subject: Payment mechanism for participating in tender.

Jaipur Development Authority has decided to receive Earnest Money Deposit (EMD) (Bid Security), Tender Fee and RISL processing fee online through JDA Portal. The bid security options available in tender for participants are as mentioned below:

A. Payment Options:**Option-1: Bank Guarantee (BG) against EMD / Bid Security**

Bidder may opt Bank Guarantee (BG) against EMD (Bid Security), for which bidder requires to prepare BG before applying in the tender. The details of BG requires to be fed on JDA portal before paying balance amount (Tender Fee + RISL Processing Fee). This amount will be paid through **Payment Gateway only**, option to make balance payment through EFT (RTGS/NEFT) will not be available.

If bidder does not opt for BG against EMD, options of making complete payment through Payment Gateway or through EFT (NEFT / RTGS) will be available.

Option-2: Electronic Fund Transfer (EFT: NEFT/RTGS)

If the bidder selects payment mode as EFT (NEFT/RTGS), "Paying Slip for EFT (NEFT/RTGS)" will be generated by the system for the complete amount. The payment can be made from **any Bank any Branch** using this Paying Slip through NEFT/RTGS (Claim against payment made through EFT in any other JDA bank account will not be acceptable and bidder stands disqualified from participation in the bid applied for). After successful transaction through NEFT/RTGS, as per the standard procedures it may take 4 to 24 hours in process of confirmation of EFT through Auto-Process depending on the time of EFT done. Therefore, option to make payment through EFT (NEFT/RTGS) will be available till 2 days prior to closing date of bid participation.

Option-3: Payment Gateway (Aggregator)

The facility to make payment through Debit Card, Credit Card, Net banking etc., will be available. User can use this facility from **anywhere any time** till the closing date & time of bid participation.

B. Bid Participation Receipt

After confirming payment, the bidder will get Bid Participation Receipt on the basis of which user will get the payment details along with other details for bidding on e-Procurement portal of GOR.

- In case of BG as the remaining payment will be done through Payment Gateway, on successful transaction the "Bid Participation Receipt" will be generated on real time basis.

- In case complete payment is done through Payment Gateway, on successful transaction the “**Bid Participation Receipt**” will be generated on real time basis.
- In case complete payment is done through EFT (NEFT/RTGS), on confirmation of payment from ICICI Bank (Auto Process) “**Bid Participation Receipt**” will be available on Login of Bidder on JDA portal.

This payment mechanism will come into force w.e.f 15/10/2016. Thereafter, old payment mechanism related to NEFT/ RTGS in which the bidder makes direct payment without “**Paying Slip for EFT (NEFT/RTGS)**” in JDA’s bank account will be discontinued.

All procuring entities are hereby directed to clearly mention this procedure in NIB document.


(Pawan Arora)
 Secretary

Copy for information and further necessary action to:

1. P.S. to JDC, JDA, Jaipur.
2. P.S. to Secretary, Secretary, JDA, Jaipur.
3. Director (Law / Finance / Town Planning / Engineering-I / Engineering-II), JDA, Jaipur.
4. All Additional Chief Engineer _____, JDA, Jaipur
5. DC (Administration)/DC(Store)/DC (Vehicle), JDA, Jaipur
6. System Analyst, JDA, Jaipur
7. Analyst-cum-Programmer, JDA to ensure integration of software w.e.f 01/10/2016.
8. All Xen _____, JDA, Jaipur.
9. Officer-in-charge, SPPP Portal, Jaipur.
10. OSD (Public Relation) / PRO, JDA, Jaipur.


(Brijesh Kishore Sharma)
 OSD (RM)

SCHEDULE 'H'SPECIAL CONDITIONS

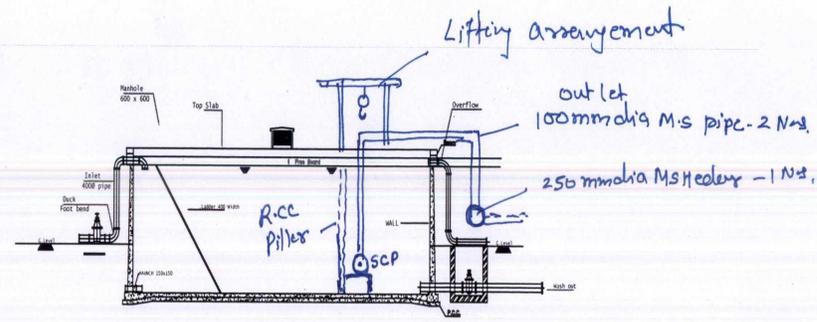
1. If there is any typographical error or otherwise in the 'G' Schedule the rates given in the relevant BESR on which schedule 'G' has been prepared, shall prevail.
2. The contractor shall follow the contractor labour regulation and abolition Act 1970 & Rule 1971.
3. The JDA shall have right to cause 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.
4. The contractor shall not work after the sunset and before sunrise without specific permission of the authority Engineer.
5. 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 security deposit 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 effect such recoveries under P.D.R. Act.
6. The rate quoted by the contractor shall remain valid for a period of 120 days from the date of opening of the tenders.
7. 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.
8. No conditions are to be added by the contractor and conditional tender is liable to be rejected.
9. 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.
10. If any Bid withdraws his Bid prior to expiry of said validity period given at S.No. 6 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 and fails to furnish performance guarantee 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 Bid does not execute the agreement or start the work or dose not complete the work and the work has to be put to re-bidding, he shall stand debarred from participating in bidding in JDA for Six Months in addition to forfeiture of Earnest Money / Security Deposit /Performance Guarantee and other action under agreement
11. 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. Bids with incomplete or incorrect information are liable to be rejected.
12. 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-Incharge in writing. Failing which, such material shall be removed by the Engineer-Incharge at risk and the contractor after expiry of 3 days period.
13. 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.
14. The rates provided in Bid documents are inclusive of all Taxes, royalty.
15. 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.
16. Undersigned has full right to reject any or all Bids without given any reasons.
17. Mortar of Masonry work and lean concrete will be permitted mixer with hopper.
18. 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."
19. The Bidder are required to submit copy of their enlistment as contractor.
20. Conditions of RPWA-100 will be mandatory & acceptable to the contractor.
21. Any Bid received with unattested cutting/overwriting in rates shall be rejected and such bidder will be debarred from Bidding for three months in JDA.
22. 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 shall be applicable.

Signature of Contractor
with full address & Mobile No.

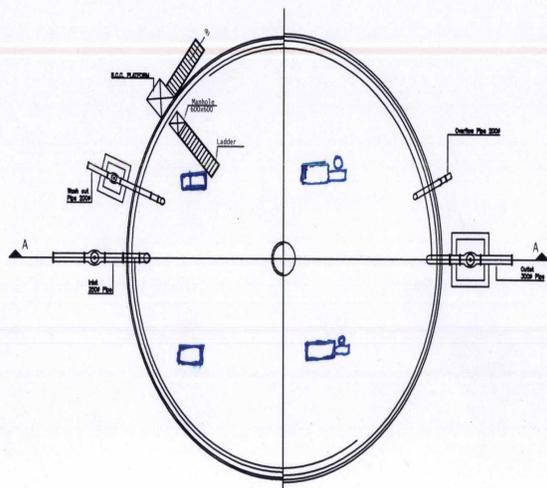
Executive Engineer (PHE-II)
JDA, Jaipur

Section A-6 Drawings

INDICATIVE DRAWING OF CWR FOR TENDER PURPOSE.



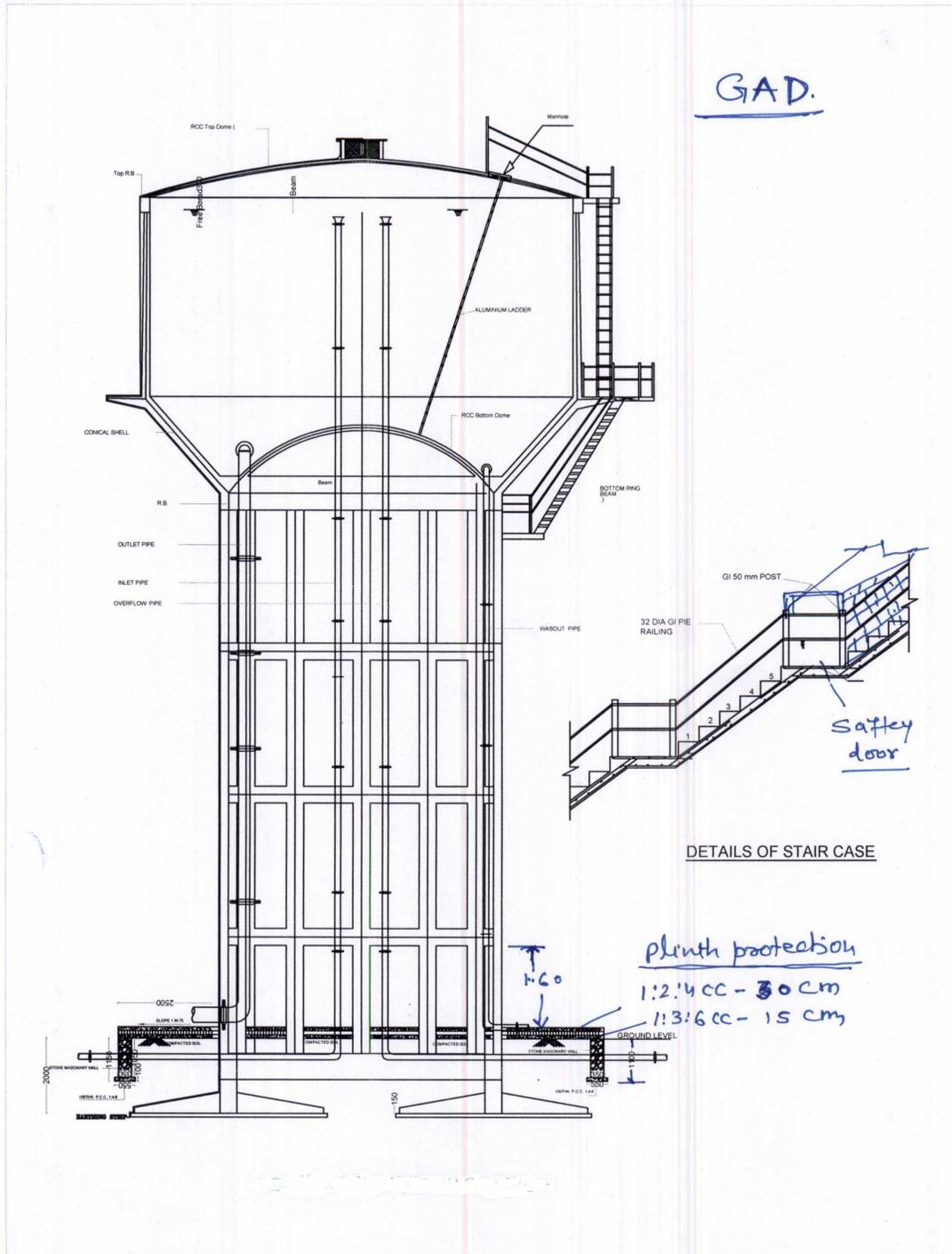
Section AA



G.A.D.

Scale 1:150

INDICATIVE DRAWING OF ESR FOR TENDER PURPOSE



JAIPUR DEVELOPMENT AUTHORITY

Executive Engineer (PHE-II)

G-Schedule

Name of work :- Construction of 2 Nos TW's ,ESR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II. Jaipur

Part A pipe line work				JDA Approved Rates	
S.No.	Particulars	Qty.	Unit	Rate	Amount
1.00	Providing, fabricating and installing MS specials including rolling, cutting, welding in different shape and size. (D-547 dt. 20.12.2011)	2000.00	Kg.	80.00	160000.00
2.00	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)	2.00	Each	2512.00	5024.00
3.00	Labour charges for inter connection of proposed pipe line with existing, pipe line by digging of Pit, cutting of pipe, without bailing out of water and satisfactory testing of inter connection and site clearance. (D-547 dt. 20.12.2011)	4.00	Each	890.00	3560.00
4.00	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 specifications.				
4.10	80 mm	10.00	Each	225.00	2250.00
4.20	100 mm	10.00	Each	274.00	2740.00
4.30	150 mm	20.00	Each	458.00	9160.00
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 gasket and nut bolts complete as required for following sizes. (D-547 dt. 20.12.2011)				
	50 mm Double air valve	4.00	Each	3730.00	14920.00
6.00	Supply of cast iron specials (class-10) as per IS : 5531-1988) specification as required.				
	80 mm to 150 mm	500.00	Kg.	58.00	29000.00
7.00	P & F G.I. Pipes (External Work) with G.I. fittings excluding union (IS : 1239 Mark) including trenching & refilling earth etc.				

S.No.	Particulars	Qty.	Unit	Rate	Amount
7.10	80mm dia nominal bore B Class	500.00	R.Mtr.	482.40	241200.00
8.00	Providing laying & Jointing of ISI mark centrifugally cast (Spun) ductile iron pressure pipe for water with socket and spigot end and Tyton joint conforming 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)				
8.10	100 mm	400	R.Mtr.	1397.00	558800.00
8.20	150 mm	2400	R.Mtr.	2013.00	4831200.00
9.00	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)	400.00	Kg.	90.00	36000.00
Total Part-"A" Rs.					5893854.00

Executive Engineer (PHE-II)
JDA, Jaipur

I/We Quote as % Above/ Below the schedule " G " (Part-A)

(In Words.....)'

Signature of Contractor
With full Address & Mobile No.

JAIPUR DEVELOPMENT AUTHORITY

Executive Engineer (PHE-II)

Name of work :- Construction of 2 Nos TW's ,ESR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II Jaipur

G-Schedule

Part-"B" construction of ESR & CWR etc.

Non BESR item

S.no.	Particulars	Qty	unit	Rate Quoted by bidder	Amount
1.00	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, capacitor control panels, housing power factor control system panel/capacitors (APFC Panel), other accessories including all internal cabling and cable/bus-bar from switchyard, up to panels, soft starters, for each pump-set, complete in all respect as per the scope of work & specifications	10.00	KWh		
2.00	Supply & Installation of submersed centrifugal pump set coupled with suitable motors as per required head & discharged at CWR khole ke Hanuman ji campus pumps of 05 lps capacity at 80 MWC with accessories (05 KW)	2.00	Each		
3.00	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 optimize 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 of valves (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				
3.10	100 MM DIA	8.00	Each		
3.20	150 MM DIA	4.00	Each		
4.00	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/cm ²	4.00	Each		

S.no.	Particulars	Qty	unit	Rate Quoted by bidder	Amount
5.00	Providing, installation, testing and commissioning of DI Sluice valves / gate without 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, Basic series F4/BS 5163)				
5.10	100 MM DIA	8.00	Each		
5.20	150 MM DIA	4.00	Each		
6.00	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.				
6.10	150 MM DIA	1.00	Each		
7.00	Design & Construction of Over Head Service reservoirs of minimum 20 mt staging, as per specifications including fixing inlet; outlet; washout & overflow pipes, supply and installation of valves on inlet; outlet; washout & overflow pipes, puddle collars, duck foot bends, pipe interconnecting the incoming & out going mains with all specials; float valve with auxiliary valve, water indicator, plinth protection works, finishing, testing and commissioning complete as per the specifications and scope of work.(200 KL)	200.00	kilo liter		
8.00	Design & Construction of Clear Water Reservoir of required capacity at khole ke Hanuman ji campus, including its piping, fitting, etc complete in all respect as per the scope of work & specifications given in the tender Documents for the following sizes (300 KL)	300.00	Kilo liter		
		Total Part-"B" Rs.			

Executive Engineer (PHE-II)
JDA, Jaipur

Total (In Words.....)'

Signature of Contractor
With full Address & Mobile No.

JAIPUR DEVELOPMENT AUTHORITY

Executive Engineer (PHE-II)

Name of work :- Construction of 2 Nos TW's ,ESR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II Jaipur

G-Schedule

Part-"C" Construction of Tube well

Based / JDA PWD BESR Building 2016/JDA PWD ELE

2016

S No.	Particulars	Quantity	Unit	Rate	Amount
1.00	Supply of ERW M.S. Black casing pipe ISI marked (IS : 4270/1992) of grade Fe 410 of size at site of work.				
1.10	200 mm dia nominal bore	124.00	RM	1413.00	175212.00
2.00	Supply of strainer pipes made of ERW M.S. Black pipe ISI marked of following sizes at the site of work including required size of slotting as per IS : 8110-1985:200mm nominal bore. 200 mm dia nominal bore.	36.00	RM	1638.00	58968.00
3.00	Development of Tube well as per IS specifications using suitable compressor to give sans free water for required yield of the gravel packed Tube Well	20.00	Hr.	445.50	8910.00
4.00	Providing & lowering of G.I. Pipes, flange pipe including rubber washer and nuts of 8 mm dia complete in all respect I.S.1239Marked. B Class 50 mm dia	280.00	RM	369.00	103320.00
5.00	Providing fixing and installation of 80 mm dia Woltman type water meter with material (Flanges, Insertion sheet, Nut bolt etc.) & fabrication supply and fixing of meter box made of 10 SWG MS sheet suitable for 80 mm water meter (As per drawing including all accessories.) 50 mm to 80 mm dia	2.00	Each	22997.00	45994.00
6.00	Providing and installing of approved make spring loaded dual plate check valve of following dia. Including all taxes , inspection charges, loading and unloading, stacking etc., including cost of all labour, jointing material with nut bolts, rubber mats etc., and giving satisfactory hydraulic field testing, complete as per specifications	2.00	Each	1571.00	3142.00
7.00	Supply and fixing & testing of feeder type penal board suitable for upto 15 HP electric motor having star delta/ DOL starter (L&T /BCH), MCB 32 amp.(havals /L&T), capacitor 3 KVR (L&T/Havals), Single phase preventer(L&T/havals),indicating lamp RYB , Amp. Meter (0 to 30Amp) , Volt Meter with selector switch (0 to 500 V) size 100 mm, kit Kat fuse unit 100 amp, backlight sheet for fixing of 3 phase electric meter of JVVNL electric feeder penal approved as per design and specification mounted on angle iron frame and fixed plain on plain cement concrete plate form, size of feeder penal box 900X 450X1200mm				
7.10	Star Delta above 5 HP to 15 HP	2.00	Each	24915.00	49830.00

S No.	Particulars	Quantity	Unit	Rate	Amount
8.00	P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with aluminum conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, IIInd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size.				
8.10	10.0 Sq.mm 4 Core	80.00	RM	120.80	9664.00
9.00	P/Laying ISI marked P.V.C. insulated Submersed centrifugal cable confirming to IS:694 with flexible copper conductor including making connection etc. as required.				
9.10	4.0 Sq.mm 3 core flat / Round	300.00	RM	102.40	30720.00
10.00	SITC of radial / mixed flow Submersed centrifugal motor pump sets ISI marked (IS:8034-1989) of approved make with required accessories including making connection suitable for T.W./ D.C.B./ Open well. The job includes lowering of riser pipe, G.I./ H.D.P.E. pipe with rope, cables, installation of complete fitting and accessories, jointing of electrical cables up to switch board. All labour for testing of Submersed centrifugal pumps set and supply of water to water mains, complete in all respect. 150 mm diameter Submersed centrifugal pump shall have following HP Rating, phase, Head, minimum Discharge respectively. (Group-I)				
10.10	7.5 HP, 3-Ø, (65-135)Mtr, (240-115)LPM	2.00	Each	21831.20	43662.40
11.00	Construction of tube well from ground levels and up to 100 meter depth and above to accommodate housing and assembly pipe of following sizes to all types of alluvium strata by percussion/rotary drilling method and with gravel as per IS:4097-1967 and packing as per IS:2800 (Part-I & II) 1979 as amended up to date (the work includes the cost of gravel & its primary packing and packing during development, lowering of housing & strainer assembly pipes, with supply and wrapping of coir rope, wherever necessary, for arresting fine sand particles. The work will not include cost of housing pipe and strainer pipe assembly and development work, but work would be completed after-obtaining sand free water.				
11.10	200 mm dia nominal bore	160.00	RM	1089.00	174240.00

S No.	Particulars	Quantity	Unit	Rate	Amount
12.00	Construction of tube well up-to 100m depth and above in all type of rocks by DTH system and over burden to accommodate casing pipe of 150mm size in all types of soils and over-burden including lowering of casing pipes, but excluding cost of casing pipes as				
12.10	200 mm dia nominal bore	240.00	RM	742.50	178200.00
		Sub Total Part C Rs.			881862.40

Executive Engineer (PHE-II)
JDA, Jaipur

I/We Quote as % Above/ Below the schedule " G " (Part-C)

(In Words.....)'

Signature of Contractor
With full Address & Mobile No.

JAIPUR DEVELOPMENT AUTHORITY

Executive Engineer (PHE-II)

Name of work :- Construction of 2 Nos TW's ,ESR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II Jaipur

G-Schedule

Part-"D" Construction of Guard Room

Based / JDA PWD BESR Building 2016/JDA PWD ELE

2016

S.No	Particulars	Quantity	Unit	Rate	Amount
1.00	Providing and laying cement concrete including curing, compaction etc. complete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, leveling course etc up to floor five level excluding the cost of centering and shuttering.				
1.10	M10 grade Nominal Mix 1: 3: 6 (1 cement: 3 coarse sand: 6 graded stone aggregate 40mm nominal size).	7.512	cum	2620.80	19687.45
2.00	Providing and laying in position specified grade of cement concrete for RCC structural elements upto floor five level including curing, compaction, finishing with rendering in cement sand mortar 1:3 (1 cement: 3 coarse sand) and making good the joints and cost of plastizers (if required) excluding the cost of centering, shuttering and reinforcement for Walls (any thickness) including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. M20 grade Nominal Mix / Design Mix	19.711	cum	3673.80	72414.27
3.00	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.	80.000	sqm	99.00	7920.00
4.00	Centering & shuttering with plywood or steel sheets including strutting, propping bracing both ways with steel props and removal of formwork for upto floor five level for :				
4.10	Suspended floors, roofs, landings, staircases, balconies, girders, cantilevers, bands, coping bed plates, anchor blocks, sills, chhajjas, lintel, beam, plinth beam etc.	40.000	sqm	212.40	8496.00
4.20	Columns, pillars, posts and struts etc.	20.000	sqm	234.00	4680.00

S.No	Particulars	Quantity	Unit	Rate	Amount
5.00	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.				
5.10	Thermo-mechanically Treated bars (Conforming of relevent IS code)	1600.000	kg	62.10	99360.00
6.00	Random Rubble stone masonry for with hard stone in foundation and plinth in Cement Sand mortar above 30 CM thick wall in:				
6.10	Cement Mortar 1:6 (1-Cement : 6-Sand).	25.000	cum	1770.30	44257.50
7.00	Brick work with F.P.S. bricks of class designation 75 in superstructure above plinth level upto floor V level in all shapes and sizes in :				
7.10	Cement mortar 1 : 6 (1 cement : 6 coarse sand)	17.917	cum	2949.30	52842.61
8.00	Brick work in partition in super structure upto five storey 7cm. thick (brick on edges) using bricks of class designation 75 in :				
8.10	Cement mortar 1 : 4 (1 cement : 4 coarse sand)	27.350	cum	247.50	6769.13
9.00	Plaster on new surface on wall in cement sand mortar 1:3 including racking of joints etc. complete fine finish :				
9.10	20mm thick	300.000	sqm	121.50	36450.00
10.00	Kota stone slab flooring 25 mm thick over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand)				
10.10	For area of each slab from 901 to 2000 Sq.Cm :	30.000	sqm	593.10	17793.00
11.00	Random rubble dry stone Kharanja under floor.	11.925	cum	581.40	6933.20
12.00	Providing and fixing T-iron frames for doors, windows and ventilators of mild steel Tee-sections, joints mitred and welded with 15x3 mm lugs 10cm long embedded in cement concrete blocks 15x10x10 cm of 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) or with wooden plugs and screws or rawl plugs and screws or with fixing clips or with bolts and nuts as require including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.	60.000	kg	63.90	3834.00

S.No	Particulars	Quantity	Unit	Rate	Amount
13.00	Providing and fixing steel gate, grating , and grills made of angles, tees, square bars, flats, or black pipe with holdfast and fittings complete as per design and drawing including cutting welding and fabrication with priming coat of red oxide	50.000	kg	66.60	3330.00
14.00	Providing and fixing steel glazed doors windows and ventilator shutters of standard rolled steel section (IS 1038-1983) joints mitred and welded with steel lugs 13x3mm, 10cm. long embedded in cement concrete block 15x10x10cm. of 1:3:6 (1cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) or with wooden plugs and screws or rawl plugs and screws with fixing clips or with bolts and nuts as required including providing and fixing of plain glass panes 4mm thick with cooper glazing clips and special metal sash putty of approved make or metal beading with screws complete including priming coat of approval steel primer, excluding the cost of metal beading and other fitting except necessary hinges of pivots steel handles peg stay etc. as required :				
14.10	Partly fixed and partly open able [fixed area not to exceed 33%]	5.040	sqm	2159.10	10881.86
15.00	Providing and fixing Square bars or other flat welded to window, ventilators etc.	40.000	kg	55.80	2232.00
16.00	Providing and fixing M.S. sheet 1mm thick single leaf door shutter in angle iron frame 35x35x5mm suitably diagonally braced with 25x3mm flat iron above and below lock rail of size 50x5mm beading extra including all fittings, as per direction of Eng. in charge but excluding cost of chowkhats: including two coats of anit-corrosive red oxide primer paint	8.820	sqm	1875.60	16542.79
16.10	Extra for double leaf shutters.	2.520	sqm	375.12	945.30
17.00	Distempering with dry distemper of approved brand and shade (two or more coats) and of required shade on new work, over and including, priming coat of whitening to give an even shade including all scaffolding.	130.000	sqm	33.30	4329.00
18.00	Finishing wall with water proofing cement paint of approved brand and manufacture and or required shade to give an even shade including all scaffolding:				
18.10	New work (Two or more coats applied @ 3.84 kg/10 sqm).	125.000	sqm	33.30	4162.50

S.No	Particulars	Quantity	Unit	Rate	Amount
19.00	Providing and fixing 1st quality standard white, grey, ivory, fume red brown, light green, light blue and other light shades glazed tiles confirming to IS : 13753 & IS :15622 of size 200mm x 300mm in walls, floors, steps, pillars etc. laid on a bed of neat cement slurry finished with flush pointing in the white cement mixed with pigment to match the shade of the tile complete (excluding the cost of cement plaster on walls and pillar).	18.000	sqm	462.60	8326.80
20.00	Providing and fixing 1st quality MAT finished ceramic tile size 300x300mm confirming to IS : 13755 and IS : 15622 colour such as white, grey, ivory, fume red brown, light green, light blue and other light shades in floors, steps, pillars etc. laid on a bed of neat cement slurry finished with flush pointing in the white cement mixed with pigment to match the shade of the tile complete (including the cost of cement mortar bed 1:4).	8.750	sqm	506.70	4433.63
21.00	P & F <i>Indian type</i> white glazed vitreous china 1 st quality W.C. orissa pan (IS :2556 Mark) with 100 mm vitreous china P or S trap including cutting and making good the wall and floor:				
21.10	Size 530x410mm.	1.000	Each	1475.10	1475.10
22.00	P & F <i>WVC wash basin</i> (1 st quality, I.S. : 2556 Mark) of approved make with C.I. brackets duly painted, 1 No. 15 mm C.P. Pillar cock (IS : 8934 Mark) & 32 mm C.P. brass waste coupling of approved make, 25 mm G.I. waste pipe complete including cutting & making good the wall.:				
22.10	Size 450 mm x 300 mm	1.000	Each	1332.90	1332.90
23.00	Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked MMS (IS:9537 P - III) PVC conduit & it's accessories, round tiles,18 SWG M.S. box with earth terminal, screwless cage connectors for neutral looping in switch board & false ceiling point, 6 A switch, 3.0 mm thick ISI marked phenolic laminated sheet, zinc plated / brass screws, cup washers, making connections, testing etc. as required.				
23.10	Short point (up to 3 mtr.)	3.000	P. Point	172.00	516.00

S.No	Particulars	Quantity	Unit	Rate	Amount
23.20	Medium point (up to 6 mtr.)	3.000	P. Point	270.40	811.20
23.30	Long point (up to 10 mtr..)	4.000	P. Point	379.20	1516.80
24.00	Wiring of 3 pin 5 amp. Light plug point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade(IS:694) of approved make in surface / recessed ISI marked MMS (IS:9537 P - III) PVC conduit & it's accessories, 18 SWG 175 mm x 100 mm x 60 mm M.S. box with earth terminal, screwless cage connectors for neutral looping in switch board , 6 A switch, 6 A socket, 3.0 mm thick ISI marked phenolic laminated sheet, zinc plated / brass screws, cup washers, making connections, testing etc. as required.				
24.10	On board	2.000	P. Point	72.00	144.00
25.00	P & F double ball bearing capacitor start, aluminum body & blade ceiling fan with down rod up to 30 cm with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required.				
25.10	1200 mm sweep	1.000	Each	986.68	986.68
26.00	P & F strip type flourscent tube fitting fabricated from (CRCA sheet and finished with powder coating / stove enamelled paint)/(extruded non corrosive UV resist EP channel) complete with accessories (Low Loss Copper Choke, starter, starter seat) / Electronic Choke with terminal block duly prewired with copper conductor including making connection, testing etc. as required. (without tube)				
26.10	1 X 36 Watts with OCCB	2.000	Each	315.20	630.40
27.00	P & F Fluorscent tube rod in existing fixtures as required, minimum 3 STAR rating				
27.10	36/40 Watts	2.000	Each	50.40	100.80
28.00	P & F Pillar Cocks (IS :8934 Mark) of superior quality and approved make:				
28.10	C.P. Pillar cock, 15 mm dia nominal bore	2.000	Each	554.40	1108.80
29.00	P & F <i>Ball Cock</i> (IS :1703 Mark) with Rod & P.V.C. Ball complete :				
29.10	Brass wt.400 gm,15mm.	1.000	Each	183.60	183.60
30.00	P & F <i>PVC Storage Tank</i> ISI Marked (IS : 12701) indicating the BIS license No), of approved make with cover, 25mm dia 1M long G.I. over-flow pipe & 25 Cm. long wash out pipe with plug & socket, including making connection etc., complete of approved design:				

S.No	Particulars	Quantity	Unit	Rate	Amount
30.10	1000 litres capacity.	1.000	Each	5400.00	5400.00
31.00	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	40.635	cum	111.60	4534.87
32.00	Supplying and Filling in plinth with river sand under floors including watering ramming consolidating and dressing complete including cost of sand	24.300	cum	639.00	15527.70
Total Part D Rs.					470889.88

**Executive Engineer (PHE-II)
JDA, Jaipur**

I/We Quote as % Above/ Below the schedule " G " (Part-D)

(In Words.....)'

**Signature of Contractor
With full Address & Mobile No.**

JAIPUR DEVELOPMENT AUTHORITY

Executive Engineer (PHE-II)

Name of work :- Construction of 2 Nos TW's ,ESR, CWR & Pump house, P/L/J of DI pipe line for Raising Main & GI Distribution network for Kitchen's and Dharmashalla at Khole ke Hanuman ji under jurisdiction of EE- PHE-II Jaipur

G-Schedule

PART "E :- Operation & Maintenance work

Non BESR Item

S.No.	Particulars	Qty.	Unit	Rate Quoted by bidder	Amount
1.00	Operations and maintenance of water supply scheme as per scope of work & special condition of contract including complete repair of various pipe lines, pumping machinery, switches, starters, etc. along with providing of all types of material (ISI marked or as per PHED norms) required for maintenance and repair, rewinding and repair of all types of motor, hand pump in all respect to avoid any diESRuption in water supply and including chemical charge. (except electric charges)	36	Per Month		
Total Part-E					

Executive Engineer (PHE-II)
JDA, Jaipur

Total (In Words.....)

Signature of Contractor
With full Address & Mobile No.