NIT No 02 /CE/PHED/2026-27/JABALPUR Dated 18.05.2026

Government of Madhya Pradesh
Public Health Engineering Department

Appendix 2.10

(Works Department Manual 1983)

(For Percentage Rates Only in Works Department and Other Department similar to Works Department)

System Tender No. - 2026_PHED_508352_1
2nd CALL

Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of 16.92 MLD **Lalbarra Grouped Piped Water Supply Scheme for 102 Villages in Block Lalbarra of District Balaghat** comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KV Electric Sub Station at Lalbarra, D.I. Gravity Main& Distribution in the Respective Villages **for1 years**

A) Probable Amount of Contract	-	Rs. 587.00 Lakhs
B) Earnest Money	-	Rs.587000/-
C) Cost of Bid Document	-	Rs. 20000/-

GOVERNMENT OF MADHYA PRADESH
Public Health Engineering Department

Appendix 2.10
Tender Document

For Percentage Rate only in Works Departments and other Departments similar to Works Departments(Effective from 01/09/2023)

Office of the	:	Chief Engineer P.H.E D Zone Jabalpur
NIT Number and Date:		NIT No 02/CE/PHED/2026-27/JABALPUR Dated 18.05.2026
Agreement Number and Date	:	----------
Name of Work	:	**Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of 16.92 MLD Lalbarra Grouped Piped Water Supply Scheme for 102 Villages in Block Lalbarra of District Balaghat comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KV Electric Sub Station at Lalbarra, D.I. Gravity Main & Distribution in the Respective Villages for 1 years**
Name of the Contractor	:	----------
Probable Amount of Contract		
(Rs. in Figure)	:	**5,87,00,000/-**
(Rs in Words)	:	Five Hundred Eighty SEVEN Lakhs Only
Contract Amount		
(Rs. in Figure)	:	----------
(Rs in Words)	:	----------
Stipulated Period of Completion	:	Successful operation and maintenance of the Group Water Supply Scheme for 1 years.

Appendix 2.10

Tender Document (Table of Contents)

SECTION 1

Notice Inviting e-Tenders
Government of MadhyaPradesh
Public Health Engineering Department

NIT No 02 /CE/PHED/2026-27/JABALPUR Dated 18.05.2026

Online percentage rate bids for the following works are invited from registered contractors and firms of repute fulfilling registration criteria:

S. No./ System Tender No.	Name of Work	District(s)	Probable Amount (Rs.)	Completion Period (months)
2026-PHED-XXXX	**Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of 16.92 MLD Lalburra Grouped Piped Water Supply Scheme for 102 Villages in Block Lalbarra of District Balaghat comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KV Electric Sub Station at Lalbarra, D.I. Gravity Main & Distribution in the Respective Villages for 1 years**	**Balaghat**	**587.00 Lakhs**	Successful operation and maintenance of the Group Water Supply Scheme for1 years

1. Interested bidders can view the NIT on website http://**www.mptenders.gov.in**
2. The Bid Document can be purchased only online as per the key dates mentioned in the online NIT on portal www.mptenders.gov.in.
3. Amendments to NIT, if any, would be published on website http://**www.mptenders.gov.in** only, and not in newspapers.

Chief Engineer
Public Health Engineering Department
Zone Jabalpur

Notice Inviting Tender
Government of Madhya Pradesh
Office of the Chief Engineer
Public Health Engineering Department
Jabalpur Zone Jabalpur

NIT No 02 /CE/PHED/2026-27/JABALPUR Dated 18.05.2026

Online percentage rate bids for the following works are invited from registered contractors and firms of repute fulfilling registration criteria:

S. No./ System Tender No.	Name of Work	District	Probable Amount of Contract (Rs.)	Earnest Money Deposit (EMD) (In Rupees)	Cost of Bid Document (In Rupees)	Category of Contractor	Period of Completion (in Months)
2026-PHED-XXXXX	**Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of 16.92 MLD Lalburra Grouped Piped Water Supply Scheme for 102 Villages in Block Lalbarra of District Balaghat comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KV Electric Sub Station at Lalbarra, D.I. Gravity Main & Distribution in the Respective Villages for 1years**	Balaghat	587.00 Lakhs	587000	20000	Contractor registered under new centralized single registration system in M.P. Govt.	Successful operation and maintenance of the Group Water Supply Scheme for 1 years

1. All details relating to the Bid Document(s) can be viewed and downloaded free of cost on the websitehttp://**www.mptenders.gov.in**.
2. Bid Document can be purchased after making online payment of portal fees through Credit/Debit/Cash Card/internet banking.
3. At the time of submission of the Bid the eligible bidder shall be required to:
   i)pay the cost of Bid Document;
   ii)deposit the Earnest Money;
   iii)Submit a check list; and
   iv)Submit an affidavit.
   v) Registration number or proof of application for registration and

vi) Organizational details in format given in the Bid Data Sheet.

(Details can be seen in the Bid Data Sheet.)

4. ELIGIBILITY FOR BIDDERS:

(a)At the time of submission of the Bid the bidder should have valid registration with the Government of Madhya Pradesh, PWD in appropriate class. However, such bidders who are not registered with the Government of Madhya Pradesh and are eligible for registration can also submit their bids after having applied for registration with appropriate authority.

(b) The bidder would be required to have valid registration at the time of signing of the Contract.

(c) Failure to sign the contract by the selected bidder, for whatsoever reason, shall result in forfeiture of the earnest money deposit.

5.Pre-qualification – Prequalification conditions, wherever applicable, are given in the Bid Data Sheet.

6. Special Eligibility – Special Eligibility Conditions, if any, are given in the Bid Data Sheet.

7. The Bid Document can be purchased only online as per key dates mentioned in online NIT. Other key dates may be seen in bid data sheet.

8. Amendments to NIT, if any, would be published on website http://**www.mptenders.gov.in** only, and not in newspaper.

Chief Engineer
Public Health Engineering
Department
Zone Jabalpur

SECTION 2

INSTRUCTIONS TO BIDDERS (ITB)

GENERAL

1. SCOPE OF BID

The detailed description of work, hereinafter referred as 'work', is given in the Bid Data Sheet.

2.General Quality of Work:

The work shall have to be executed in accordance with the technical specifications specified in the Bid Data sheet/ Contract Data, and shall have to meet high standards of workmanship, safety and security of workmen and works.

3.PROCEDURE FOR PARTICIPATION IN E-TENDERING

The procedure for participation in e-tendering is given in the Bid Data Sheet.

4.ONE BID PER BIDDER

4.1The bidder can be an individual entity or a joint venture (if permitted as per Bid Data Sheet). In case the J.V. is permitted, the requirement of joint venture shall be as per the Bid Data Sheet.

4.2No bidder shall be entitled to submit more than one bid whether jointly or severally. If he does so, all bids wherein the bidder has participated shall stand disqualified.

5.Cost of Bidding

The bidder shall bear all costs associated with the preparation and submission of his bid, and no claim whatsoever for the same shall lie on the Government.

6.Site Visit and examination of works

The bidder is advised to visit and inspect the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the work. All costs in this respect shall have to be borne by the bidder.

B.Bid Documents

7.CONTENT OF BID DOCUMENTS

The Bid Document comprises of the following documents:
1.NIT with all amendments.
2.Instructions to Bidders,Bid Data Sheet with all Annexures
3.Conditions of Contract:
i.Part I General Conditions of Contract and the Contract Data with all Annexures; and
ii.Part II Special Conditions of Contract.
4.Specifications
5.Drawings
6.Priced Bill of Quantities

7.Technical and Financial Bid
8.Letter of Acceptance
9.Agreement, and
10.Any other document(s), as specified.(SOR-PWD,PHED,MPKVV,CPHEEO MANUAL)

8. The bidder is expected to examine carefully all instructions, conditions of contract, the contract data, forms, terms and specifications, bill of quantities, forms and drawings in the Bid Document. Bidder shall be solely responsible for his failure to do so.

9. Pre-Bid Meeting (where applicable)Wherever the Bid Data Sheet provides for pre-bid meeting:

9.1 Details of venue, date and time would be mentioned in the Bid Data Sheet. Any change in the schedule of pre-bid meeting would be communicated on the website only, and intimation to bidders would not be given separately.

9.2 Any prospective bidder may raise his queries and/or seek clarifications in writing before or during the pre-bid meeting. The purpose of such meeting is to clarify issues and answer questions on any matter that may be raised at that stage. The Employer may, at his option, give such clarifications as are felt necessary.

9.3 Minutes of the pre-bid meeting including the gist of the questions raised and the responses given together with any response prepared after the meeting will be hosted on the website.

9.4 Pursuant to the pre-bid meeting if the Employer deems it necessary to amend the Bid Document, it shall be done by issuing amendment to the online NIT.

10. Amendment of Bid Documents

10.1 Before the deadline for submission of bids, the Employer may amend or modify the Bid Documents by publication of the same on the website.

10.2 All amendments shall form part of the Bid Document.

10.3 The Employer may, at its discretion, extend the last date for submission of bids by publication of the same on the website.

C.Preparation of Bid

11. The bidders have to prepare their bids online, encrypt their Bid Data in the Bid Forms and submit Bid Seals (Hashes) of all the envelopes and documents related to the Bid required to be uploaded as per the time schedule mentioned in the key dates of theNotice Inviting e-Tenders after signing of the same by the Digital Signature of theirauthorized representative.

12. **DOCUMENTS COMPRISING THE BID**

The bid submitted online by the bidder shall be in the following parts:

Part 1 – This shall be known as Online **Envelope A** and would apply for all bids. Online **Envelop A** shall contain the following as per details given in the Bid Data Sheet:

i) Registration number or proof of application for registration and organizational details in format given in the Bid Data Sheet.

ii) Payment of the cost of Bid Document;

iii) Earnest Money; and

iv) An affidavit duly notarized.

Part 2 – This shall be known as Online **Envelope B** and required to be submitted only in works where pre-qualification conditions and/or special eligibility conditions are stipulated in the Bid Data Sheet. Online **Envelop B** shall contain a self-certified sheet duly supported by documents to demonstrate fulfillment of pre-qualificationconditions.

Part 3 – This shall be known as Online Envelope C and would apply to all bids.

Envelop C shall contain financial offer in the prescribed format enclosed with the BidData Sheet.

13. Language

The bid as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer shall be in English or Hindi. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in English.

In such case, for the purposes of interpretation of the bid, such translation shall govern.

14. TECHNICAL PROPOSAL

14.1 Only, in case of bids with pre-qualification conditions defined in the Bid Data Sheet, the Technical Proposal shall comprise of formats and requirements given in the Bid Data Sheet.

14.2 All the documents/ information enclosed with the Technical Proposal should be self- attested and certified by the bidder. The Bidder shall be liable for forfeiture of his earnest money deposit, if any document / information are found false/ fake/ untrue before acceptance of bid. If it is found after acceptance of the bid, the bidsanctioning authority may at his discretion forfeit his performance security/guarantee, security deposit, enlistment deposit and take any other suitable action.

15. FINANCIAL BID

i. The bidder shall have to quote rates in format referred in Bid Data Sheet, in overall percentage, and not item wise. If the bid is in absolute amount, overall percentage would be arrived at in relation to the probable amount of contract given in NIT. The overall percentage rate would apply for all items of work.

ii. Percentage shall be quoted in figures as well as in words. If any difference in figures and words is found, lower of the two shall be taken as valid and correct.

iii. The bidder shall have to quote rates inclusive of all duties, taxes, royalties and other levies; and the Employer shall not be liable for the same.

iv.The material along with the units and rates, which shall be issued, if any, by the department to the contractor, is mentioned in the Bid Data Sheet.

16.PERIOD OF VALIDITY OF BIDS

The bids shall remain valid for a period specified in the Bid Data Sheet after the date of "close for biding" as prescribed by the Employer. The validity of the bid can be extended by mutual consent in writing.

17.EARNEST MONEY DEPOSIT (EMD)

17.1 The Bidder shall furnish, as part of the Bid, Earnest Money Deposit (EMD), in the amount specified in the Bid Data Sheet.

17.2 The EMD shall be in the form of Fixed Deposit Receipt of a scheduled commercial bank, issued in favour of the name given in the Bid Data Sheet. The Fixed Deposit Receipt shall be valid for six months or more after the last date of receipt of bids. However, other form(s) of EMD may be allowed by the Employer by mentioning it in the Bid Data Sheet.

17.3 Bid not accompanied by EMD shall be liable for rejection as non-responsive.

17.4 EMD of bidders whose bids are not accepted will be returned within ten workingdays of the decision on the bid.

17.5 EMD of the successful Bidder will be discharged when the Bidder has signed the Agreement after furnishing the required Performance Security.

17.6 Failure to sign the contract by the selected bidder, within the specified period, for whatsoever reason, shall result in forfeiture of the earnest money deposit.

D.Submission of Bid

18. The bidder is required to submit online bid duly signed digitally, and Envelop 'A' in physical form also at the place prescribed in the Bid Data Sheet.

E. Opening and Evaluation of Bid

19 PROCEDURE

19.1 Envelope 'A' shall be opened first online at the time and date notified and its contents shall be checked. In cases whereEnvelop 'A' does not contain all requisite documents, such bid shall be treated asnon-responsive, and Envelop B and/or C of such bid shall not be opened.

19.2 Wherever Envelop 'B' (Technical Bid) is required to be submitted, the same shall be opened online at the time and date notified in the Bid Data Sheet. The bidder shall have freedom to witness opening of the Envelop 'B'. Envelop 'C' (Financial Bid) of bidders who are not qualified in Technical Bid (Envelop 'B') shall not be opened.

19.3 Envelope 'C' (Financial Bid) shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the Envelop 'C'.

19.4 After opening Envelop 'C' all responsive bids shall be compared to determine the lowest evaluated bid.

19.5 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all the bids at any time prior to contract award, without incurring any liability. In all such cases reasons shall be recorded.

19.6 The Employer reserves the right of accepting the bid for the whole work or for a distinct part of it.

20. Confidentiality

20.1 Information relating to examination, evaluation, comparison and recommendation of contract award shall not be disclosed to bidders or any other person not officially concerned with such process until final decision on the bid.

20.2 Any attempt by a bidder to influence the Employer in the evaluation of the bids or contract award decisions may result in the rejection of his bid.

F. Award of Contract

21. Award of Contract

The Employer shall notify the successful bidder by issuing a 'Letter of Acceptance' (LOA) that his bid has been accepted.

22. Performance Security

22.1 Prior to signing of the Contract the bidder to whom LOA has been issued shall have to furnish performance security of the amount in the form and for the duration, etc. as specified in the Bid Data Sheet.

22.2 Additional performance security, if applicable, is mentioned in the Bid Data Sheet and shall be in the form and for the duration ,etc. similar to performance security.

23. Signing of Contract Agreement

23.1 The successful bidder shall have to furnish Performance security and Additional Performance Security, if any and sign the contract agreement within 15 days of issue of LOA.

23.2 The signing of contract agreement shall be reckoned as intimation to commencement of work. No separate work order shall be issued by the Employer to the contractor for commencement of work.

23.3 In the event of failure of the successful bidder to submit Performance Security and Additional Performance Security, if any or sign the Contract Agreement, his EMD shall stand forfeited without prejudice to the right of the employer for taking any other action against the bidder.

24. **CORRUPT PRACTICES**

The Employer requires that bidders observe the highest standard of ethics during the procurement and execution of contracts. In pursuance of this policy, the Employer:

i. may reject the bid for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract; and

ii. may debar the bidder declaring ineligible, either indefinitely or for a stated period of time, to participate in bids, if it at any time determines that the bidder has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing, a contract.

For the purposes of this provision, the terms set forth above are defined as follows:

a. "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;

b. "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

c. "coercive practice" means impairing or harming, or threatening to impairor harm, directly or indirectly, any party or the property of the party toinfluence improperly the actions of a party;

d. "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

[End of ITB]

Bid Data Sheet

GENERAL

SR. No.	PARTICULARS	DATA
1	Office Inviting Tender	O/o the Chief Engineer P.H.E.Department Zone Jabalpur
2	NIT No.	02/2026-27
3	Date of NIT	18.05.2026
4	Bid document download available from date & time	As per NIT
5	Website link	http:// ww.mptenders.gov.in

SECTION 1 - NIT

CLAUSE REFERENCE	PARTICULARS	DATA
2	Portal Fees	As per service provider
3	Cost of Bid Document	Rs 20000/-
	Cost of Bid Document Payable at	As per Website
	Cost of Bid Document In favor of	As per Website
4	Affidavit Format	Affidavit (Notarized) As per 'Annexure- B'
5	Pre-qualifications required	Yes
	If Yes, details	Annexure C
6	Special Eligibility (if yes, prior permission of E-in-C required)	No
7	Key dates	As per 'Annexure -A'

Bid Data Sheet

SECTION 2 - ITB[1]		
CLAUSE REFERENCE	**PARTICULARS**	**DATA**
1	**LALBARRA GROUPED PIPED WATER SUPPLY SCHEME OF 102 VILLAGES OF BLOCK LALBARRA, DISTRICT BALAGHAT**	**Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of 16.92 MLD LalbarraGrouped Piped Water Supply Scheme for 102 Villages in Block Lalbarra of District Balaghat comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KV Electric Sub Station at Lalbarra, D.I. Gravity Main & Distribution in the Respective Villages for 1 years**
2	Specifications	As per 'Annexure – E'
3	Procedure for participation in e-tendering	As per 'Annexure – F'
4	Whether Joint Venture is allowed	Yes, for PAC more than Rs 1 crore
	If Yes, requirement for joint Venture	As per 'Annexure – G'
9	Pre bid meeting to be held	N.A.
	If Yes, Date, Time & place	N.A.
12	**Envelope-A** containing : i. Registration number or proof of application for registration and organization details as per 'Annexure H' ii. Cost of Bid Document iii. EMD iv. An affidavit duly Notorised as per 'Annexure- B' v. Check list as per Annexure –X should reach in physical form	At the Office of the E.E P.H.E Division Balalghat As per Key Dates provided in Annexure –A or as amended
14	**Envelope-B** Technical Proposal	As per 'Annexure - I' Annexure-I and Format I-1 to I-5
15	**Envelope-C** Financial Bid	As per 'Annexure - J '
	Materials to be issued by the department	As per 'Annexure - K'
16	Period of Validity of Bid	**120 Days**from the date of submission of Bid

[1] Section 2 – Bid Data Sheet

Bid Data Sheet

CLAUSE REFERENCE	PARTICULARS	DATA
17	Earnest Money Deposit	Rs – 587000/-
	Forms of Earnest Money Deposit	i. FDR/ e-FDR ii. Demand draft of scheduled commercial bank. iii. Interest bearing securities of post office. iv. e-EMD
	EMD valid for a period of	**180 Days**
	FDR must be drawn in favour of	Executive Engineer PHE Division Balaghat (M.P.)
21	Letter of Acceptance (LoA)	As per 'Annexure - L'
22	Amount of Performance Security	5% of Contract Amount
	Additional Performance Security, if any	As per SCC Clause 08
	Performance Security in the format	As per 'Annexure- M' / FDR As per NIT
	Performance Security in favour of	Executive Engineer PHE Division Balaghat
	Performance Security valid up to	Performance Guarantee (Security) for works shall be valid upto 3 months beyond the completion of Operation and maintance period. Performance Guarantee (Security) shall be released after completion of entire O&M period.
	Additional Performance Security valid up to	Additinal Performance Guarantee (Security) shall be valid upto valid construction/execution period plus 03 months.

Original term deposit receipt of earnest money deposit, demand draft for the cost of bid document and affidavit shall be submitted by the bidder so as to reach the office as prescribed in Bid Data Sheet, on or before specified start time and date in key dates for opening of technical proposal as per Key dates in Bid Data Sheet.

Annexure – A

(See clause 1,7 of Section 1 -NIT)

Key Dates

S. No.	Works Department Stage	Start Date	Time Hours	Time Minutes
1.	Publishing Date	19.05.2026	10	00
2.	Document Download /Sale Start date	19.05.2026	10	00
3.	Seek Clarification start date	-----	11	00
5.	Seek Clarification end date	-----	11	00
6.	Bid Submission start date	19.05.2026	10	00
7.	Bid Submission closing date	01.06.2026	17	30
8.	Bid Opening date	03.06.2026	11	00

Annexure – B

(See clause 3 of Section 1 -NIT)

|| AFFIDAVIT ||

(To be contained in Envelope A)

(On Non Judicial Stamp of Rs. 50)

I/we _____ who is/ are_____ (status in the firm/ company) and competent for submission of the affidavit on behalf of M/S _____ (contractor) do solemnly affirm an oath and state that:

I/we am/are fully satisfied for the correctness of the certificates/records submitted in support of the following information in bid documents which are being submitted in response to notice inviting e-tender No. _____ for_____ (name of work) dated _____ issued by the_____ (name of the department).

I/we am/ are fully responsible for the correctness of following self-certifiedinformation/ documents and certificates:

1 That the self-certified information given in the bid document is fully true and authentic.

2 That:

a. Term deposit receipt deposited as earnest money, demand draft for cost of bid document and other relevant documents provided by the Bank are authentic.

b. Information regarding financial qualification and annual turnover is correct.

c. Information regarding various technical qualifications is correct.

3 No close relative of the undersigned and our firm/company is working in the department.

OR

Following close relatives are working in the department:

Name _____ Post _____ Present Posting _____

Signature with Seal of the Deponent (bidder)

I/ We, _____ above deponent do hereby certify that the facts mentioned in above paras 1 to 4 are correct to the best of my knowledge and belief.

Verified today _____ (dated) at _____ (place).

Signature with Seal of the Deponent (bidder)

Note: Affidavit duly duelynotorized in original shall reach at least one calendar day before opening of the bid.

Annexure – C

(See clause 5 of Section 1 -NIT)

PRE-QUALIFICATIONS CRITERIA

The bidder should have:

A. Financial

I. **Average annual turnover of the bidder during the last 3 financial years should not be less than 33% of the Probable Amount of contract.**

ii. Bid Capacity-Bidder shall be allotted work up to his available Bid capacity,which shall be worked out as given in format I-2 of Annexure 1.

B. Physical

i) The bidder must have experience of successfully executing and commissioning of a Group water supply scheme (more than 51 Villagebased on a surface source) of 8.46 MLD capacity or more in last 5 years.

OR

ii) The bidder must have experience of successful Operation & Maintenance of a Group water supply scheme(more than 51 Village based on a surface source) of 8.46 MLD capacity or more for at least 1 year in last 5 years.

Physical qualifications for the work shall be as below

S.No.	Particulars	Quantity	Period
1			Yes / No.

Note :- Above criteria are indicative, subject to suitable stipulations by the department and specific Bid.

Annexure – D

(See clause 6 of Section 1 -NIT)

SPECIAL ELIGIBILITY CRITERIA

1- The department shall hand over the complete pumping station water treatment plant premises, pipe line and other equipments and all ancillary unit in working conditions (As available at site) to the contractor, on award of contract for operation & maintenance. The contractor will take over the charge before starting the work. The date of take over shall be the date of start of work. For the purpose of safety of departmental machinery and equipments the contractor shall have to provide a bank guarantee of ten percent amount of contract to the department. This bank guarantee shall be in addition to the security deposit to be deposited by the contractor as per rules in force. This bank guarantee shall not be refunded to the firm before expiry of the contract of the work. The department reserves the right to operate all bank guarantees part bank guarantees or any other securities to meet out any losses in case of damages/theft/mishandling etc. of the government properties due to negligence of the contractor. The contractor shall hand over all the equipments in working condition the bank guarantee & other deposits available with department the contractor shall have to deposit the difference amount. If not deposited, then department may recover the dues under various acts & clauses.

2. Staff engaged for entire operation/maintenance etc. shall have to be in accordance with the rules and regulation laid down as per CPHEEO manual and govt. rules. The wages and other essential amenities, group insurance, compensation etc. shall be paid as per Government rules and all expenditure on this account shall be contractor's responsibility. The necessary registrations under rules shall be mandatory. The compensation due to loss of lives/retrenchment etc. shall be borne by the contractor. The department shall not bear any liability of the labours as it is the entire responsibility of the contractor. He will be employer under labour acts and department is only concerned with O&M through contract. The contractor is liable for engaging sufficient skilled staff for proper O&M of all machinery and pumping station as directed by Engineer in charge.

   The operation work is to be carried out round the clock, timings of various shifts shall be decided by Engineer in Charge.

3. **SAFETY PRECAUTIONS**:-Adequate safety precautions against fire, flooding, lightening, electrical shocks, accident due to moving/non moving heavy equipment'sand Thirdparty damages shall be strictly observed by the contractor at his own cost. Suitable safety measures like boots, gloves, insulated tools, alarms, Chequered rubber sheets etc. shall be provided by the contractor at his own cost. A fully equipped necessary medical first aid box should be available at each pump house at all time. In absence of observance of above safety precautions the contractor shall be responsible for any unforeseen loss of the equipment or persons dealing with this equipment.

4. The work shall be awarded for a period of five year on cost of contract rate and terms & condition of the tender.

5. **PAYMENT TERMS:-**The payment for the work allotted. Shall be payable as below:-

The operational and maintenance cost quoted by the tenderer shall be payable on monthly basis on completion of one month period on presentation of the bill by the firm and work done to the satisfaction of the department. 5% security deposits shall be deducted from each running bill as per Govt. rules. Following document/ certificates counter signed by concerned Assistant Engineer shall be enclosed with the bill.

5.1 Signed copy of abstract of log book and bulk meter readings.

5.2 Certificate that all instruction given in inspection book have been attended within a reasonable period.

5.3 Certificate that breaks down if any has been attended with in stipulated period.

5.4 Routine, periodical & preventive maintenance as required has been done by the Contractor and return submitted in the format given by Engineer in charge.

6- CONTRACTORS LIABILITY & COMPENSATION:-

(A) Statutory deductions of income tax, Central Sales Tax etc. at the rate applicableshall be made from the monthly-due payment as per rules in force.

(B) Any recovery of past contract can be made from instant contract and any recovery against instant contract can be made from sum available in any other contract.

(C) The unsatisfactory performance by contractor in operation and maintenance, compensation @ 0.25% of contract value per week of unsatisfactory performance, subject to maximum of 10% of contract value shall be levied as compensation. Regarding such compensation the decision of the Engineer in Charge considering unsatisfactory performance shall be final and binding upon the contractor. The Unsatisfactory performance will be considered as

1. The contractor fails to supply quality of water as per norms.
2. The contractor fails to attend any breakdown within the time limit provided in the NIT of the desired quantity of water not supplied to the consumer except the breakdown period.

(D) For the purpose of undisturbed consistence production the measurement of pumping hours shall be calculated on weekly basis. In case pumping hours falls by 5% no deduction will be made. However if pumping hours falls by more than 5% on account of negligence of contractor's staff then deduction @ Rs. 250/- per hour will be recovered. Regarding such compensation the decision of the engineer-in-charge considering breakdowns etc. shall be final and binding upon the contractor.

(E) The variation in measurement of clear water meters installed at WTP and at different location in distribution system should not vary 5 to 10 percentage if variation exceeds this limit then the penalty will be imposed by department @10/- per 1000 liters and maximum penalty will be 8 % of contract amount

The pumping hours/ production level will be decided by Engineer in Charge on monthly basis or shorter period for which order will be issued by Engineer In charge in advance.

6.1 In the event of any damage/loss of life and property in the Intake well-cum-pump house and other sump cum pumping stations the contractor shall be solely responsible and liable for compensation and damages.

6.2 In the event of strike by the operation and maintenance staff employed by the contractor the department shall be empowered to operate and maintain all pumping stations at sole risk and cost of the contractor.

6.3 The contractor shall be responsible for any breakdown and appropriate amount will be recovered from his bill if the breakdown happens due to negligence of the contractor's staff. If breakdown is not attended within two hours appropriate amount will be recovered from his bill. The amount of recovery shall be decided by the Executive Engineer considering all aspects of breakdowns.

Maximum down time permissible for source/pump houses shall be as under where stand by pump sets provided by department.

1. Intake well-cum-pump house: 24 hours
2. Pump sets of other sump cum pumping station:24 hours

In case contractor could not make the source/pump house operational within stipulated period and desired production could not be achieved. Suitable penalty may be imposed. Penalty for such delays shall be Rs. 100.00 per hour for each pump set of pump house. This penalty will not exceed Rs. 1000.00 per day for each pump set of pump house. After expiry of stipulated period department may repair/restore the pump sets and other at pump house departmentally at the risk and cost of the contractor.

6.4 The contractor shall also submit fortnightly report to the office of Assistant Engineer, PHE Sub Division, Lalbarra regarding day to day activities done and any failure / defect / difficulty experienced along with daily pumping report.

6.5 The contractor shall maintain power factor as per desire (may be above 0.90) at all the pump houses. He shall install capacitors required. If power factor be less than desire power factor surcharge to be paid to MPPKVV co. ltd. shall be recovered from contractor. The contractor shall also install shunt capacitor at all SIP connections if required. Contractor has to follow rules of MPPKVV co. Ltd.

6.6 The matter regarding less supply and compensation thereof shall be decided by the Executive Engineer and in case of any dispute; the decision of the Executive Engineer, PHE Division Balaghat shall be final & binding upon the contractor.

6.7 In case of sudden break down Engineer-in-charge will decide whether the break down is attributable to contractor's poor preventive maintenance or not if break down is found on the part of contractor then cost of repair /replacement and losses shall be recovered from his due payments if not rectified / replaced by him at his cost. The decision of Engineer-in-charge regarding cause of failure / break down shall be final. In case of difference of opinion between contractor & department the appeal will lie with the Superintending Engineer Project circle Chhindwara whose decision will be final.

However pending such decision immediate action for rectification / removal for cause of failure shall be initiated by the contractor as per terms & condition of contract / direction of Engineer-in-charge

6.8 In the event of any damage / loss of life or property during maintenance of pipe line, the contractor shall be solely responsible and liable for compensation and damages.

6.9 Contractor shall arrange for adequate watch and ward of the scheme component. If loss of property is due to theft even after arrangement for watch and ward occurs, then contractor shall lodge FIR with police department.

6.10 Further, if the contractor fails to repair/replace the leakage/burst pipe within the period specified accept in force-measure conditions, compensation as given below shall be levied.

Period of delay beyond the Specified period for repair	Penalty Rs. Per hour	
	For Rising Line	Distribution Line

1 to 2 hours	100.00	50.00
2 to 4 hours	300.00	100.00
4 to 8 hours	350.00	130.00
Beyond 8 hours	400.00	150.00

A period of delay less than half an hour shall be ignored but a period of more than half an hour shall be counted as one full hour for this purpose.

6.11 If nuts and bolts of all type of valves, expansion joints etc. found missing or damaged it will be the responsibility of contractor to arrange the same at his own cost.

7 Power Supply

In the event of failure of power supply, contractor shall do necessary liaison with MPKVV CO. LTD.for restoration of power supply.

8. Inspection:-

PHED officers shall inspect the scheme regularly. Following officers shall make minimum of these inspections during contract period.

Sub Engineer Weekly
Asst. Engineer Fortnightly
Executive Engineer Monthly

In addition to above higher officers of the PHE department and Administrative officer may also make inspection at any time as per departmental norms. Contractor shall provide all facilities for inspection.

9. Contract period:-

This tender is to conduct rate contract for 12 Months. However it may be further extendedto 12 months if contractor done job satisfactory for further period with mutual consent.

ANNEXURE - E

(See clause 2 of Section 2 –ITB&

Clause 10 of GCC)

Specifications

DETAILED SCOPE OF WORK & TECHNICAL SPECIFICATION FOR OPERATION & MAINTENANCE OF SCHEME

Name of Work :-Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of 16.92 MLD **LalbarraGrouped Piped Water Supply Scheme for 102 Villages in Block Lalbarra of District Balaghat** comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KVElectric Sub Station at Lalbarra, D.I. Gravity Main & Distribution in the Respective Villages **for 1 years**

All the relevant Indian Standard Specification (I.S. Codes) manual for Operation & Maintenance of Rural Water Supply Scheme and codes of practices shall be applicable for this work. The decision of the PHED will be final in this matter

Scopeofwork:-

The scope of work under this contract includes maintenance of the schemeas a who lend it sparts as an individual component as well. Under the contractor has to run the scheme completely and will have to prove performance of each component individually and of whole scheme as per the standards laid down in contract.

During this period the contractor shall have to appoint necessary staff for running and maintenance of scheme. The candidature of the staff being engaged by contractor shall have to be approved by the Engineer Incharge. During this period the staff engaged for running and maintenance of scheme will be paid by the contractor as per the wages rules and all the responsibilities of employees regarding safety/ insurance etc.will be of the contractor.

Contractor and his staff will arrange training for the staff to the satisfaction of EngineerIn-charge. The main items executed which are to be maintained are –

Details of village Distribution System -

S.No.	Particulars of item	Size		Quantity
		Nos		
1	RCC Intake well	1	6.0 m dia x 25.0 m and 5.0 m high BM pump house	3 Inlet ports of size 300 mm dia
2	Raw water VT pumps	3	139 LPS, 68 m head, 180 HP	360 HP
3	Raw water pumping main	1	600 mm dia DI K-9 , 7650 m	
4	Water Treatment Plant	1	16.92mld rapid send gravity filter treatment plant	Inlet Chamber, Flocculator with PVC angle tube settler),

S.No.	Particulars of item	Size		Quantity
				three filters, clear water sump (700 KL)
5	Clear water centrifugal pump	3	139 LPS, 68 m head, 180 HP	360 HP
6	Clear water pumping main	1	600 mm dia DI K-9 to 150 mm diaK-9 , 43246 m	
7	Master Balancing Reservoir	5	2010 KL - 22.0 M stage 2010 KL – 22.0 M stage 715 KL – 22.0 M stage 1700 KL – 22.0 M stage 2280 KL – 22.0 M stage	8715 kl
8	Gravity Main			
	(A) BottaO.H.Tank			
	Zone 1 Kanjai,Bhandamurri, Mosmi, Dharawasi, Devgaon, Ranikothar, Pandrapani, Bagholi Tekari, Chichgoan, Salai, Khairgondi, Nevergaon, Pondi, Rampuri, Sihora, Khurpudi, Salebarri, Tengnikhurd, Bandri, Botta , Dohra, Bahegoan, Ghatolgaon, Bagdehi, Jam, Mohgaon, Selwa, Khairgaon, Chhindlai, Pipariya , Babariya.		450 mm DI - 3900 M 400 mm DI – 5730 M 350 mm DI – 2120 M 300 mm DI –14291 M 250 mm DI – 13145 M 200 mm DI – 9090 M 150 mm DI – 18536 M	66812.00 M
	(B) PatharsahiO.H.Tank			
	Zone 2 Patharsahi, Tengnikala, Nagpura, Bithali, Katanga, Ghoti, Atri, Dorli, Pandharwani, Awliakanhar, Panbihari, Lalbarra, Amoli, Manpur, Belgaon, Bamhni, Dadiya, Khamghat,		450 mm DI – 5640 M 350 mm DI – 3540 M 300 mm DI – 2000 M 250 mm DI – 8050 M 200 mm DI – 7120 M 150 mm DI – 15450 M	41,800.00 M

S.No.	Particulars of item	Size		Quantity
	Devri.			
	(C) BoritolaO.H.Tank			
	Zone 3 (A) Bori, Barghat, Mohgoan, Bahiyatikur, Ballharpur, marera, Garapuri, Khursudi, Palakamthi, Dharpewara, Ganeshpur, Bakoda,		300 mm DI- 5500 M 250 mm DI – 750 M 200 mm DI – 2600 M 150 mm DI – 11170 M	20020.00 M
	(D) Khamariya O.H.Tank			
	<u>Zone 3 (B)</u> Khamariya, Pandewara , Kamthi, Nilji, Kosmi, Rategaon, Netra, Katangjhari, Pipariya, Bargaon, Nayatola, Pathri, Tekadi, Lohara, Newargaon, Kope, Chillaud,		350 mm DI- 2310 M 300 mm DI – 5990 M 250 mm DI – 4590 M 200 mm DI – 6025 M 150 mm DI – 15300 M	34215.00 M
	(E) Lawada O.H.Tank			
	<u>Zone 4</u> Lawada, Birsola, Chandpuri, Gondegoan, Dokarbandi, Miregaon, Khari , Khirri, Salhe, Murjhar, Kauriya, Lendejhari, Dongariya, Barbaspur, Garra, Manjhapur, Kanki, Behrai, Chhatera, Butta , Mohgaon, Dhapera,		600 mm DI – 1985 M 500 mm DI – 4421 M 450 mm DI – 6472 M 400 mm DI – 5408 M 350 mm DI – 10270 M 300 mm DI – 2150 M 250 mm DI - 5503 M 200 mm DI – 4435 M 150 mm DI – 2625 M	43,269.00 M

Details of village Distribution System -

S.No.	Name of village	RCC Cistern	RCC sump well	Over Head Tank	PVC/ HDPE Pipe lines				
					200 mm 6/10Kg/Sqcm	160 mm 6/10 Kg/Sqcm	110 mm 10 Kg/Sqcm	110 mm 6 Kg/Sqcm	90 mm 6/10 Kg/Sqcm
1	अमोली			1				189/525	3893/400
2	अतरी			1				1652/200	1453/106
3	आव्ल्याकन्हार								1445
4	बिठली			1				0/50	1004/450
5	बबरिया			1					4167
6	कटंगा								1745
7	बडगांव			1					4171
8	नयाटोला							704	3157
9	बगदेही								3508
10	डोहरा						557		1745.50
11	सेलवा							240	3100.5/245
12	बघोली			2				699/635	3544.06/1815
13	बहेगांव			1		120		372.5	3842
14	बहियाटिकुर							520	1175
15	मरेरा							2611	786
16	बकोडा		1	1				593/700	2384/950
17	बेलगांव			1				349	2505/323
18	बल्हारपुर			1		955		1890	1130/305
19	बम्हनी			1		524			3091/1500
20	डोरली							110	1975/500
21	बांदरी			1					2039.3
22	बोटटा			1				0/80	1451/385
23	बेहरई			1				6010	2725/360
24	भाण्डामुर्री			1					3377
25	बिरसोला			1		65		255	3050/1160
26	बोरी			2		2666		0/80	2630/400
27	बोटटा हजारी			1	320	2086		335	1292
28	चंदपुरी			1				1535	810/1250

S.No.	Name of village	RCC Cistern	RCC sump well	Over Head Tank	PVC/ HDPE Pipe lines				
					200 mm 6 /10Kg /Sqcm	160 mm 6/10 Kg/Sqcm	110 mm 10 Kg/Sqcm	110 mm 6 Kg/Sqcm	90 mm 6/10 Kg/Sqcm
29	छतेरा			1				405	2243
30	चिल्लौद			1				570	1560
31	छिंदलई								4116
32	खैरगांव								2446/300
33	चिचंगावं							733	1109.5/660
34	ददिया			1		220		2249/630	4259/1427
35	देवरी							481	2114
36	खामघाट							638/300	1485/850
37	धपेरा			1		195		3989/250	2531/2447
38	धारावासी			1				0/200	4580.5/250
39	मौसमी								4093.7/250
40	धरपीवाडा			1				215	1845
41	डोकरबंदी			1				960	3037/84
42	गोण्डगांव								2178/200
43	बरबसपुर								1252
44	डोंगरिया							2115	845/460
45	गने ापुर					209		1832/105	1425/620
46	पलाकामथी								1025
47	गारापुरी								885
48	खुरसोडी								2753/323
49	गर्रा			2	10	2069		1760/1000	3060/1800
50	घोटी			1				177/905	4028/845
51	जाम			2				2116/2600	4892/3900
52	कामथी								5324/846
53	कंजई			3		1118.		1126/430	6868/1300
54	कनकी			1		385		445/1000	3496/2616
55	कंटगझरी			1	130	3055		775/950	4216/2047
56	खमरिया			2		305		202	2863/2580
57	खारी			1				20	3783

S.No.	Name of village	RCC Cisten	RCC sump well	Over Head Tank	PVC/ HDPE Pipe lines				
					200 mm 6 /10Kg /Sqcm	160 mm 6/10 Kg/Sqcm	110 mm 10 Kg/Sqcm	110 mm 6 Kg/Sqcm	90 mm 6/10 Kg/Sqcm
58	खिर्री			1				525	1948
59	खुरपुडी			1				467	2443
60	कोपे			1		550		800	2535/100
61	लेण्डेझरी		1	1					3147/636
62	लवादा			2				50/2590	2209/180
63	लोहारा			1		1374		1172/500	3839/500
64	मांझापुर			1		2170		250	2960
65	मानपुर			1		31		306/300	6088/950
66	मिरेगावं			1		210		1608	2479
67	बरघाट			1					3990
68	मोहगांव बोरी								1565/500
69	मेहगांव ध			2	308	55		373	2464/4200
70	मोहगांव जाम			1					1110
71	कौडिया							200	2475/568
72	मुरझड			1		575			1404/300
73	नगपुरा			1		118		1184	8074/1226
74	नैतरा			1					2745/600
75	नेवरगांव			1				590	2942/270
76	पोण्डी							198	0/675
77	नेवरगांव वॉ			1		80		450	3245/1164
78	निलजी			1	3616	1490		3947	4560
79	पनबिहरी			2		113		537/435	3974/438
80	पाण्डेवाडा							190	2400
81	पाण्डरवानी			3		1105		2658/481	2907/3450
82	पाथरी			1		2735		1780	3628/1200
83	पाथर ाही			2		20		305	4018
84	पिपरिया			1		1068		192	3481/500
85	पिपरिया छि.			1				143	3263/300
86	घटोलगांव								1856.7

S.No.	Name of village	RCC Cistern	RCC sump well	Over Head Tank	PVC/ HDPE Pipe lines				
					200 mm 6 /10Kg /Sqcm	160 mm 6/10 Kg/Sqcm	110 mm 10 Kg/Sqcm	110 mm 6 Kg/Sqcm	90 mm 6/10 Kg/Sqcm
87	रमपुरी								
88	देवगांव								2117
89	गनखेडा								1986
90	पण्डरापानी								1923.5
91	रानीकुठार							1842	3408/400
92	कोसमी								3184/250
93	रटेगांव					2160			1585/400
94	साल्हे मो.								2621/510
95	खैरगोंदी								692
96	साल्हे लॉ			1				664.5	3439/395
97	सिहोरा			1		315		540	5926
98	सालेभर्री								2924
99	टेगनीखुर्द			1		1164		635	3309.2/120
100	टेकाडी लॉ			1		2122		768	2252/150
101	टेकाडी लो			1		4378		1101	2536
102	टेगनीकलॉ			1				487/250	2066/1200

The details of specifications are as under –

1) Intake Well cum pump house: The contractor will provide the staff to run and maintain and keep records of the machinery and equipment's, installed inintake well. **The electricity charges and raw water charges if any payable to WRD will be borne by Public Health Engineering Department**. Initial inventory of the consumables like oil, Grease, Glandpacking; all type of fuses, T&Petc. will be provided by the contractor at his own cost and expenses. The contractor shall have to maintain consumption and stock of the inventory so as not to interrupt the water supply. The contractor shall have to arrange for security, watch and maintaint he premises of intake well and approach bridge & road during this period.

2) Rawand Clear water pumps: The contractor will have to arrange and provide for regular surveillance of pumps of Intake well (Raw water pumping station), clear water pumping stations

(water treatment plant) and will have to arrange for any repairs and maintenance during the O&M period. All necessary T&P, consumables, pipesetc. will be provided by the contractor at his own cost and expenses.

3) Rawand Clear water pumping Mains:The contractor will have to arrange and provide for regular surveillance of pumping mains from Intake well cum pump house structure to treatment plant and up to OHTs, and will have to arrange for any repairs and maintenance during the O &M period. All necessary T&P, consumables, pipes etc. will be provided by the contract or at his own cost and expenses.

4) Treatment Plant and Pump House: The contractor will provide necessary staff to run and maintain the treatment plant. The cost of chlorine, alum /PAC, lime and other chemicals used in the laboratory shall be borne by the contractor.**The electricity charges will be borne by the Public Health Engineering Department**.

The contractor shall arrange for the training of the staff as nominated by the Engineer in charge to run and maintain the plant and pump house three months prior to completion of one year O&M period-up to the satisfaction of Engineer in charge.

The contractor shall have to arrange and provide for watch and ward, security and up keep of premises of the plant during O&M period. He will maintain/ replace the furniture/ equipment etc. if damaged during this period.

5) RCC Over head Tanks: The contractor will provide necessary staff for watch and ward and maintenance of break pressure tanks and all over head/under gound tanks under this project and will up keep the premises of the tanks to the satisfaction of EngineerinCharge. The contractor's staff will maintain the record of water level in tanks and stock of inventory if any at these tanks.

6) Electrical Substations and Electric Supply Line: The contractor will provide necessary staff and arrange for the maintenance/ repairs of electrical substations and systems developed/ constructed under this contract at intake well, treatment plant and in the other premises.All expenses to operate and maintain shall be borne by the contractor, except the energy charges etc.

After successful completion of O&M period (to be certified by the EngineerinCharge) the scheme as a whole and its components individually will be handed over to Gram Panchayat for further running and maintenance.

7. **Operation & Maintenance of distribution system:-** The contractor is liable and responsible for all the works which have been execute under the scheme. The O&M of ESRs of the villages and distribution systems are also in the scope of contractor.(including house service connection)

8. Periodical maintenance of structures and machinery: The contractor shall maintain all structure and machinery periodically for its upkeep in proper way.

9. Handing Over after O&M period: Before handing over the components to PHED all the structures and all the Electrical & Mechanical equipment's shall be finished by painting as per specifications and these must be in good running conditions.

It will be the responsibility of the contractor to show that all stipulated Service Level Standards have been fulfilled and are up to the mark on the date of handing over the works to Gram Panchayat. The PHED will not take any responsibility of the employees engaged by the contractor to run the scheme during O&M period. The scheme and all its components individually shall be handed over to PHED in a very good maintained condition. (Decision of Engineer in Charge will be final in this regard).

SERVICE LEVEL BENCHMARKS DURING OPERATION & MAINTENANCE

1. General: The contractor shall be responsible to maintain service level standards during the operation and maintenance period and these standards shall be effective till the date of handing over the project to Gram Panchayat/Department.
2. Service Level Standards: The following standards shall be maintained by the contractor-

i. Supply of safe & potable drinking water- The safe and potable drinking water having characteristics of water as per IS:10500 (latest) shall be supplied to each consumer. The testing of samples shall be done by contractor, as per IS: 1622 (latest).

To achieve the above, the contractor shall submit the test results, including details of test results of residual chlorine at the farthest consumer's end, taken periodically as per the norms for each village, during the submission of bills.

Penalty- If the contractor fails to perform as above, a sum of 15% of the amount payable on account of O&M for the period under default shall be deducted from the bill.

ii. Per capita supply of water - The contactor is liable to ensure supply of potable water for domestic use to each consumer @ 55 lpcd minimum at consumer end.

Penalty- If the contractor fails to perform as above; a proportionate amount as mentioned below payable on account of supply of water attributes to contractor for that village during the period under consideration shall be deducted from the bill-

For 55 lpcd and above	No deduction
For 40 lpcd supply	75% of payable amount
Between 55 to 40 lpcd supply	proportionately reduced payment.
Below 40 lpcd supply	100 % of payable amount

Note : If due to certain reasons such as shortage of storage in source or river flow, the employer orders reduction in supply above penalty will not be applicable up to that modified rate of supply

iii. Pressure at consumer end- The contactor is liable to ensure supply of potable water for domestic use at service point of each consumer not less than 7.0 m.

Penalty- If the contractor fails to perform as above, an amount in proportion to the number of connections not getting prescribed pressure shall be deducted from the bill, for the period under consideration and/or until the contractor makes alternative arrangement.

iv. Unaccounted for Water- The contactor is liable to ensure that the losses in the production of treated water and water supplied to villages shall be within 5% of water produced.

Penalty- If the wastages on account of UFW is more than 5%, then a proportionate amount of wastages above 5% shall be deducted from the bill as follows-

If UFW is 20% then excess wastage is 20-5=15%, so 15% of the total billed amount will be deducted as penalty.

v. Complaint redressal- The contactor is responsible to attend the complaints of the consumers within 24 hours of information received. In case of failure of system due to any technical breakdown, the contractor has to supply water through alternative means, but the normal supply should be restored within 48 hours of its occurrence.

Penalty- If the contractor fails to perform as above, a sum of 5% of the amount payable on account of O&M shall be deducted from the bill for that period for each occurrence.

vi. Increase in demand during O&M period – If due to any reason demand is increased then it will be made available by the contractor by adjustment of flow or by increasing the pumping hours and no extra payment will be made on that account.

vii. Road cutting and its restoration (if required) will be the responsibility of the contractor during maintenance period but in case of line shifting or repairing due to road widening etc. the cost as per prevailing USOR of PHED Inforce From 03-07-2018 shall be paid.

viii. Other habitations not covered in the scheme may also be included during maintenance period the contractor will have to supply water to these habitations by increasing pumping hours or up to permissible overloading as directed by Engineer-in- charge. No separate payment will be made on this account except Electric bills and chemicals.

ix. Any extension of pipe line network if required shall have to be done by the contractor during maintenance period, payment of which shall be made according to prevailing USOR of PHED in force from 03/07/2018, however, above percentage rate will not allowed

x. Catering to additional short term demands (such as fair, mela, or public gathering etc.) as directed by Engineer-in-charge will also be the responsibility of the contractor under maintenance period. No separate payment will be made on this account except Electric bills.

xi. The Public Health Engineering Department reserves the right to terminate the contract without assigning any reason whatsoever by giving one months' notice to the contractor of this intent.

1. Intake well–Cum Pump house

Take Necessary steps for the operation of Intake well-cum-pump house are givenbelow.

a) Keep record fluctuations in water level water withdrawal at various depths.
b) Hydraulic surges, floods, floating debris, boats and barges,
c) Withdrawal of water of the best available quality to avoid pollution, and to provide structural stability
d) Operation of screens to prevent entry of objects that might damage pumps and treatment facilities
e) Minimizing damage to aquatic life.
f) Preservation of space for Equipment cleaning, Removal and repair of machinery, storing movement and feeding of chemicals.
g) Screens should be regularly inspected, maintained and cleaned
h) Intake structures and related facilities should be inspected, operated and tested Periodically at regular intervals
i) Proper service and lubrication of intake facilities is important
j) Operation of Gates and Valves

Safety

When working around Intake well-cum-pump house structures proper safety procedure involving use of electrical and mechanical equipment and water safety should be observed. proper safety procedures should be fallow during O&M.

2. Raw/Clear water Pipeline

a) Mapping and inventory of pipes and fitting: - An updated transmission system map with location of valves, flow meter and pressure gauges is the foremost requirement of operation schedule. The valves indicated in the map should contain direction to open number of turn to open, make of valve and date of fixing etc. the hydraulic gradient lines are to be marked to indicate the pressure in the transmission system. They can be used for identifying high pressure or problem areas with low pressure.

b) System pressure:- it is essential to maintain a continuous positive pressure in the main at the time of transmission of water in the pipeline. Low pressure locations have to be investigated if necessary by measuring pressure with pressure gauge.

c) System Surveillance:-The maintenance staff of the Agencies should go along thetransmission line frequently so as to accomplish the following objectives.

i) To detect and correct any deterioration of the transmission system.
ii) To detect if there is encroachment of transmission system failures.

iii) To detect and correct if there is any unauthorized tapping of water.
iv) To detect and correct if there is damage to the system by vandalism.

2.2 Maintenance Schedule

A maintenance schedule is required to be prepared to improve the level of maintenance of water Transmission system through improved co-ordination and planning of administrative and fieldwork and through the use of adequate techniques, equipment and materials for field maintenance. The schedule has to be flexible so that it can achieve team action with the available vehicles and tools. Co-ordination of activities is required for spares and fittings, quality control of materials used and services rendered. Training of maintenance staff shall, apart from the technical skills,. Include training to achieve better public relations with consumers.

2.3 Activities of Maintenance Schedule

Following activities are to be included in the schedule:
a) Develop and conduct a surveillance programme for leaks in pipelines, pipe joints and Valves.
b) Develop and conduct a water quality surveillance programme.
c) Develop and conduct a programme for locating and repairing leaks including rectifyingcross connections if any, arrange for flushing, cleaning and disinfecting the mains,
d) Establish procedures for setting up maintenance schedules and obtain and processthe information provided by the public and the maintenance teams about the pipeline leaks.
e) Establish repair procedures for standard services and with provision for continuoustraining of the team members.
f) Procure appropriate machinery, equipment and tools for repair replacement of leaks and of pipes and valves.
g) Allocate suitable transport, tools and equipment to each maintenance team,
h) Establish time, labour and material requirement and output expected, time requiredand other standards for each maintenance task and arrange for monitoring the productivity of each maintenance team.

A preventive maintenance schedule has to be prepared for:
(i) Maintenance of the pipelines with particulars of the tasks to be under take and to be completed.
(ii) Servicing of valves, expansion joints etc.
(iii) Maintenance of valve chamber.
(iv) Maintenance of record of tools, materials, labour, and
(v) Costs required carrying out each task.

Activities for Preventive Maintenance
a) Servicing of valves:- Periodical servicing is required for valves, expansion joints flow meter and pressure gauges. Corrosion of valves is the main problem and can cause failure of bonnet and gland bolts. Leaks from spindle rods occur and bonnet separates from the body. Stainless steel bolts can be

used for replacement and the valve can be wrapped in polythene wrap to prevent corrosion. Manufacturer's catalogues may be referred and servicing procedure should be prepared for the periodical servicing.

b) List of spare: List of spares procured for the transmission system shall be prepared and the spares shall be procured and kept for use. The spares may include check nut, spindle rods, bolt and nuts are flanged joints, gaskets for flanged joints for all sizes of sluice valves, consumables like gland rope, grease, cotton waste, jointing materials like rubber gaskets, spun yarn, pig-lead and lead wool etc.

c) List of tools: The maintenance staff shall be provided with necessary tools and equipment's for attending to the repairs in the transmission system. These tolls may include key rods for operation of sluice valves, hooks for lifting manhole covers, pipe wrench, DE spanner set, ring spanner set, screw rivers, plies, hammers, chisels, caulking tools, crow bars, spades, dewatering pumps.

2.4 Maintenance of pipelines

Pipeline bursts/main breaks can occur at any time and the O & M agencies shall have a plan for attending to such events. This plan must be written down, disseminated to all concerned and the agency must always be in readiness to implement the plan immediately after the pipe breaks reported. After a pipe break is located, determine which valve is to be closed to isolate the section where the break has occurred. The agency has to be informed concern consumers about the probable interruption in water supply and also the estimated time of resumption of water supply.
After the closure of the valve the dewatering/mud pumps are used to drain the pipe breakpoints. The sides of trenches have to be properly protected before the workers enter the pit' the damaged pipe is removed, and the accumulated silt is removed from inside the pipe and the damaged pipe is replaced and the line is disinfected before bringing into use. A report shall be prepared following every pipe break about the cause of such break, the resource required.

2.5 Scouring of Pipeline

Scouring is done to clean the transmission lines by removing the impurities or sediment that may be present in the pipe. This is particularly essential in the case of transmission lines carrying raw water.

2.6 Leakage control

(i) Visible leaks: The maintenance staff during surveillance operation can report visible leaks found by him to his superiors. Critical areas where leaks often occur have to be identified and appropriate correct measures have to be implemented.

(ii)Invisible leaks: Lead detection equipment have to be procured for detection of Non visible leaks and action to control these leaks should be initiated to control the overall problem of water lost.

2.7 Chlorine Residual Testing

A minimum free chorine residual of 0.2 mg/lit at the receiving source of a transmission system is needed to be maintained. Absence of residual chlorine could indicate potential presence of contamination in transmission system. The following steps which are required to be taken are:

1. Testing of residual chlorine
2. Checking the chlorination equipment at the start of the transmission system.
3. Searching for source of contamination along the transmission system which hascaused the increase in chlorine demands.
4. Immediate rectification of the source of contamination.

2.8 Records and reports

1. Updated transmission system maps with alignment plans. Longitudinal sectional plans.
2. Record of daily readings of flow meter at upstream and downstream end of pipeline.
3. Record of water level of reservoir.
4. Pressure reading of the transmission system.
5. identification of persistent low pressure location along the pipeline.
6. Record of age of Pipes.
7. identify pipelines to be replaced.
8. Identify source of leaks.
9. Record of water meter reading before the delivery into overhead tank.
10. Record of residual chlorine.
11. Record on when the pipeline leaks were repaired or pipe changed and the cost of Materials and labour cost thereof.

3. WATER TREATMENT PLANT

The Rapid sand filtration unit are include:-

(a)Aeration /Pre-sedimentation unit.
(b)Coagulation and flocculation with rapid mixture (Clariflocculator unit)
(c)Sedimentation unit
(d)Filtration unit

(a) Pre-sedimentation

Pre-sedimentation removal of coarse suspended matter (such as grit) depends merely on gravity. This type of sedimentation typically takes place in a reservoir, grit basin, debris dam, or sand trap at the beginning

of the treatment process most of the sediment from the water at the pre-treatment stage and it reduces the load on the coagulation/flocculation basin and on the sedimentation chamber, as well as reducing the volume of coagulant chemicals required to treat the water.

(b) Coagulation and Flocculation

The term coagulation and flocculation are often used to describe the process of removal of turbidity caused by fine suspended solids, colloids and organic colours i.e. non-settleable particles from water. Including collvidal of discrete particles Coagulation is the process by which particles become destabilized and begin to clump together. It is an essential component in the water treatment operation. Flocculation is the second stage of the formation of settleable particles (or flocs) from destabilized colloidal sized particles and is achieved by gentle and prolonged mixing.

(b1) Coagulation

Chemical coagulants used in Treatment Process

The various coagulants are used in treatment process. The common coagulants used in water works practice are salt of aluminum viz. liquid alum, sodium aluminates, Poly Aluminum Chloride (PAC) as which is an equi-molecular mixture of ferrous sulphate and ferric chloride being obtained by chlorinating ferrous sulphate. Its requires less space (<50%). However, it has dis-advantage of less effective for color removal.

Tips for Selection of Coagulant

Coagulation is a physical and chemical reactions occurring between the alkalinity of the water and the coagulant added to the water, which results in the formation of insoluble flocs. The most important consideration is the selection of the proper type and amount of coagulant chemical to be added to raw water. Over-dosing as well as under-dosing of coagulants may lead to reduced solids removal efficiency. This condition may be corrected by carefully performed Jar tests and verifying process performance after making any change in the process of the coagulation process. (Refer CPHEEO Manual of Water supply and Treatment).

Mixing

The mixing is the process to mix all the coagulant in water rapidly and instantaneously especially in waters with high alkalinity so as to achieve complete homogenization of I coagulant in the water to be treated. Mixing of the coagulant can be satisfactorily accomplished in a special coagulant tank with mixing devices or in the influent channel or a pipeline to the flocculation basin with high flow velocity which produces necessary turbulence. To accomplish the mixing, following methods can be used by mechanical mixing.

(b2) Flocculation

Flocculation Operation

The objective of a flocculation is to produce a settled water of low turbidity which in turn leads to reasonably longer service period of filter plant.

Clari-flocculator

The circular flocculator is achieved in a compartmentalized basin. The compartments (most often three) are separated by baffles to prevent short circuiting of the water being treated. The turbulence can be reduced gradually by reducing the speed of the mixers in each succeeding tank or by reducing the Surface area of the paddles. The reason for reducing the speed of the stirrers is to prevent breaking apart the larger flocs, which have already formed. If the floc is broken up nothing is accomplished and the filier gets overloaded.

Coagulation - Flocculation process Action

Typical jobs performed by an operator in the normal operation of the coagulation-flocculation process include the following:

i) Monitor process performance.
ii) Evaluate water quality conditions (raw and treated water).
iii) Check and adjust process controls and equipment, and
iv) Visually inspect facilities.

(c) Examination of the Water during treatment

(i) Examine the water samples at several points, en-route the flow line of the water. Look at the clarity of the water between the flocs and study the shape and size of the flocs. Observe the floc as it enters the flocculation basins which should be small and well speared throughout the flow.

(ii) Tiny alum floc may be an indication that the chemical dose is too low. A 'popcorn flake' is a desirable floc. If the water has a milky appearance or a bluish tint, the alum dose is probably too high. As the floc moves through the flocculation basins, the size of the floc should be increasing. If the size of the floc increases and then later starts to break up,the mixing intensity of the downstream flocculates may be too high. Thus, the speed of these flocculators needs to be reduced or otherwise the coagulant dosage may be increased.

(iii) Examine the settlement of the floc in the sedimentation basin. If a lot of flocs are observed flowing over the laundering weirs the floc is too light for the detention time. By increasing the chemical dose or adding a coagulant aid such as a polymer to produce heavier and larger flocs. The appearance of the fine floc particles passing over the weir could be an indication of too much alum and the dose should be reduced. For precise evaluation only one change can be made at a time and evaluate the results.

Record keeping

Records of the following items should be maintained:

(i) Source water quality (pH, turbidity, temperature, alkalinity, chlorine demand and colour.
(ii) Process water quality (pH, turbidity, and alkalinity).
(iii) Process production inventories (chemicals used, chemical feed rates, amount of water processed, and amount of chemicals in storage).
(iv) Process equipment performance (types of equipment in operation, maintenance procedures performed, equipment calibration and adjustments).

Safety considerations

In the coagulation-flocculation processes, the operator may be exposed to the associated hazards with following

(i) Electrical equipment
(ii) Rotating mechanical equipment
(iii) Water treatment chemicals
(iv) Laboratory reagents (chemicals),
(v) Slippery surfaces caused by certain chemicals
(vi) Flooding.
(vii) Confined spaces and underground structures such as valve or pump vaults (toxic and explosives gases, insufficient oxygen).

Strict and constant attention must be given to safety procedures. The operator must be trained with general first aid practices such as mouth-to-mouth resuscitation, treatment of common physical injuries, and first aid for chemical exposure (chlorine)

Start-up and shutdown procedures

a) Conditions requiring implementation of Start-up and Shutdown procedures.

These procedures generally happen when the plant is shut down for maintenance. However, on some rare instances, shut down may be required due to a major equipment failure.

b) Start-up Procedures

1) Check the condition of all mechanical equipment i.e. gear box, flash mixing equipment's, motors & rotating assembly, for proper lubrication and operational status.
2) Make sure all chemical feeders are ready. There should be plenty of chemicals available in the tanks and ready to be fed to the raw water.
3) Collect a sample of raw water and immediately run a jar test using fresh chemicals from the supply of chemicals to the feeders.
4) Determine the settings for the chemical feeders and set the feed rates on the equipment.
5) Open the inlet gate or valve to start the raw water flowing.
6) Immediately start the selected chemical feed systems.
7) Open valves to start feeding coagulant chemicals and dilution make-up water.
8) Check flow measurement at inlet.
9) Start chemical feeders.
10) Adjust chemical feeders as necessary.
11) Turn on the flash mixer at the appropriate time. You may have to wait until the
12) Tank or channel is full before turning on the flash mixer. Follow the manufacturer's instructions.
13) Start the sample pumps as soon as there is water at each sampling location. Allow sufficient flushing time before collecting any samples.
14) Start the flocculators as soon as the first basin is full of water.
15) Inspect mixing chamber and flocculation basin. Observe formation of floc and make necessary changes.
16) Remove any debris floating on the water surface.
17) Perform water quality analysis and make process adjustments as necessary.
18) Calibrate chemical feeders.
19) Note: Do not allow any untreated water to flow through the plant.

(c) Shut down Procedures

1) Close raw water gate to flash-mix chamber or channel.

2) Shut down the chemical feed systems.
3) Turn off chemical feeders.
4) Shut off appropriate valves.
5) Flush or clean chemical feed lines if necessary.
6) Shut down flash mixer and flocculates as water leaves each process.
7) Shut down sample pumps before water leaves sampling location
8) Waste any water that has not been properly treated.
9) Lock out and tag appropriate electrical switches.
10) Dewater basins, if necessary. Waste any water that has not been properly treated.
11) Close basin isolation gates or install stop-logs.
12) Open basin drain valves

Good records of actions taken during start/ shut down operations will assist the operation conducting future shutdowns.

S.n.	Name of quality parameters	Minimum Limit	Maximum Limit
1	Colour	5	15
2	Turbidity	1 N.T.U.	5 N.T.U.
3	pH	6.50 to 8.5	6.5 to 8.5
4	T.D.S.	500mg/lit.	2000mg/lit
5	Alkalinity	200 mg/lit.	600 mg/lit.
6	Chloride	250 mg/lit.	1000 mg/lit.
7	Total Hardness	200 mg/lit.	600 mg/lit.
8	Calcium	75 mg/lit.	200 mg/lit.
9	Magnesium	30 mg/lit.	75 mg/lit.
10	Nitrate	45 mg/lit.	45 mg/lit.
11	Iron element	0.3 mg/lit.	0.3 mg/lit.
12	Fluoride	1.0 mg/lit.	1.5 mg/lit.
13	Sulfate	200 mg/lit.	400 mg/lit.
14	Arsenic	0.01 mg/lit.	0.05 mg/lit.
15	Residual Chlorine	0.2 mg/lit.	1.0 mg/lit.
16	Total colliform	0/100 mg/lit.	0/100 mg/lit.
17	Fecal Colliform	0/100 mg/lit.	0/100 mg/lit.

Laboratory Tests

Water quality indicators for the operation of flocculation process include turbidity, alkalinity, chlorine demand, residual chlorine test, colour, pH, temperature, odour and appearance and need to be tested. In multi-habitation schemes, a provision of water testing laboratory at treatment plant may be established and maintained for the purpose.

(c) Sedimentation:-

The purpose of sedimentation process is to remove suspended particles so as to reduce load on Filters. If adequate detention time and basin surface area are provided in the sedimentation basins, solids removal efficiencies can be achieved more than 95%. if the filters become overloaded with suspended solids, they will quickly clog and need frequent back washing. This can limit plant production and cause degradation in filtered water quality. Thus the sedimentation process should be operated from the standpoint of overall plant efficiency..

(For more details a refer Manual on "Water Supply and Treatment" published by Ministry of Urban Development (latest edition).

Operating procedures

From a water quality point of view, filter effluent turbidity is a good indication of overall process performance. However, monitoring the performance of each of the individual water treatment process including sedimentation is must in order to check water quality or performance changes. Operations are considered to be normal within the operating ranges of the plant, while unusual or difficult to handle condition is abnormal operating condition. In normal operation of the sedimentation process one must monitor.

(i) Turbidity of inflow and out flow of Water in the sedimentation Basin: Turbidity of inflow waterIndicates the floc or solids loading to the sedimentation basin while turbidity of outflow water of the basin indicates the effectiveness or efficiency of the sedimentation process. Low levels of outflow water turbidity to be achieved to minimize the floc loading on the filter.

(ii) Temperature of inflow water is important as the water becomes colder, the settling of become slow. To compensate for this change, jar tests should be performed and accordingly, the coagulant dosage is to be adjusted to produce a heavier and thus a settle-able floc. Another possibility is to provide longer detention times when water demand decreases.

(iii) Visual checks of the sedimentation process should include characteristics, observation of floc settling characteristics distribution of floc at the basin inlet and clarity of outflow settled water spilling over the weirs. An uneven distribution of floc or poorly settling floc is an indication of a raw water quality change or there is operational problem.

Record Keeping

Daily operations log of process performance and water quality characteristics should be maintained for the following records:

1. Inflow and outflow turbidity and inflow temperature.
2. Process production inventory (amount of water processed and volume of sludge produced).
3. Process equipment performance (type of equipment in operation, maintenance., procedures performed and equipment calibration).

Sludge Handling and Disposal

(a) Sludge characteristics

Water treatment sludge is typically alum sludge, with solid concentrations varying from 0.25 to 10% when removed from a basin. In gravity flow sludge removal systems, the solid concentration should be limited to about 3%.If the sludge is to be pumped, solids concentrations should be high as 10 % readily transportation. In horizontal flow sedimentation basins preceded by coagulation and flocculation, over 50% of the floc will settle out in the first third of the basin length. Operationally this must be considered when establishing the frequency of the operation of sludge removal equipment.

(b) Sludge Removal Systems

Sludge which accumulates on the bottom of the sedimentation basins must be removed periodically for the following reasons:
(i) To prevent interference with the settling process (such as re-suspension of solids dueto scouring).
(ii) To prevent the sludge from becoming septic or providing an environment for the growth of microorganisms that create taste and odor problems.
(iii) To prevent excessive reduction in the cross sectional area of the basin (reduction of Detention time).
In plants, sludge is normally removed on an intermittent basis with the aid of mechanical sludge removal equipment. However in smaller plant with low solid loading manual sludge removal may be more cost effective. In manually cleaned basins, the sludge is allowed to accumulate until it reduces settled water quality. High levels of sludge reduce the detention time and floc carries over to the filters. The basin is then dewatered (drained), most of the sludge is removed by stationary or portable pumps and the remaining sludge is removed with squeegees and hoses. Basin floors are usually sloped towards a drain to help sludge removal. The frequency of shutdown for cleaning will vary from several months to a year or more, depending on source water quality (amount of suspended matter in the water).

(c) Sludge Disposal:-

Disposal of waste from the water treatment plants has become increasingly important with the availability of technology and the need for protection of the environment treatment of waste solid ads to the cost of construction and operation of treatment plants.
Waste from the Water treatment plants comprise of:
(i) Sludge from sedimentation of particulate matter in raw water, flocculated and Precipitated material resulting from chemical coagulation, or residuals of excess chemical dosages, plankton etc.
(ii) Waste from rinsing backwashing of filter media containing debris , chemical Precipitates ,straining of organic debris and plankton and residual of excess chemical dosages etc., and
iii) Waster from regeneration processes of ion exchange softening treatment plantcontaining cat-ion of calcium, magnesium and unused sodium and anion of chlorides and sulphates originally present in the regenerate.

(d) Disposal Method

In continuous sludge removal, the feasibility of discharging of water treatment plant sludge will be the responsibility of contractor. For lime softening plant sludge, the reclamation by claiming and reuse can be explored .These sludge from clarification units using irons and aluminum coagulant can be dewatered by vacuum filtration. However the method of waste disposal shall conform to the pollution control norms. Any major problems should be reported to the competent authorities and response duly followed up.

Start-up and Shutdown Procedures

In the event of requirement for shut down or start-up of processes on account of maintenance or a major equipment failure, proper procedures must be followed as per recommendations of the manufacturer of this plant and equipment. The procedures, in general are given below:

Start up Procedure

1) Check operational status, mode of operation of equipment and physical facilities.
2) Check that basin valves are closed.
3) Check that basin isolation gates are closed.
4) check that launder weir plates are set at equal elevations.
5) Check to ensure that all trash, debris and tools have been removed from basin.
6) check that mechanical equipment is properly lubricated and ready for operation.
7) Observe operation of sludge removal equipment.
8) Sedimentation basin filled with water.
9) Observe proper depth of water in basin.
10) Remove floating debris from basin water surface.
11) Start sample Pumps.
12) Perform water quality analyses.
13) Operate sludge removal equipment. Be sure that all valves are in the proper position& operational.

Shut down Procedures

1) Stop flow to sedimentation basin. Install basin isolation gates.
2) Turn off sample Pump.
3) Turn off sludge removal equipment.
4) Shut off mechanical equipment and disconnect where appropriate.
5) Check that valves are in proper position & operational.
6) Lock out electrical switches and equipment.
7) Dewater basin, if necessary.
8) Be sure that the water table is not high enough to float the empty basin.
9) Open basin drain valves.
10) Grease and lubricate all gears, sprockets and mechanical moving parts which havebeen submerged immediately following dewatering to avoid seize up.

(c) Equipment

(i) Types of support equipment- Operation and Maintenance:

The operator should be thoroughly familiar with the operation and maintenance Instructions issued by the manufacturer or engineer-in-charge for each specific equipment viz. flow meters and gauges Valves, Control Systems, Water Quality monitors such as turbidity meters, Sludge removal equipment. Sludge and Sump pumps.

(ii) Equipment Operation

Check the following:

a) Proper lubrication and operational status of each unit.
b) Excessive noise and vibration, overheating and leakage.
c) Pumps suction and discharge pressure.

Safety Considerations

(i) Electrical Equipment

a) Avoid electric shock.
b) Avoid grounding yourself in water or on pipes.
c) Ground all electric tools.
d) Use a lock out and tag system for electric equipment or electrically driven mechanical Equipment.

(ii) Mechanical Equipment

a) Keep protective guards on rotating equipment
b) Do not wear loose clothing around rotating equipment.
c) Keep hands out of valves, pumps and other equipment.
d) Clean up all lubricant and sludge spills.

(iii) Open Surface water - filled structures

a) Use safety devices such as hand rails and ladders.
b) Close all openings.
c) Know the location of all life preservers.

(iv) Valve and Pump Vaults, Sumps

a) Be sure all underground or confined structures are free of hazardous atmosphere (Toxic or explosive gases, lack of oxygen)

b) Work only in well ventilated structures.

c) ake proper steps against flooding.

(For more details please refer to Chapter 19 - Safety Practices of CPHEEO Manual)

Corrosion Control

All metallic parts which are prone to corrosion must be protected.

Corrosion can be controlled to a large extent by applying anti corrosive paints on the steel pipes at the time of construction of the tube well. Non-corrosive casing pipe and strainers (Such as PVC pipes and strainers) can also be used at the time of construction of tube well to avoid corrosion. Some commonly used paints/coatings to control corrosion are of aluminum, asphalt, red lead and coal tar. Now a day, a number of epoxy paints for this purpose are also available in the market.

Preventive Maintenance

Such programmes are designed to assure the continued satisfactory operation of treatment plant by reducing the frequency of breakdown failures. Typical steps should include.

1) Keeping electric motors free of dirt and moisture.
2) Assuring good ventilation at valve and pump vaults, sumps.
3) Checking pumps and motors for leaks, unusual noise and vibrations, overheating orsigns of wear.
4) Maintaining proper lubrication and oil levels.
5) Inspecting alignment of shafts and couplings.
6) Checking bearings for overheating and proper lubrication.
7) Checking for proper valve operation.
8) Checking for free flow of sludge in sludge removal collection and discharge systems.
9) Good House Keeping.

(d) Filteration unit

Rapid Sand Filter comprises of bed of a sand serving as a single medium granular matrix supported on gravel overlying on under drainage system. use of higher filtration rates with more coarser & uniform filter media to utilize greater depths of filter media to trap influent solid without excessive head loss and also back washing of filter bed by reversing the flow direction to clean the entire depth of filter.

Filter Sand

Check shape size and quantity off filter sand to the followings:

1) Sand shall be of hard and resistant quads or quartzite and free of clay, fine

particles, soft grains and dirt of every description.
2) Effective size shall be 0.4 to 0.7 mm
3 Uniformity coefficient shall not be more than 1.7 nor less than1.3
4) Ignition loss should not exceed 0.7 per cent by weight.
5) Soluble fraction in hydrochloric acid shall not exceed 5.0% by weight.
6) Silica content should be not less than 90%
7) Specific gravity shall be in the range between 2.55 to 2.65.
8) Wearing loss shall not exceed 3%

(Refer IS:8419 (Part 1) 1977 edition Filtration Media sand and Gravel for details).

Fitter operation and Backwashing:

A filter is usually operated until just before clogging or break through occurs. After a filterclogs/break through occurs, the filtration process is stopped and the filter is taken out of service for cleaning or backwashing.

surface wash:

In order to produce optimum cleaning of the filter media during backwashing and to prevent mud balls, surface wash (supplemental scouring) is usually practiced. Surface wash systems provide additional scrubbing action to remove attached floc and other suspended solids from the filter media.

Operational Procedures

a) The Indicators of Normal Operating Conditions: The filter influent and effluent turbidities should be closely watched with a turbid-meter. Filter influent turbidity levels (settled turbidity) can be checked on a periodic basis at the filter or from the laboratory sample tap.
b) However, the filter effluent turbidity is best monitored and recorded on a continuous basis by an on-line turbidity-meter.

Process Actions:-

Follow the steps as indicated below:

a) Monitor process Performance.
b) Evaluate turbidity and make appropriate process changes.
c) Check and adjust processes equipment (change chemical feed rates).
d) Backwash filters.
e) Evaluate filter media condition (media loss, mud balls, cracking).
f) Visually inspect facilities.

Record Keeping

A daily operations log of process performance data and water quality characteristics shall be recorded and maintained accurately for the following items:

1) Process water quality (turbidity, colour, pH and alkalinity).

2) Process operation (filters in service, filtration rates, loss of head, length of filter runs,frequency of backwash, backwash rates, and UFRV-unit filter run volume).
3) Process water production (Water processed, amount of backwash water used, and chemicals used).
4) Percentage of water production used to back-wash filters. Process equipment Performance (types of equipment in operation, equipment adjustments, maintenance Procedures performed, and equipment calibration).

Start-up and Shutdown procedures
(a) Routine Procedures

The plants keep all filters into service except unit under backwash operation andmaintenance. Filter units are routinely taken off line for backwashing when the media becomes clogged with particulates, turbidity break through occurs or demands for water are reduced.

1. **Filter check- out procedures**

a) Check operational status of filter.
b) Be sure that the filter media and wash water troughs are clean of all debris such asleaves, twigs, and tools.
c) Check and be sure that all access covers and walk-way gratings are in place.
d) Make sure that the process monitoring equipment such as head-loss and turbidity systems are operational.
e) Check the source of back-wash to ensure that it is ready to go.

2. Backwash Procedure

Filters should be washed before placing them into service.

a) The surface wash system should be activated just before the backwash cycle starts to aid in removing and breaking up solids on the filter media and to prevent the development of mud balls. The surface wash system should be stopped beforecompletion of the back-wash cycle to permit proper settling of the filter media.
b) A filter wash should begin slowly for about one minute to permit removing of an entrapped air from the filter media, and also to provide uniform expansion of the filter bed. After this period, the full backwash rate can be applied. Sufficient time should be allowed for cleaning of the filter media. Usually when the backwash water coming up through the filter becomes clear, the media is washed. This generally takes from 3 to 8 minutes. If flooding of wash water troughs or carryover of filter media is a problem,
the backwash rate must be reduced.

Procedure for back-washing a filter is as follows:

a) Close filter influent valve.

b) Open drain valve.
c) Close filter effluent valve .
d) Start surface wash system .
e) Slowly start back- wash system .
f) Observe filter during washing process.
g) When wash water from filter becomes clear (filter media is clean), close surface wash system valve .
h) Slowly turn off back-wash system .
i) Close drain valve. Log length of wash and the quantity of water used to clean filter.

Filter Startup Procedures

a) Start filter slowly open influent valve.

b) When proper elevation of water is reached on top of filter, filter effluent valve should be graduattyopened.This effluent control valve should be adjusted itself to maintain a constant level of water over the filter media.

c) Waste some of the initial filtered water if such a provision exists.

d) Perform turbidity analysis of filtered water and make process adjustments as necessary.

Filter Shutdown Procedures

a) Remove filter from service by closing influent valve and closing effluent valve.
b) Backwash filter. If filters to be out of-service for aprolonged period.
c) Drain water from filter to avoid algal growth.
d) Note of filter in operations log.

Support Equipment

The operator must be familiar/ trained with the operation and maintenance instructions
for each specific equipment item or control system.

(a) Types of Equipment

1. Filter Control Valves.
2. Backwash and surface wash pumps.
3. Flow meter and level/ pressure gauges.
4. Water quality monitors such as turbidity-meters.
5. Process monitors (head-loss and water level).
6. Mechanical and electrical filter control systems.

(b) Equipment Operation

Before starling mechanical equipment, such as a back-wash pump' the operator should be sure that the unit has been serviced as per schedule and is fit for operation. After startup, the operator should always check for excessive noise and vibrations, over-heating and leakage (water, lubricants) otherwise, in doubt about the performance of equipment, check/refer to

manufacturer's. Periodical lubrication and maintenance of the equipment's are necessary.

Preventive Maintenance Procedures

Preventive maintenance programmes are to assure the continued satisfactory operation of treatment plant facilities by reducing the frequency of break-down failures. Routine maintenance function of operator may include:

a) Keeping electric-motors free of dirt, moisture and pests (rodent sand birds).'
b) Assuming good ventilation (air circulation) in equipment work areas.
c) Checking pumps and motors for leaks, unusual noise and vibrations or overheating.
d) Maintaining proper lubrication and oil levels.
e) lnspecting for alignment of shafts and couplings.
f) Checking oearinls for overheating and proper lubrication.\
g) Checking the proper valve operation (leakage or jamming).
h) Checking automatic control systems for proper operation.
i) Checking air/vacuum relief systems for proper functioning, dirt and moisture.
j) Verifying correct operation of filters and back-washing cycles by observation.
k) Inspecting filter media conditions (look for algae and mud balls and examine gravel and media for Proper gradation).
l) lnspecting filter under-drain system (be sure that the under drain openings are not becoming clogged due to media corrosion nor chemical deposits).

Safety Considerations

(a) Electrical Equipment

1) Avoid electric shock (use preventive gloves).
2) Avoid grounding yourself in water or on pipes.
3) Ground all electric tools.
4) Lock-out and tagel electrical switches and panel when servicing equipment.

(b) Mechanical Equipment

1) Use protective guards on rotating equipment.
2) Don't wear loose clothing around rotating equipment.
3) Keep hands out of energized valves, pumps and other pieces of equipment.
4) Clean-up all lubricant and chemicals pills (slippery surfaces cause bad falls).

(c) Open Surface Filter

1) Use safety devices such as hand rails and ladders.
2) Close all openings and replace safety gratings when finished working.

3) Know the location of all life preserves and other safety devices.

(d) Valve and Pump Vaults, Sumps, Filter galleries

1) Be sure that all underground or confined structure are free of hazardous atmosphere(toxic or explosive gases, lack of oxygen) of oxygen) by checking with gas detectors.
2) Work in well ventilated structures (use air circulation fans).

(e) DISINFECTION OF WATER

Chlorination

The primary objectives of the chlorination process are disinfection, taste and odor control in the system, preventing the growth of algae and other micro-organisms that might interfere with coagulation and flocculation, keeping filter media free of slime growths and mud balls and preventing possible built up of anaerobic bacteria in the filter media, destroying hydrogen sulphide and controlling suiphurous taste and odour in the finished water, removing iron and manganese, bleaching of organic colour.

Dosage: Effective chlorine dose should be such that sufficient chlorine is there to react with organic matter, ammonia, iron, manganese and other reducing substances in water and at the same time leave sufficient chlorine to act as algaecide. Dose required for this purpose
may be over 2 mg/l. Post chlorination dose can be adjusted to obtain minimum 0.2to 0.5 mg/l residual chlorine in potable water at consumer end.
Methods: Disinfection is carried out by applying chlorine or chlorine compounds. The methods of application are as follows:
1. Preparing weak solution by bleaching powder.
2. Preparing weak solution by electrolyzing brine solution.
3. By adding chlorine either in the form of gas or solution prepared from dissolving chlorine gas in small feed of water.

Disinfection by Bleaching Powder

Bleaching powder or calcium hypochlorite is a chlorinated lime, which contains about 25to 34 % of available chlorine by weight. Chlorine being a gas is unstable and as such it is mixed with lime to retain its strength for a longer period, as far as possible. The bleaching powder is hygroscopic in nature. It loses its chlorine strength rapidly due to poor storage and hence should not be stored for more than three months. The method of chlorination by bleaching powder is known as hypo-chlorination. The combined action of hypochlorous acid and hypochlorite ion brings about the disinfection of water.

Preparaton of Solution

1) The concentrated solution of bleaching powder is prepared in one or two tanks of capacity suitable for requirement.

2) The tank inside should be of glazed tiles or stoneware and should be covered

3) The powder is first put on a perforated slab placed longitudinally inside the tank at a higher level, with respect to bed level of tank.

4) Water is sprinkled on the powder through a perforated pipe above this perforated slab.

5) The solution of bleaching powder & water now enters the tank. The solution is rotated for thorough mixing of powder with water by a hand driven/motor-reduction gear operation slow speed stirrer is now ready for use as disinfectant.

6) The precipitates of calcium hydroxide-settle it the bottom of the tank. The supernatant water, which contains OCI,Cl- plays the important role in disinfection.

7) For effectiveness of chlorination, contact period of at least 4 hours shall be maintained.

Dosing of Solution

The solution is discharged to a small measuring tank at a lower level through PVC pipe or any other material resistant to chlorine. the level of water in this tank is maintained constant through a float valve. A micrometer orifice valve discharges the solution at any pre-set rate, by adjustment on the scale fitted on it. The solution is dosed to the clear water channel by gravity at the time of entry to clear water reservoir. The dose has to be monitored properly, depending on the desired residual chlorine required in clear water reservoir. The waste precipitates at the bottom of tanks are taken out occasionally by scour valve.

Precautions

1. The operating personnel should use hand gloves, aprons and other protective apparel, while handling and mixing.

2.The valves ,stirrer, tanks, plumbing arrangements require renovation at every 6 months or so.

Chlorination by Gaseous Chlorine

Elemental chlorine at a normal pressure is a toxic, yellow green gas, and is liquid at high pressure. Chlorine gas is released from liquid chlorine cylinder by a pressure reducing and flow control valve operating at a pressure less than atmospheric pressure. The gas is injected in the water supply pipe where highly pressurized water is passed through a venture creating a vacuum that draws the chlorine into the water stream. Adequate mixing and contact time must be provided after injection to ensure complete disinfection of pathogens, It may be necessary to control the PH of water. A basic system consists of chlorine cylinder mounted with vacuum regulator, chlorine gas injector, and a contact tank or pipe. Prudence or state regulation would require that a second cylinder and gas regulator be provided with a change-over valve to ensure

continuity of disinfection. Additional safety and control system may be required.
Chlorine is very effective for removing almost all pathogen and is appropriate for both a primary and secondary disinfectant. The limitation with this is, it is dangerous gas that is lethal at concentrations as low as 0.1 percent air by volume.

4.Operation& Maintenance of Overhand Tank (OHT)
Procedures for Operations

The operational procedures inter-alias will contains:
a) Information of the OHT such as: capacity in liters' size and depth of storage, size of piping/locations of control valves of inlet, outlet, scour and overflow; source of feeding the OHT, hours of pumping or gravity feeding into the OHT, rate of flow into the OHT,hours of supply from the OHT and quantity to be supplied from the OHT, areas to be served/supplied, highest and lowest-elevations to be commanded from the OHT and the water levels to be maintained the OHT for command of the entire area.
b) Key plan showing the alignment of pipe connections, by pass lines, interconnections and location of valves, flow meters, pressure gauges and alignment of out-fall drain to lead off the scour and overflow water from the OHT.
c) Step by step operating instructions indicating how to operate and control various valves located on the inlets and outlets, so as to ensure the required quantity of water is supplied to the command areas at the desired pressures during the period required to be displayed.
d) A record sheet for each valve showing direction for turning, number of turns, inspections, repairs and whether opens or closed. The direction of operation of valves shall be clearly marked as "open" or "close".
e) The name of the valve and piping such as washout, inlet, outlet, by pass, overflow etc. shall be painted clearly and repainted regularly. In the case of mechanized operation of valves, the steps to include starting, running and stopping the operations.
f) Different inlet pipes in the OHT from different source should be marked with different color Paint.

Maintenance of OHTs

a) The OHTs have to be inspected regularly and the department can prescribe frequency of inspections.
b) Leakage from structure of OHT and through the pipes and valves has to be attended to on priority.It is advisable to resort to pressure grouting to arrest leaks fromstructures and sometimes an additional coating of cement mortar plastering is also done using water proof compound to arrest leaks from the structure.

c) Maintenance is concerned with mainly protection against corrosion both externally and internally. Corrosion of roof slab of RCC OHTs due to the effect of chlorine is also common. internal corrosion is prevented by cleaning and painting at regular intervals. Quite Toxic paints should not be used for painting interior surface of OHT food grade epoxy painted shall only be used for painting interior surface of OHT. Anticorrosive painting (epoxy) is also done to the interiors when corrosion due to chlorine is expected. waterproof cement paint for exteriors of RCC OHT once in 5 year is usually done. the inside of painted OHT shall be disinfected before putting into use for a period sufficient to give chlorine residuals of at least 0.2 mg/l Manhole cover & vent pipes shall always be properly placed and maintained.
d) The maintenance procedures shall include step by step procedure for every piece ofequipment in OHT such as pipes inside the tank (Inlet, outlet, washout, overflow) valves specials and flow meters following the procedures as per the engineer in charge.

Pipes (Inlet, outlet, washout, overflow) and specials:

1) All the pipe fittings should be leak proof, any leakage nearby OHT may affect theSafety of OHTs.
2) Overflow pipe should be connected with the distribution system after the sluice valveinstalled on delivery Pipeline.

Valves

All valves should be inspected regularly in specified frequency of inspection and following activities shall be undertaken:
1) Lubrication is required to be done regularly.
2) Spindles that develop leaks should be repacked.
3) Rust and sediment in the valve is removed by shutting the disc hard in the seat, then opening about a quarter way and closing tightly several times; the increased velocity usually flushes the obstructions away.
4) Valve chambers of the OHT also require maintenance to ensure that the interiors of chambers are not silted up and also ensure that the covers are in good condition and are in position.
5) Sluice valve chamber shall not be water logged.

CLEANING OF RESERVOIRS

Routine inspection is the best way to determine when a tank requires maintenance and cleaning. A visual inspection can be made from the roof manhole with water level lowered to about half full or less. Alternatively, a detailed inspection can be made after draining the tank and then cleaning or washing. Best time of the year to take up cleaning of OHT is during the period of lowest water consumption.

The following activities are normally involved in cleaning of a tank/OHT:

a) Make alternate arrangement for water supply to consumers served by the OHT.
b) Close the inlet line before commencing cleaning of OHT.
c) Do not empty OHT and always keep minimum water level at 200-300 mm in the OHT.
d) Close the outlet valve so that no water will be used while the tank is being cleaned.
e) Drain and dispose of the remaining water and silt.
f) wash the interior of tank walls and floor with water hose and brushes.
g) Inspect the interior of walls and ceiling of tank for signs of peeling off or deterioration.
h) Apply disinfectant (Supernatant of Bleaching powder) to the walls and floor before start of filling the OHT.
i) The higher frequency of cleaning of OHT depends on the extent of silting, development of biofilms and results from water quality monitoring. Generally cleaning of Service OHT may be periodically done.
j) Date of last cleaning and the next due date of cleaning may be displayed on the outer surface of the OHT.

Records of Maintenance

The most efficient way to keep records is to plan what data is essential and then prepare the formats followed by the persons to fill the data, frequency and to whom the record is to be sent for review and report, Sample records to be maintained at a OHT site as below:

The following details shall be recorded:

The records on each of the following maintenance/repair works along with the cost of materials and labour shall be maintained along with date:

a) Water levels in the.
b) Time and relevant operation of control valves with time of opening and closure or throttling position of the valves.
c) Daily flow meter readings both on the inlets and outlets.
d) At least one a day Residual chlorine readings of inflow water and outflow water.
e) Gland ropes of the valves/Spares at the OHT were changed.
f) Manhole covers were changed/replaced.
g) Water level indicator was repaired or replaced.
h) OHT was cleaned.
i) Out-fall drain for scour and overflow was last cleaned.
j) Ladder was changed, when the structure of the OHT was last repaired to attend to structural defects or arrest leakage.
k) OHT/Pips was last painted.

l) Total cost of repairs and replacements at the OHT in previous year along with breakup of material cost and labor cost with amount spent on outside agencies for repairs and replacements.

5. O & M Schedule For Distribution System

Mapping and Inventory of Pipes and Fittings in the Water Supply System

Department have to be provide updated distribution system maps with location of valves, flow meters and pressure gauges or taping points is the first requirement for preparation of operation schedule. The agency should set up routine procedures for preparing and updating the maps and inventory of pipes, valves and consumer connections. The maps shall be exchanged with other public utilities to contain information on other utility services like electricity, communications etc.

Field Survey

Existing maps are used or conventional survey is employed for preparation and up-dating of maps. As an alternative to traditional survey and map preparation.

Routine Operation of the Water Supply Distribution System

The efficiency and effectiveness of a water supply system depends on the operating personnel's knowledge of the variables that affect the continuity, reliability and quantity of water supplied to consumers. The operational staff should be able to carry out changes in the hydraulic status of the system as required depending on those variables promptly and effectively. Routine operations shall be specified which are activities for adjusting the valves and operation of contain procedures for operating the distribution system. It should contain procedures to obtain, process, and analyze the variables related to water flows, pressures and levels as well as the consequences of manipulating control devices, such as operation of valves and or pumps so that the hydraulic status of the system can match the demand for water. When operators change their shifts information on valve closure and opening must be exchanged.

Operations in Break Downs and Emergencies

Operations other than routine viz. during breakdowns and emergencies have to be specified and should be carried out in specific circumstances when normal conditions change i.e. when flows, pressures and operation of pumps change.

Measurement of Flows, Pressures and Levels

It will be necessary to monitor regularly operational data concerning flows, pressures and levels to assess whether the system is functioning as per requirements. Analysis of data may reveal over drawl of water to some OHTs. At such places appropriate flow control devices may be introduced to limit the supplies to the required quantity. A list of priority points in water supply system have to be identified such as installation of meters to measure flows, pressures and levels.

Sampling for Quality of Water

The agency operating the water supply system is charged with the primary responsibility of ensuring that the water supplied to the consumer is of an appropriate quality. To achieve this objective, it is necessary that the physical, chemical and bacteriological tests are carried
out at frequent intervals. Samples should be taken at different points on each occasion to enable overall assessment. In the event of epidemic or danger of pollution more frequent sampling may be required, especially for bacteriological quality. For each distribution system a monitoring programme has to be prepared showing the location of sampling points. Based on historic records of a system it will be possible for the department to decide locations for bacteriological sampling and residual chlorine testing.

System Surveillance

a) Surveillance of distribution system is done to detect and correct.
b) Sanitary hazards.
c) Deterioration of distribution system facilities.
d) Encroachment of distribution system facilities by other utilities such as sewer andstorm water lines, power cables, telecom cables etc.
e) Damages of the system facilities by vandalism.

Maintenance Schedule

1) A maintenance schedule is required to be prepared to improve the level of maintenance of water distribution networks and house connections through improved co-ordination and planning of administrative and field work and through the use of adequate techniques, equipment and materials for field maintenance.
2) The schedule has to be flexible so that it can achieve team action with the available vehicles and tools.
3) Co-ordination of activities is required for spares and fittings, quality control of materials used and services rendered.
4) Training of maintenance staff shall include training to achieve better public relations with consumers apart from the technical skills.

Activities in Maintenance Schedule

Following activities are to be included in the schedule:

1) Establishment of procedures for setting up maintenance schedules and obtaining and processing the information provided by the public and the maintenance teams.
2) Formation of maintenance teams for each type of service with provision for Continuous training.
3) Establishment of repair procedures for standard services.
4) Specification of appropriate tools.
5) Allocation of suitable transport, tools and equipment to each team.
6) Establishment of time, labour and material requirement and output expected; time
required and other standards for each maintenance task.
7) Monitoring the productivity of each team.

Preventive Maintenance Schedule

A preventive maintenance schedule for Servicing of valve and maintenance of valve chamber, maintenance of the pipeline as per given orders by Engineer in charge may include the tasks, set priorities for tasks to be performed, list of scheduled tasks not completed, record of when the tasks are competed and maintaining a record of tools, materials, labour and costs required to complete each task.

Leakage Control

Wastage of water in the system and distribution network occurs by way of leakage from pipes joints & fittings, OHTs and overflow from OHTs & sumps. The objective of leakage control programme is to reduce the wastage to a minimum and minimize the time that elapses between the occurrence of a leak and its repair. The volume of water lost through each leak should be reduced by taking whatever action is technically and economically feasible to ensure that the leak is repaired as quickly as possible. To achieve this, the maintenance agency shall prescribe procedures for identifying, reporting, repairing and accounting for all. visible leaks. lt will be beneficial for the agency if the procedures involve the conscious and active participation of the population served by the agency apart from its own staff. The Management has to process the data and evaluate the work on detection and location of leaks and for dissemination of the results and initiate actions to control the overall problem of water loss. Interim measures for reduction/control of leakage can be initial by controlling pressure in the water distribution system where feasible.

Leakage through House Connections

Leakage can be controlled at the point of house connection and in the consumer pipe by adopting correct plumbing practice and improving the methods used for tapping the main and giving house connection and strict quality control on the pipe material used for house connection andinvestigation of reasons for leak in the house connections shall be carried out to initiate action on reducing the leakage through house connections.

Procedures for detecting Visible Leaks

The agency has to establish procedures where by the population served by the agency can notifies the visible leaks. The agency staff can also report visible leaks found by them while carrying out other works on the water-supply system. water supply agency has to establish procedures for prompt repair of leaks and attending efficiently and accurately to the leaks.

6. O & M SCHEDULE FOR PUMPING MACHINERY

Pumping machinery and pumping station Pumping are very important components in water supply system. Pumping machinery is subjected to wear, tear, erosion and corrosion due to their nature of functioning and therefore ls vulnerable for failure. Generally more number of failures or interruptions in water supply is attributed to pumping machinery than any other component. Therefore, correct operation and timely maintenance and upkeep of pumping stations and pumping machinery are fo vital importance to ensure uninterrupted water supply. Sudden failures can be avoided by timely inspection, follow up actions on observations of inspection and planned periodical maintenance Downtime can be reduced by maintenance inventory of fastmoving spare parts. Efficiency of pumping machinery reduces due to normal wear and tear. timely action for restoration of efficiency can keep energy bill within reasonable optimum limit.

A log book should be maintained covering the following items:

a) Timing when the pumps are started operated and stopped during 24 hours.
b) Voltage in all three phases.
c) Current drawn by each pump-motor set and total current drawn at the installation.
d) Frequency.
e) Readings of vacuum and pressure gauges.
f) Motor winding temperature.
g) Bearing temperature for pump and motor.
h) Water level in intake/sump.
i) Flow meter reading.
j) Daily PF over 24 hours duration.
k) Any specific problem or event in the pumping installation or pumping system e.g. burst in pipeline, tripping or fault, power failure.

COMPONENTS IN PUMPING STATIONS

The components in pumping station can be grouped as follows:

1) Pumping machinery

a) Pumps and other mechanical equipment, i.e. valves, pipe work, vacuum pumps Motors, switchgears, cable, transformer and other electrical accessories.

2) Ancillary Equipment

a) Lifting equipment
b) Water hammer control device
c) Flow meter

3) Pumping station

a) Intake well-cum-pump house
b) Sump cum Pump house
c) Screen (If any)

Type of Pumps

Following types of pumps are used in these water supply scheme:
a) Polder Pumps (Self-water lubricated).
b) Centrifugal pumps (Clear water lubricated).
c) Submersible pumps (Vertical & Horizontal)
e) Mono bloc open well type pump-motor set .
f) Jet pumps .
g) Reciprocating pumps.

Important Points for Operation of the Pumps

Various types of pumps are in use and the specification of O&M schedule provided bymanufacturers shall be followed. However, the following points shall be observed while operating the pumps.

a) Dry running of the pumps should be avoided.
b) Centrifugal pumps have to be primed before starting.
c) Pumps should be operated only within the recommended range on the head- discharge characteristics of the pump:
i. If pump is operated at point away from duty point, the pump efficiency normally reduces.
ii. Operation near the shut off should be avoided, as the operation near the shut off causes substantial recirculation within the pump, resulting in overheating of water in the casing and consequently, overheating of the pump.
d) Voltage during operation of pump-motor set should be within + 10% of rated voltage.
Similarly current should be below the rated current as per name plate on the motor.

e) Whether the delivery valve should be opened or closed at the time of starting shouldbe decided by examining shape of the power-discharge characteristic of the pump.

Pump of low and medium specific speeds draw lesser power at shut off head and power required increases from shut off to normal operating point. Hence in order to reduce starling load on motor, a pump of low or medium specific speed is started against closed delivery valve. Normally the pumps used in water supply schemes are of low and medium specific speeds. Hence, such pumps need to be started against closed delivery valve. The pumps of high specific speed draw more power at shut off. Such pumps should be started with the delivery valve open.

f) The delivery valve should be operated gradually to avoid sudden change in flowvelocity which can cause water hammer pressures. lt is also necessary to control opening of delivery valve during pipeline-filling period so that the head on the pump is within its operating range to avoid operation on low head and consequent overloading. This is particularly important during charging of the pumping main initially or after shutdown. As head increases the valve shall be gradually opened.

g) When the pumps are to be operated in parallel, the pumps should be started and stopped with a time lag between two pumps to restrict change of flow velocity to minimum and to restrict the dip in voltage in incoming feeder. The time lag should be adequate to allow stabilizing the head on the pump, as indicated by a pressure gauge.

h) When the pumps are to be operated in series, they should be started and stoppedsequentially, but with minimum time lag. Any pump, next in sequence should be started immediately after the delivery valve of the previous pump is even partly opened. Due care should be taken to keep the air vent of the pump next in sequence open, before starting that pump.

i) The stuffing box should let a drip of leakage to ensure that no air is passing into the pump and that the packing is getting adequate water for cooling and lubrication. when the stuffing box is grease sealed, adequate refill of the grease should be maintained.

j) The running of the duty pumps and the standby should be scheduled so that no pump remains idle for long period and all pumps are in ready to run condition. Similarly unequal running should be ensured so that all pumps do not wear equally and become due for overhaul simultaneously. lf any undue vibration or noise is noticed, the pump should be stopped immediately and cause for vibration or noise be checked and rectified.

k) Bypass valves of all reflux valve, sluice valve and butterfly valve shall be kept in closed position during normal operation of the pumps.

l) Frequent starting and stopping should be avoided as each start causes overloading of motor, starter, contactor and contacts. Thoughoverloading lasts for a few seconds, it reduces life of the equipment.

Additional Points for Operation of the Pumps

(1) Submersible pumps:

a) Correct rotations.

b) Pump is below static water level before starting, and continues to be below draw down level throughout the operation.

(2) Centrifugal pumps:

a) Correct rotations.

b) Pump is properly primed before starting if pump suction is negative.

Inventory of materials for pumps

1) Submersible Pumps: impellers

2) Centrifugal pumps : Impellers, diffusers, bearings, gland packing's.

3) Motors: Bearings.

4) MCC: Relay, tripping circuit, fuses.

5) Transformer: Oil.

STARTING THE PUMPS

Fo||owing points should be checked before starting the pump.

a) Power is available in all 3 phases.

b) All connections are properly thimble.

c) Trip circuit for relays is in healthy state\ check voltage in all 3 phases.

d) The voltage in all phases should be almost same and within + 10% of rated voltage, as per permissible voltage variation.

e) Check functioning of lubrication system specifically for oil lubricated and clear water lubricated.

f) Check stuffing box to ensure that It is packed properly.

g) Check and ensure that the pump is free to rotate.

h) Check over current setting if the pump is not operated for a week or longer period.

i) Before starting it shall be ensured that the water level in the sump/intake is above low water level and inflow from the source.

Stopping the Pump

(a) Stopping the Pump under Normal Condition

Steps to be followed for stopping a pump of low and medium specific speed are as follows:

i) Close the delivery valve gradually (sudden or fast closing should not be resorted to which can live rise to water hammer pressures).

ii) Switch off the motor.

iii) Open the air vent in case of submersible pump.

iv) Stop lubricating oil or clear water supply in case of oil Lubricated or clear water Lubricated

Stopping after Power Failure/Tripping

If power supply to the pumping station fails or trips, actions stated below should be immediately taken to ensure that the pumps do not restart automatically on resumption of power supply. Though no-volt release or under volt relay is provided in starter and breaker, possibility of its malfunctioning and failure to open the circuit cannot be ruled out. In such eventuality, if the pumps start automatically on resumption of power supply, there will be sudden increase in flow velocity in the pumping main causing sudden rise in pressure due to water hammer which may prove disastrous to the pumping main. secondly, Due to sudden acceleration of flow in the pumping main from no-flow situation, acceleration head will be very high and the pumps shall operate near shut off region during acceleration period which may last for few minutes for long pumping main and cause overheating of the pump. Restarting of all pumps simultaneously shall also cause overloading of electrical system. Hence, precautions are necessary to prevent auto-restarting on resumption on Power.

Following procedure should be followed:

a) Close all delivery valves on delivery piping of pumps if necessary, manually as
actuators cannot be operated due to non-availability of power.

b) Check and ensure that all breakers and starters are in open condition i.e. off-position.

c) All switch fres and breakers shall be operated to open i.e. off-position.

d) Open air vent in case of submersible pump and close lubricating oil or clear water supply in case of oil lubricated or clear water lubricated pump

Information about power failure should be given to all concerned, particularly to upstream pumping station to stop pumping so as to prevent overflow.

Pumping Machinery Maintenances

(1) Daily

a) Clean the pump, motor and other accessories.

b) Check coupling bushes/rubber spider.

c) Check stuffing box, gland etc.

i) Routine observations of irregularities

a) The pump operator should be watchful and should take appropriate action on any irregularity noticed in the operation of the pump. Particular attention should be paid to following irregularities.

b) Changes in sound of running pump and motor.

c) Abrupt changes in bearing temperature.

d) Oil leakage from bearings.

e) Leakage from stuffing box or mechanical seal.
f) Changes in voltage
g) Changes in current
h) Changes in vacuum gauge and pressure gauge readings
i) sparks or leakage current in motor, starter, switch-gears, cable etc
j) Overheating of motor, starter' switch gear' cable etc.

(II) Record of operations and observations:

A log book should be maintained to record the observations which should cover the following items:
a) Timings when the pumps are started operated and stopped during 24 hours.
b) Voltage in all three Phases.
c) Current drawn by each pump-motor set and total current drawn at the installation.
d) Frequency.
e) Readings of vacuum and pressure gauges.
f) Motor winding temperature.
g) Bearing temperature for pump and motor.
h) Water level in intake/sump.
i) Flow meter reading.
j) Daily PF over 24 hour's duration.
k) Any specific problem or event in the pumping installation or pumping system e.g. burst
in pipeline, tripping or fault, power failure.

(2) Monthly Maintenance

a) Check free movement of the gland of the stuffing box, check gland packing and replace if necessary. Clean and apply oil to the gland bolts.
b) inspect the mechanical seal for wear and replacement if necessary. Check condition of bearing oil and replace or top up if necessary.

(3) Quarterly Maintenance

a) Check alignment of the pump and the drive. The pump and motor shall be decoupled while correcting alignment, and both pump and motor shaft shall be pushed to either side to eliminate effect of end play in bearings.
b) Clean oil lubricated bearing and replenish with fresh oil. If bearing are grease lubricated the condition of the grease should be checked and replace/replenished to the correct quantity. An anti-friction bearing should have its housing so packed with grease that the void space in the bearing housing should be between one third to half. A fully packed housing will overheat the bearing and will result in reduction of life of the bearing.
c) Tighten the foundation bolts and holding down bolts of pump and motor mounting on base plate or frame.

d) Check vibration level with instruments if available, otherwise by observation.
e) Clean flow indicator, other instruments and appurtenances in the pump house.

Annual inspections and Maintenance:

A very thorough, critical inspection and maintenance should be performed by trained operator/Engineer once in a year.
Following items should be specifically attended:
i) Clean and flush bearings with kerosene and examine for flaws developed. If any e.g.corrosion, wear and scratches, check end play, immediately after cleaning, the bearings should be coated with oil or grease to prevent ingress of dirt or moisture.
ii) Clean bearing housing and examine for flaws e.g. wear grooving etc. Change oil or grease in bearing housing.
iii) Examine shaft sleeves for wear or scour and necessary rectification. lf shaft sleeves are not used, shaft at gland packing's should be examined for wear.
iv) Check stuffing box, glands, lantern ring, and mechanical seal and rectify if necessary.
v) Check clearances in wearing ring.
vi) Check impeller hubs and vane tips for any pitting or erosion.
vii) Check interior of volute, casing and diffuser for pitting erosion and rough surface.
viii) All vital instruments i.e. pressure gauge, vacuum gauge, ammeter, voltmeter.
ix) Check performance test of the pump for discharge head efficiency.

MAINTENANCE SCHEDULE FOR MOTORS

(1) Daily

a) Clean external surface of motor.
b) Examine earth connections and motor leads.
c) Check temperature of motor and check whether overheated. The permissiblemaximum temperature is above the level which can be comfortably felt by hand. Hence temperature observation should be taken with thermometer. (Note: ln order to avoid opening up motors a good practice is to observe the stator temperature. Under normal working conditions. Any increase not accounted for ,by seasonal increase in ambient temperature, should be suspected)
d) ln case of oil ring lubricated bearing.
I) Examine bearings to check whether oil rings are working.
ii) Note bearing temperature.
iii) Add oil if necessary.
e) Check for any abnormal Bearing noise.

(2) Monthly Maintenance of motors

a) Check belt tension incase where this is excessive it should immediately be reduced.

b) Blow dust from the motor.

c) Examine oil in oil lubricated bearing for contamination by dust grit etc.(this can be judged from the colour of the oil).

d) Check functioning and connections of anti-condensation heater (space heater).

e) Check insulation resistance by mongering.

(3) Quarterly Maintenance of motors

a) Clean oil lubricated bearings and replenishes fresh oil. if bearings are grease lubricated, the condition of the grease should be checked and replaced/replenished to correct the condition of the grease should be checked and replaced/replenished to correct quantity.

b) An Anti-friction bearing should have its housing so packed with grease that the void space in the bearing housing should be between one third to half. A fully packed housing will overheat the bearing and will result in reduction of life of the bearing.

c) Wipe brush holders and check contact faces of brushes of slip-ring motors. If contact face is not smooth or is irregular, file it for proper and full contact over slip rings.

d) Check insulation resistance of the motor.

e) Check tightness of cable gland, lug and connecting bolts.

f) Check and tighten foundation bolts and holding down bolts between motor and frame.

g) Check vibration level with instrument if available; otherwise by observation.

(4) Half Yearly

a) Clean winding of motor, bake and varnish if necessary.

b) In case of slip ring motors, check slip-rings for grooving or unusual wear, and polish with smooth polish paper if necessary.

(5) Annual inspections and Maintenance of motors

a) Clean and flush bearings with kerosene and examine for flaws developed, if any, e.g. wear and scratches. Check end-play. immediately after cleaning, the bearings should be coated with oil or grease to prevent ingress of dirt or moisture.

b) Clean bearing housing and examine for flaws, e.g. wear, grooving etc. Change oil or grease in bearing housing.

c) Blow out dust from windings of motors thoroughly with clean dry air. Make sure that the pressure is not so high as to damage the insulation.

d) Clean and varnish dirty and oily windings. Re-varnish motors subjected to severe operating and environmental conditions e.g., operation in dust-laden environment, polluted atmosphere etc.
d) Check condition of stator, stamping, insulation, terminal box, fan etc.
e) Check insulation resistance to earth and between phases of motors windings, controlgear and wiring.
f) Check air gaps.
g) Check resistance of earth connections.

History Sheet

The history sheet of pump, history sheet of motor should be maintained. The history sheet should contain ail important particulars, records of periodical maintenance, repairs, Inspections and tests. It shall generally include the following:
a) Details of motor, rating, model, class of duty, class of insulation, efficiency curve, type
test result and type test certificate etc.
b) Date of installation and commissioning.
c) Addresses of manufacturer & dealer with phone & fax number and e-mail addresses.
d) Brief details of monthly, quarterly, half yearly and annual maintenance and observations of inspections about insulation level, air gap etc.
e) Details of breakdown, repairs with fault diagnosis.
f) Running hours at the time of major repairs.

O & M for L.T.STARTERS, BREAKERS AND PANEL

(1) Daily

a) Clean the external surface.
b) Check for any spark or leakage current.
c) Check for overheating.

(2) Monthly

a) Blow the dust and clean internal components in the panel, breaker etc.
b) Check and tighten all connections of cable, wires, jumpers and bus-bars. All carbon deposits shall be cleaned.
c) Check relay setting.

(3) Quarterly

a) Check all connections as per circuit diagram.
b) Check fixed and moving contacts and clean with smooth polish paper, if necessary.
c) Check oil level and condition of oil in oil tank. Replace the oil if carbon deposit in
suspension is observed or color is black.
d) Check insulation resistances.
e) Check conditions of insulators.

(4) Yearly

a) Check and carry out servicing of all components, thoroughly clean and reassemble.
b) Calibrate voltmeter, ammeter, frequency meter etc.

O & M for H.T. BREAKERS, CONTACTORS AND PROTFCTION RELAYS

Circuit diagram of breaker/relay circuit should be pasted on door of switch gear and additional copy should be kept on record. Maintenance schedule specified for L.T. breakers are also applicable to H.T. breakers and contactors. In addition, following important points shall be attended for H.T. breakers and contactors.

(1) Monthly

a) Check spring charging mechanism and manual cranking arrangement for operation.
b) Clean all exposed insulators. . Check trip circuit and alarm circuit. . Check opening &
closing timing of breaker.

(2) Quarterly

a) Check control circuits including connections in marshaling boxes of breakers and
Transformer.
b) Check oil level in MOCB/LOCB/HT OCB and top up with tested oil.
c) Yearly testing of protection relay with D.C. injection shall be carried out once in year.
d) Servicing of HT breaker and contactor shall be carried out once in 2-3 years.
e) Check dielectric strength of oil in breaker and replace if necessary.
f) Check male & female contacts for any pitting and measure contact resistance.

TRANSFORMER & TRANSFORMER SUB STATION

Maintenance schedule as follows shall be applicable for transformer and substation equipment's e.g. Lightening arrestor, A.B. switch, D.O. or horn gap fuse, sub-station earthling system etc. this para is particularly useful for the schemes.

(1) Daily Observations and Maintenance of the sub station

a) Check winding temperature and oil temperature in transformer and record.
b) Check leakages through CT/PT unit, transformer tank and HT/LT bushings.

c) Check colour of silica gel. If silica gel is of pink colour, change the same by spare

charge and reactivate old charge for reuse.

(2) Monthly of the sub station

a) Check oil level in transformer tank and top up if required.

b) Check relay contacts, cable termination, connections in marshaling box etc.

c) Check operation of AB switch and DO fuse assembly.

d) Clean radiators free from dust and scales.

e)Pour 3-4 buckets (6 to 8 buckets in summer) of water in earth pit.Watering shall be increased to once in a week in summer season. Watering shall be increased to once in a week in summer season. Shall preferably contain small amount of salt in solution.

f) Inspect lightning arrestor and HT/LT bushing for cracks and dirt.

(3) Quarterly of the sub station

a) Check dielectric strength of transformer oil and change or filter if necessary.
b) Check insulation resistance of all equipment's in sub-station, continuity of earthlings and earth leads.
c) Check operation of tap changing switch.
Pre-Monsoon and Post-Monsoon Checks and Maintenance of the sub station

a) Check insulation resistance of transformer.
b) Test transformer oil for dielectric strength, sludge etc. If necessary, filtration of oil shall be carried out before monsoon.
c) Oil shall be tested for dielectric strength after monsoon.
(1) Half-Yearly of the sub station
(i) Check dielectric strength of transformer oil in CT/PT and filter or change oil if necessary.
(ii) Check contact faces of AB switch and DO/HG fuse; apply petroleum jelly or grease to moving components of AB switch.
(2) Annual of the sub station
(i) Measure resistance of earth pit. Resistance shall not exceed 1 ohm.
(ii) Check bus bar connections, clean contact faces, change rusted nut bolts.
(iii) The protection relay for functioning. Check relay setting and correct if necessary.
(iv) Ensure that sub-station area is not water-logged. If required necessary earth fillings with metal spreading at top shall be carried out once in a year. Check drainage arrangement to prevent water logging in substation area and cable trenches.
(v) Test transformer oil for acidity test.
(3) Special Maintenance of the sub station
(i) Painting of transformer tank and steel structure of sub-station equipment's shall be carried out after every two years.
(ii) The core of transformer and winding shall be checked after 5 years for transformer up to 3000 kVA and after 7-10 years for transformers of higher capacity.

(4)

Installation of Flow Meter:

The contractor is required to install one electromegnatic flow meter at outlet of clear water pumping station and Woltmen type flow meters at following places for measurement of flow of clear water. Daily record of flow shall be maintained at all places duly verified by competent authority of department.Taking no flow meter.

S. No	Location	Type of Flow meter
1	At Clear water pumping station(WTP) at Jam	Electromagnetic
2	At Botta O.H.T.	Woltman Turbine Bulk meter
3	At Patharsahi O.H.T.	Woltman Turbine Bulk meter
4	At Lawada O.H.T.	Woltman Turbine Bulk meter
5	At Khamariya O.H.T.	Woltman Turbine Bulk meter
6	At Boritola O.H.T.	Woltman Turbine Bulk meter

Annexure – F

(See clause 3 of Section 2 -ITB)

Procedure for participation in e-tendering

Instructions for Online Bid Submission

The bidders are required to submit soft copies of their bids electronically on the MP TENDERS Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the MP TENDERS Portal, prepare their bids in accordance with the requirements and submitting their bids online on the MP TENDERS Portal.

More information useful for submitting online bids on the MP TENDERS Portal may be obtained at:
https://mptenders.gov.in/nicgep/app

REGISTRATION

1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: https://mptenders.gov.in/nicgep/app) by clicking on the link "**Online bidder Enrolment**" on the MP TENDERS Portal**.**
2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the MP TENDERS Portal.
4) Upon enrolment, the bidders will be required to register **their valid Digital SignatureCertificate (Class III Certificates with signing key usage)** issued by any Certifying Authorityrecognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

1) There are various search options built in the MP TENDERS Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the MP TENDERS Portal.
2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the MP TENDERS Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" or ''Other Important Documents'' area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

SUBMISSION OF BIDS

1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
2) Bidder has to upload scanned self certified copies of credential/PQR documents against respective tender as specified in NIT.
3) Bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
4) Bidder has to select the payment option as "online" to pay the tender fee / EMD as applicable.
5) If bidder is opting for submission of Bank Guarantee towards EMD then bidder has to opt for "exemption" option on the website and upload the scanned self certified copy of EMD document as per NIT towards exemption from e-submission of EMD amount. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the Bank Guarantee, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time.
6) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the file name. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
7) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
8) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be

viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done.Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers public keys.

9) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
10) Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
11) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

ASSISTANCE TO BIDDERS

1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
2) Any queries relating to the process of online bid submission or queries relating to MP TENDERS Portal in general may be directed to the 24x7 MP TENDERS Portal Helpdesk.

Annexure – G
(See clause 4 of Section 2 -ITB)

JOINT VENTURE (J.V.)

If J.V. is allowed following conditions and requirements must be fulfilled –

1. Bids submitted by a joint venture[1] of two or more firms as partners shall comply with the following requirements:
   a. one of the partners shall be nominated as being Lead Partner, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners;
   b. the bid and, in case of a successful bid, the Agreement, shall be signed so as to be legally binding on all partners;
   c. the partner in charge[2] shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture and the entire execution of the contract, including payment, shall be done exclusively with the partner in charge;
   d. all partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms, and a statement to this effect shall be included in the authorization mentioned under [c] above, as well as in the bid and in the Agreement [in case of a successful bid];
   e. The joint venture agreement should indicate precisely the role of all members of JV in respect of planning, design, construction equipment, key personnel, work execution, and financing of the project[3]. All members of JV[4] should have active participation in execution during the currency of the contract. This should not be varied/modified subsequently without prior approval of the employer;
   f. The joint venture agreement should be registered[5], so as to be legally valid and binding on all partners; and
   g. a copy of the Joint Venture Agreement entered into by the partners shall be submitted with the bid[6].
2. The figures for each of the partners of a joint venture shall be added together to determine the Bidder's compliance with the minimum qualifying criteria required for the bid. All the partners collectively must meet the criteria specified in full. Failure to comply with this requirement will result in rejection of the joint venture's bid.
3. The performance security[7] of a Joint Venture shall be in the name of the partner **Lead Partner/joint venture.**
4. Attach the power of attorney[8] of the partners authorizing the Bid signatory(ies) on behalf of the joint venture
5. Attach the agreement among all partners of the joint venture [and which is legally binding on all partners], which shows the requirements as indicated in the Instructions to Bidders'.
6. Furnish details of participation proposed in the joint venture as below:

DETAILS OF PARTICIPATION IN THE JOINT VENTURE

PARTICIPATION DETAILS	FIRM 'A' (Lead Partner)	FIRM 'B'	FIRM 'C'
Financial			
Name of the Bankers(s)			
Planning			
Construction Equipment			
Key Personnel			
Execution of Work (Give details on contribution of each)			

---

1. **Joint Venture is an arrangement in which two or more parties under an agreement for the purpose of executing a specific task/project and all parties shall be jointly and severally responsible to incur all the liabilities under the task/project, if awarded.**
2. **Partner in Charge – i.e. Lead partner.**
3. **This agreement shall also mention the NIT No./System I.D., Name of Work, Name of Joint Venture Firm, lead partner and other partners.**
4. **The lead partner and the other partners shall have minimum 51% and 20% stake respectively in the Joint Venture.**
5. **The joint venture agreement should be made on Rs. 1000/- Non Judicial Stamp Paper, duly Notarized/registered. Each partner of the joint venture shall be individually registered in the appropriate class required for participation in the tender or if eligible for registration, can also participate after having applied for registration in appropriate class.**
6. **The joint venture agreement entered into by the partners shall be submitted originally in envelope A and should also be uploaded online (scanned copy) with the bid.**
7. **The Earnest Money Deposit and Performance Security of the joint venture shall be drawn in favour of the concerned Executive Engineer and on Account of the partner – i.e. Lead partner/joint venture.**
8. **Power of Attorney shall be prepared separately on Rs. 500/- Non Judicial Stamp Paper, duly Notarized and should be submitted originally in Envelope A (and uploaded online scanned copy) alongwith joint venture agreement.**

Format: H
(See clause 12 of Section 2–ITB & clause 4 of GCC)

ORGANIZATIONAL DETAILS

(To be enclosed with technical proposal)

S. No.	Particulars	Details
1.	Registration number issued by Centralized Registration System of Govt. of M.P. or proof of application for registration	(if applicable,Scanned copy of proof of application for registration to be uploaded)
2	Valid Registration of bidder in appropriate class through Centralized Registration of Govt. of MP	Registration No. ..... Date..... (Scanned copy of Registration to be uploaded)
3.	Name of Organization/ Individual/Proprietary Firm/Partnership Firm	
4.	Entity of Organization Individual/ Proprietary Firm/ Partnership Firm (Registered under Partnership Act)/ Limited Company (Registered under theCompanies Act–1956)/ Corporation/ Joint venture	
5.	Address of Communication	
6.	Telephone Number with STD Code	
7.	Fax Number with STD Code	
8.	Mobile Number	
9.	E-mail Address for all communications	
	Details of Authorized Representative	
10.	Name	
11.	Designation	
12.	Postal Address	
13.	Telephone Number with STD Code	
14.	Fax Number with STD Code	
15.	Mobile Number	
16.	E-mail Address	

Note: In case of partnership firm and limited company certified copy of partnership deed/ Articles of Association and Memorandum of Association alongwith registration certificate of the company shall have to be enclosed.

Signature of Bidder with Seal
Date: _____

Annexure – I

(See clause 14 of Section 2 -ITB)

Envelope – B, Technical Proposal

Technical Proposal shall comprise the following documents:

S No	Particulars	Details to be submitted
1	Experience – Financial &Physical	Annexure –I (Format: I-1)
	Experience certificate Information	Format: I-1 A
2	Annual Turnover	Annexure – I(Format: I-2)
3	List of technical personnel for the key positions	Annexure – I(Format: I-3)
4	List of Key equipments/ machines for quality control labs	Annexure – I(Format: I-4)
5	List of Key equipments/ machines for construction work	Annexure – I(Format: I-5)

Note:

1.Technical Proposal should be uploaded duly page numbered and indexed.

2.Technical Proposal uploaded otherwise will not be considered.

Format: I-1

(See clause 14 of Section 2 -ITB)

FINANCIAL & PHYSICAL EXPERIENCE DETAILS

The bidder should have:

A. Financial

Average annual turnover of the bidder during the last 3 financial years should not be less than 33% of the Probable Amount of contract (PAC)

To be filled in by the contracotre:

i. Details of successfully completed similar works shall be furnished in the following format.

ii. Certificate duly signed by the employer not below the rank of executive engineer shall also be enclosed for each executed similar work.

Agreement Number & Date	Name of Work	Date of Work Order	Date of Completion		Amount of Contract				Employer's Name and Address
			As per Agreement	Actual Date of completion	Year - 1	Year -2	Year -3	Total	

Existing commitments – (Value of 'C' for Bid Capacity formula)

Agreement Number & Year	Name of Work	Date of Work Order	Date of Completion	Amount of Contract	Amount of balance work	Employer's Name and Address

B. Physical Requirement:

i) The bidder must have experience of successfully executing and commissioning of a water supply scheme (based on a surface source) of 5.64 MLD capacity or more in last 5 years.

OR

ii) The bidder must have experience of successful Operation & Maintenance of a water supply scheme (based on a surface source) of 5.64 MLD capacity or more for at least 1 year in last 5 years.

Execution of similar items of work during the last 5 financial years should not be less than the minimum physical requirement fixed for the work.

S No	Particulars	Actual Quantity Executed (To be filled in by the contractor)				
		Year – 1	Year – 2	Year – 3	Year – 4	Year – 5
1	Physical qualification required	Yes				

Note:

1. Certificates duly signed by the employer not below the rank of Executive Engineer shall be enclosed for the actual quantity executed during the last 5 financial years.The experience certificate issued by Chief Muncipal officer (CMO) must be countersigned by Executive Engineer of Urban Admistration Department .

2.Similar works: The similarity shall be based on the physical size, complexity, methods technology or other characteristics of main items of work viz. earth work, cement concrete, Reinforced cement concrete, brick masonry, stone masonry etc.

3. Supporting details in the format Annexure I-1A shall be enclosed along with the experience certificate submitted.

4 **Bidder shall submit details of existing commitments for financial evaluation, otherwise bid shall be treated as invalid.

Supporting Detail of submitted Experience Certificate

1. Name of Work (As per NIT) : -
2. Agreement number & Contract Amount :-
3. Work order No. & Date :-
4. Period of Contract :-
5. Actual Date of completion of work :-
6. Time extension (if any) Period/Penalty :-
7. Value of work done already paid to Contract:-
8. Name & Designation of issuing officer :-
9. Contact detail (Address, Phone & Email) of issuing office. :-
10. Details of work components executed :-

S No	Name of components	Particulars / Specification/ details	Actual Quantity Executed (Amount in Lac/ Quantity)			Total
			Year – 1	Year – 2	Year – 3	
1	**Execution of Surface Source based water supply scheme of capacity 5.64 MLD or more. OR Operation & Maintenance of a water supply scheme (based on a surface source) of 5.64 MLD capacity or more**					
2	Other Components					

(Signature of authorized representative of bidder)
Designation with office seal

Format: I -2
(See clause 14 of Section 2 -ITB)

ANNUAL TURN OVER

Requirement:

Average annual turnover of the firm shoud not be less than 33% of the probable amount of contract during the last 3 financial years;

To be filled in by the contractor:

Financial Year	Payments received for contracts in progress or completed
2023-24	
2024-25	
2025-26	

Note:

i. Annual turnover of construction should be certified by the Chartered Accountant.
ii. Audited balance sheet including all related notes, and income statements duly certified by charted accountant for the above financial years to be enclosed.

Bid Capacity

Applicants who meet the minimum qualifying criteria in the evaluation as stated above are to be evaluated further for bid capacity as under:

Bid Capacity = (2 X A X B) - C

Where

A = Maximum turnover in any one year during the last three financial year (10% weightage per year shall be given to bring the value of work executed at present price level)

B = Proposed contract period* in years.

C = Amount of work in hand at present.

* If the contract periods is less then1 year, then for the purpose of calculating bid capacity, the contract period shall be taken as 1 year.

Format: I -3

(See clause 14 of Section 2 –ITB&

Clause 6 of GCC)

List Of Technical Personnel For The Key Positions

Minimum requirement							Available with the bidder							
S. No.	Key	Minimum requirem	Qualification	Age	Similarwork experience	Total Work	S. No.	Nameof	Key Position	Minimum	Qualification	Age	Similar work	Total Work
1	Chemist	1	B.SC II class with chemistry		2Year experience as water analysist									
			M.Sc in chemistry		N.A.									
2	Pump operator/ Electrician	4	ITI certificate holder in relevant field OR Having atleast 3-4 year experience of similar field											

Note :- All required certificate regarding educational qualification and experience must be submitted with bid document.

Format: I -4

(See clause 14 of Section 2 -ITB)

List of Key Equipments/ Machines For Quality Control Labs

Minimum requirement			Available with the bidder	
S.No.	**Name of Equipment/ Machinery**	**Quantity**	**Name of Equipment/ Machinery**	**Quantity**
As per provisions in works department manual / circulars				

Format: I -5

(See clause 14 of Section 2 -ITB)

List of Key Equipments/ Machines for Construction Work

Minimum requirement			Available with the bidder	
S.No.	**Name of Equipment/ Machinery**	**Quantity**	**Name of Equipment/ Machinery**	**Quantity**
As per provisions in works department manual / circulars				

Annexure – J
(See clause 14 of Section 2 -ITB)

FINANCIAL BID
(To be ContainedinEnvelope-C)

NAME OF WORK -Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of 16.92 MLD **Lalbarra Grouped Piped Water Supply Scheme for 102 (418 Habitation)Villages in Block Lalbarra of District Balaghat** comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KV Electric Sub Station at Lalbarra, D.I. Gravity Main& Distribution in the Respective Villages **for 1 years**

.

I/We hereby bid for the execution of the above work within the time specified at therate (in figures) _____ (in words) _____ percent below/ above or at par based on the Bill of Quantities and item wise rates given therein in all respects and in accordance with the specifications, designs, drawings and instructions in writing in all respects in accordance 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 and plant conditions effecting accommodation and movement of labor etc. required for the satisfactory execution of contract.

Should this bid be accepted, I/We hereby agree to abide by and fulfill all the terms and provisions of the said conditions of contract annexed hereto so far as applicable, or in default thereof to forfeit and pay to the Governor of Madhya Pradesh or his successors in office the sums of money mentioned in the said conditions.

Note:

i. Only one rate of percentage above or below or at par based on the Bill of Quantities and item wise rates given therein shall be quoted.

ii. Percentage shall be quoted in figures as well as in words. If any difference in figures and words is found lower of the two shall be taken as valid and correct rate. If the bidder is not ready to accept such valid and correct rate and declines to furnish performance security and sign the agreement his earnest money deposit shall be forfeited.

iii. In case the percentage "above" or "below" is not given by a bidder, his bid shall be treated as non-responsive.

iv. All duties, taxes, and other levies payable by the bidder shall be included in the percentage quoted by the bidderbut exclusive of Goods and Services Tax (GST) to be levied on works/service contract.

Signature of Bidder
Name of Bidder

The above bid is hereby accepted by me on behalf of the Governor of Madhya Pradesh dated the _____ day of _____ 20__

_____

Signature of Officer by whom accepted

Annexure – K

(See clause 15 of Section 2 -ITB)

MATERIALS TO BE ISSUED BY THE DEPARTMENT

Sno	Name of material	Rate (Issue rate)	Unit	Remarks
--------- Nil---------				

Annexure – L

(See clause 21 of Section 2 -ITB)

LETTER OF ACCEPTANCE (LOA)

No. _____ Dated: _____

To,

M/s. _____

(Name and address of the contractor)

Subject: _____

(Name of the work as appearing in the bid for the work)

Dear Sir (s),

Your bid for the work mentioned above has been accepted on behalf of the Governor of Madhya Pradesh at your bided percentage _____ below/ above or at par the Bill of Quantities and item wise rates given therein.

You are requested to submit within 15 (Fifteen) days from the date of issue of thisletter:

a. the performance security/ performance guarantee of Rs. _____ (in figures) (Rupees _____ in words only). The performance security shall be in the shape of term deposit receipt/ bank guarantee of any nationalized / schedule commercial bank valid up to three months after the expiry of defects liability period.

b. Sign the contract agreement.

Please note that the time allowed for carrying out the work as entered in the bid is_____ months including/ excluding rainy season, shall be reckoned from the date of signing the contract agreement.

Signing the contract agreement shall be reckoned as intimation to commencement of work and no separate letter for commencement of work is required. Therefore, after signing of the agreement, you are directed to contact the Engineer-in-charge for taking the possession of site and necessary instructions to start the work.

Yours Faithfully

Executive Engineer
PHE DivisionBalaghat

Annexure – M
(See clause 22 of Section 2 -ITB)

PERFORMANCE SECURITY

To

_____[name of Employer]

_____[address of Employer]

_____

WHEREAS _____[name and address of Contractor]

(hereinafter called "the Contractor") has undertaken, in pursuance of Letter of Acceptance No._____ dated _____ to execute _____[name of Contract and brief description of Works] (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of _____ [amount of guarantee]*_____ ___(in words), such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of_____[amount of guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 3 (three) months from the date of expiry of the Defect Liability Period.

Signature, Name and Seal of the guarantor _____
Name of Bank _____
Address _____
Phone No.,FaxNo.E-mail Address,of signing
Authority_____
Date _____

* An amount shall be inserted by the Guarantor, representing the percentage the Contract Price specified in the Contract including additional security for unbalanced Bids, if any and denominated in Indian Rupees.

SECTION 3

Conditions of Contract
Part – I General Conditions of Contract(GCC)

Table of Clauses of GCC

A. General

1. DEFINITIONS

1.1. Bill of Quantities: means the priced and completed Bill of Quantities forming part of the Bid.

1.2. Chief Engineer: means Chief Engineer of the zone/ basin concerned.

1.3. Completion: means completion of the work as certified by the Engineer-in-Charge, in accordance with provisions of agreement.

1.4. Contract: means the Contract between the Employer and the Contractor to execute, complete and/or maintain the work. Agreement is synonym of Contract and carries the same meaning wherever used.

1.5. Contract Data: means the documents and other information which comprise of the Contract.

1.6. Contractor: means a person or legal entity whose bid to carry out the work has been accepted by the Employer.

1.7. Contractor's bid: means the completed bid document submitted by the Contractor to the Employer.

1.8. Contract amount: means the amount of contract worked out on the basis of accepted bid.

1.9. Completion of work: means completion of the entire contracted work. Exhaustion of quantity of any particular item mentioned in the bid document shall not imply completion of work or any component thereof.

1.10. Day: means the calendar day.

1.11. Defect: means any part of the work not completed in accordance with the specifications included in the contract.

1.12. Department: means Department of the State Government viz. Water Resources Department, Public Works Department, Public Health Engineering Department, Rural Engineering Service and any other organisation which adopts this document.

1.13. Drawings: means drawings including calculations and other information provided or approved by the Engineer-in-Charge.

1.14. Employer: means the party as defined in the Contract Data, who employs the Contractor to carry out the work. The Employer may delegate any or all functions to a person or body nominated by him for specified functions. The word Employer / Government / Department wherever used denote the Employer.

1.15. Engineer: means the person named in the Contract Data.

1.16. Engineer in charge: means the person named in the Contract Data.

1.17. **Equipment:** means the Contractor's machinery and vehicles brought temporarily to the Site for execution of work.

1.18. **Government:** means Government of Madhya Pradesh.

1.19. **In Writing:** means communicated in written form and delivered against receipt.

1.20. **Material:** means all supplies, including consumables, used by the Contractor for incorporation in the work.

1.21. **Superintending Engineer:** means Superintending Engineer-in-Charge of the Circle concerned.

1.22. **Stipulated period of completion:** means the period in which the Contractor is required to complete the work. The stipulated period is specified in the ContractData.

1.23. **Specification:** means the specification of the work included in the Contract and any modification or addition made or approved by the Engineer-in-Charge.

1.24. **Start Date:** means the date of signing of agreement for the work.

1.25. **Sub-Contractor:** means a person or corporate body who has a Contract with the Contractor, duly authorised to carry out a part of the construction work under the Contract.

1.26. **Temporary Work:** means work designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the work.

1.27. **Tender/Bid, Tenderer/Bidder:** are the synonyms and carry the same meaning where ever used.

1.28. **Variation:** means any change in the work which is instructed or approved as variation under this contract.

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

2. INTERPRETATIONS AND DOCUMENTS

2.1 Interpretations

In the contract, except where the context requires otherwise:

a. words indicating one gender include all genders;

b. words indicating the singular also include the plural and vice versa.

c. provisions including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing;

d. written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;

2.2 Documents Forming Part of Contract:

1. NIT with all amendments.
2. Instructions to Bidders (ITB,Bid Data Sheet with all Annexures)
3. Conditions of Contract:

i.Part I General Conditions of Contract and the Contract Data; with all Annexures

ii. Part II Special Conditions of Contract.

4. Specifications
5. Drawings
6. Bill of Quantities
7. Technical and Financial Bid
8. Agreement, and
9. Any other document(s), as specified.

3. Language and Law

The language of the Contract and the law governing the Contract are stated in the Contract Data.

4. Communications

All certificates, notice or instruction to be given to the Contractor by Employer/Engineer shall be sent to the address or contact details given by the Contractor in [AnnexureH of ITB]. The address and contact details for communication with the Employer/Engineer shall be as per the details given in the Contract Data. Communication between parties that are referred to in the conditions shall be in writing. The notice sent by facsimile (fax) or other electronic means (email) shall also be effective on confirmation of the transmission. The notice sent by registered post or speed post shall be effective on delivery or at the expiry of the normal delivery period as undertaken by the postal service. In case of any change in address for communication, the same shall be immediately notified to Engineer-in-Charge.

5. Subcontracting

Subcontracting shall be permitted for contracts of value more than amount specified in the Contract Data with following conditions.

a. The Contractor may subcontract up to 25 percent of the contract price with the approval of the Employer in writing, but will not assign the Contract. Subcontracting shall not alter the Contractor's obligations.

b. Following shall not form part of subcontracting:

i. Hiring of labour through a labour contractor.

ii. The purchase of Materials to be incorporated in the works.

iii. Hiring of plant & machinery

c. The sub-contractor will have to be registered in the appropriate category in the centralised registration system for contractors of the GoMP.

6. Personnel

6.1 The Contractor shall employ for the construction work and routine maintenance the technical personnel as provided in the Annexure I-3 of Bid Data Sheet, if applicable. If the Contractor fails to deploy required number of technical staff, recovery as specified in the Contract Data will be made from the Contractor.

6.2 If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within three days and has no further connection with the Works in the Contract.

7. Force Majeure

7.1 The term “Force Majeure” means an exceptional event or circumstance:

(a) which is beyond a Party’s control,

(b) which such Party could not reasonably have provided against before entering into the Contract,

(c) which, having arisen, such Party could not reasonably have avoided or overcome, and

(d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

(i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,

(ii) rebellion, terrorism, sabotage by persons other than the Contractor’sPersonnel, revolution, insurrection, military or usurped power, or civil war,

(iii) riot, commotion, disorder, strike or lockout by persons other than theContractor’s Personnel,

(iv) munitions of war, explosive materials, ionising radiation or contamination byradio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and

(v) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

7.2. In the event of either party being rendered unable by force majeure to perform any duty or discharge any responsibility arising out of the contract, the relative obligation of the party affected by such force majeure shall upon notification to the other partybe suspended for the period during which force majeure event lasts. The cost and loss sustained by either party shall be borne by respective parties.

7.3 For the period of extension granted to the Contractor due to Force Majeure the price adjustment clause shall apply but the penalty clause shall not apply. It is clarified that this sub clause shall not give eligibility for price adjustment to contracts which are otherwise not subject to the benefit of price adjustment clause.

7.4 The time for performance of the relative obligation suspended by the force majeure shall stand extended by the period for which such cause lasts. Should the delay caused by force majeure exceed twelve months, the parties to the contract shall be at liberty to foreclose the contract after holding mutual discussions.

8. Contractor's Risks

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

8.2 All risks and consequences arising from the inaccuracies or falseness of the documents, drawing, designs, other documents and/or information submitted by the contractor shall be the responsibility of the Contractor alone, notwithstanding the fact that the designs/ drawings or other documents have been approved by the department.

9. Liability for Accidents to Person

The contractor shall be deemed to have indemnified and saved harmless the Government against all action, suits, claims, demands, costs etc. arising in connection with injuries suffered by any persons employed by the contractor or his subcontractor for the works whether under the General law or under workman's compensation Act, or any other statute in force at the time of dealing with the question of the liability of employees for the injuries suffered by employees and to have taken steps properly to ensure against any claim there under.

10. Contractor to Construct the Works

10.1 The Contractor shall construct, install and maintain the Works in accordance with the Specifications and Drawings as specified in the Contract Data.

10.2 In the case of any class of work for which there is no such specification as is mentioned in Contract Data, such work shall be carried out in accordance with the instructions and requirement of the Engineer-in-charge.

10.3 The contractor shall supply and take upon himself the entire responsibility of the sufficiency of the scaffolding, timbering, machinery, tools and implements, and generally of all means used for the fulfilment of this contract whether such means may or may not be approved or recommended by the Engineer.

11. Discoveries

Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

12. Dispute Resolution System

12.1 No dispute can be raised except before the Competent Authority as defined in Contract Data in writing giving full description and grounds of dispute. It is clarified that merely recording protest while accepting measurement and/or payment shall not be taken as raising a dispute.

12.2 No dispute can be raised after 45 days of its first occurrence. Any dispute raised after expiry of 45 days of its first occurrence shall not be entertained and the Employer shall not be liable for claims arising out of such dispute.

12.3 The Competent Authority shall decide the matter within 45 days.

12.4 Appeal against the order of the Competent Authority can be preferred within 30 days to the Appellate Authority as defined in the Contract Data. The Appellate Authority shall decide the dispute within 45 days.

12.5 Appeal against the order of the Appellate Authority can be preferred before the Madhya Pradesh Arbitration Tribunal constituted under MadhyaPradeshMadhyasthamAdhikaranAdhiniyam, 1983.

12.6 The Contractor shall have to continue execution of the Works with due diligence notwithstanding pendency of a dispute before any authority or forum.

B. Time Control

13. Programme

13.1 Within the time stated in the Contract Data, the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements, order and timing for all the activities for the construction of works.

13.2 **The program shall be supported with all the details regarding key personnel, equipment and machinery proposed to be deployed on the works for its execution.**

The contractor shall submit the list of equipment and machinery being brought to site, the list of key personnel being deployed, the list of machinery/equipment being placed in field laboratory and the location of field laboratory along with the Programme.

13.3 An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities.

13.4 The Contractor shall submit to the Engineer for approval an updated Programme at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date onwhich the overdue Programme has been submitted.

13.5 The Engineer's approval of the Programme shall not alter the Contractor's obligations.

14. Extension of Time

14.1. If the Contractor desires an extension of time for completion of the work on the ground of his having been unavoidably hindered in its execution or on any other grounds, he shall apply, in writing, to the Engineer-in-charge, on account of which he desires such extension. Engineer-in-Charge shall forward the aforesaid application to the Competent Authority as prescribed.

14.2 The competent authority shall grant such extension at each such occasion within a period of 30 days of receipt of application from contractor and shall not wait for finality of work. Such extensions shall be granted in accordance with provisions under clause- 15 of this agreement.

14.3 In case the work is already in progress, the Contractor shall proceed with the execution of the works, including maintenance thereof, pending receipt of the decision of the competent authority as aforesaid with all due diligence.

15. Compensation for delay

15.1 The time allowed for carrying out the work, as entered in the agreement, shall be strictly observed by the Contractor.

15.2 The time allowed for execution of the contract shall commence from the date of signing of the agreement. It is clarified that the need for issue of work order is dispensed with.

15.3 In the event milestones are laid down in the Contract Data for execution of the works, the contractor shall have to ensure strict adherence to the same.

15.4 Failure of the Contractor to adhere to the timelines and/or milestones shall attract such liquidated damages as is laid down in the Contract Data.

15.5 In the event of delay in execution of the Works as per the timelines mentioned in the Contract Data the Engineer-in-charge shall retain from the bills of the Contractor amount equal to the liquidated damages leviable until the Contractor makes such delays good. However, the Engineer-in-charge shall accept bankable security in lieu of retaining such amount.

15.6 If the Contractor is given extension of time after liquidated damages have been paid, the Engineer in Charge shall correct any over payment of liquidated damages by the Contractor in the next payment certificate.

15.7 In the event the Contractor fails to make good the delay until completion of the stipulated contract period (including extension of time) the sum so retained shall be adjusted against the liquidated damages levied.

16. Contractor's quoted percentage

The Contractor’s quoted percentage rate referred to in the "Bid for works" will be deducted/ added from/to the net amount of the bill after deducting the cost of material supplied by the department.

C.Quality Control

17. Tests

17.1 The Contractor shall be responsible for:

a.Carrying out the tests prescribed in specifications, and

b.For the correctness of the test results, whether preformed in his laboratory or elsewhere.

17.2 The contractor shall have to establish field laboratory within the time specified and having such equipments as are specified in the Contract Data.

17.3 Failure of the Contractor to establish laboratory shall attract such penalty as is specified in the Contract Data.

18. Correction of Defects noticed during the Defect Liability Period

18.1 The Defect Liability Period of work in the contract shall be as per the Contract Data.

18.2 The Contractor shall promptly rectify all defects pointed out by the Engineer well before the end of the Defect Liability Period. The Defect Liability Period shall automatically stand extended until the defect is rectified.

18.3 If the Contractor has not corrected a Defect pertaining to the Defect Liability Period to the satisfaction of the Engineer, within the time specified by the Engineer, the Engineer will assess the cost of having the Defect corrected, and the cost of correction of the Defect shall be recovered from the Performance Security or any amount due or that may become due to the contractor and other available securities.

D.Cost Control

19.Variations - Change in original Specifications, Designs, and Drawings etc.

19.1 The Engineer-in-charge shall have power to make any alterations, omissions or additions to or substitutions in the original specifications, drawings, designs and instructions, that may appear to him to be necessary during the progress of the work and the contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-in-charge, and such alterations, omission, additions or substitutions shall not invalidate the contract and any altered, additional or substituted work, which the contractor may be directed to do in the manner above specified, as part of the work, shall be carried out by the contractor on the same conditions in all respects on which he agrees to do the main work.

19.2 The time for the completion of the work shall be adjusted in the proportion that the altered, additional or substituted work bears to the original contract work and the certificate of the Engineer-in-charge shall be conclusive as to such proportion.

20. Extra items

20.1 All such items which are not included in the priced BOQ shall be treated as extra items.

21 Payments for Variations and / or Extra Quantities

21.1 The rates for such additional (Extra quantity), altered or substituted work / extra items under this clause shall be worked out in accordance with the following provisions in their respective order:-

a. The contractor is bound to carry out the additional (Extra quantity), work at the same rates as are specified in the contract for the work.

b. If the item is not in the priced BOQ and is included in the SOR of the department, the rate shall be arrived at by applying the quoted tender percentage on the SOR rate.

c. If the rates for the altered or substituted work are not provided in applicable SOR - such rates will be derived from the rates for a similar class (type) of work as is provided in the contract (priced BOQ) for the work.

d. If the rates for the altered, substituted work cannot be determined in the manner specified in the sub clause (c) above - then the rates for such composite work item shall be worked out on the basis of the concerned Schedule of Rates minus/plus the percentage quoted by the contractor.

e. If the rates for a particular part or parts of the item is not in the Schedule of Rates and the rates for the altered, or substituted work item cannot be determined in the manner specified in sub clause (b) to (d) above, the rate for such part or parts will be determined by the Competent Authority as defined in the Contract Data on the basis of the rate analysis derived out of prevailing market rates when the work was done.

f. But under no circumstances, the contractor shall suspend the work on the plea ofnon-acceptability of rates on items falling under sub clause (a) to (d). In case the contractor does not accept the rate approved by the Engineer in Charge for a particular item, the contractor shall continue to carry out the item at the rates determined by the Competent Authority. The decision on the final rates payable shall be arrived at through the dispute settlement procedure.

म.प्र.शासन, लोक स्वास्थ्य यांत्रिकी विभाग, मंत्रालय भोपाल के आदे ा क्रमांक 1760/आर–74/2014/2/34 भोपाल दिनांक 25.06.2019 में उल्लेखित सक्षम अधिकारी को निम्नानुसार परिभाषित किया जाता है :–

स.	सक्षम अधिकारी	अनुबंधित मात्रा से अधिक के लिए	अतिरिक्त आयटम	सब्स्टीट्यूट आयटम
1	कार्यपालन यंत्री	अनुबंधित कार्य की मात्रा से 10 % तक बढ़ी मात्रायें।	–	–
2	अधीक्षण यंत्री	अनुबंधित कार्य की मात्रा से 20 % तक बढ़ी मात्रायें अधिकतम रू. 20.00 लाख तक किन्तु कुल लागत प्रशासकीय स्वीकृति की राशि से 10 % अधिक न हो।	रू. 20.00 लाख तक किन्तु कुल लागत प्रशासकीय स्वीकृति की राशि से 10 % अधिक न हो।	रू. 20.00 लाख तक किन्तु कुल लागत प्रशासकीय स्वीकृति की राशि से 10 % अधिक न हो।
3	मुख्य अभियंता	संपूर्ण अधिकार (प्रशासकीय स्वीकृति की राशि से 10 % अधिक राशि की सीमा में)	संपूर्ण अधिकार (प्रशासकीय स्वीकृति की राशि से 10 % अधिक राशि की सीमा में)	संपूर्ण अधिकार (प्रशासकीय स्वीकृति की राशि से 10 % अधिक राशि की सीमा में)

22. No compensation for alterations in or restriction of work to be carried out.

22.1 If at any time after the commencement of the work, the Engineer-in-charge, for any reason whatsoever, not require the whole or any part of the work as specified in the bid to be carried out; the Engineer-in-charge shall give notice in writing of the fact to the Contractor and withdraw that whole or any part of the work.

22.2 The Contractor shall have no claim to any payments or compensation whatsoever, on account of any profit or advantage which he might have derived from the execution of work in full or on account of any loss incurred for idle men and machinery due to any alteration or restriction of work for whatsoever reason.

22.3 The Engineer-in-charge may supplement the work by engaging another agency to execute such portion of the work, without prejudice to his rights.

23. No Interest Payable

No interest shall be payable to the Contractor on any payment due or awarded by any authority.

24. Recovery from Contractors

Whenever any claim against the Contractor for the payment arises under the contract, the Department may be entitled to recover such sum by:

(a) Appropriating, in part or whole of the Performance Security and Additional Performance Securiy, if any; and/or Security Deposit and/or any sums payable under the contract to the contractor.

(b) If the amount recovered in accordance with (a) above is not sufficient, the balance sum may be recovered from any payment due to the contractor under any other contract of the department, including the securities which become due for release.

(c) The department shall, further have an additional right to effect recoveries as arrears of land revenue under the M.P. Land Revenue Code.

25. Tax

25.1 The rates quoted by the Contractor shall be deemed to be inclusive of levies, duties, cess, toll, taxes of Central and State Governments, local bodies and authorities but exclusive of Goods and Services Tax (GST) to be levied on works/service contract.

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

25.3 Any changes in the taxes due to change in legislation or for any other reason shall not be payable to the contractor.

26. Check Measurements

26.1 The department reserves to itself the right to prescribe a scale of check measurement of work in general or specific scale for specific works or by other special orders.

26.2 Checking of measurement by superior officer shall supersede measurements by subordinate officer(s), and the former will become the basis of the payment.

26.3 Any over/excess payments detected, as a result of such check measurement or otherwise at any stage up to the date of completion of the defect liability period specified in this contract, shall be recoverable from the Contractor, as per clause 24 above.

27. Termination by Engineer in Charge

27.1 If the Contractor fails to carry out any obligation under the Contract, the Engineer in Charge may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

27.2 The Engineer in Charge shall be entitled to terminate the Contract if the Contractor

a) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,
b) the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation;
c) without reasonable excuse fails to comply with the notice to correct a particular defect within a reasonable period of time.
d) the Contractor does not maintain a valid instrument of financial security as prescribed;
e) the Contractor has delayed the completion of the Works by such duration for which the maximum amount of liquidated damages is recoverable;

f) If the Contractor fails to deploy machinery and equipment or personnel or set up a field laboratory as specified in the Contract Data.

g) If the contractor, in the judgment of the Engineer in charge has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

h) Any other fundamental breaches as specified in the Contract Data.

27.3 In any of these events or circumstances, the Engineer in Charge may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor fromthe Site. However, in the case of sub-paragraph (b) or (g) of clause 27.2, the Engineer in Charge may terminate the Contract immediately.

27.4 Notwithstanding the above, the Engineer-in-Charge may terminate the Contract for convenience by giving notice to the Contractor.

28. Payment upon Termination

28.1 If the contract is terminated under clause 27. 3, the Engineer shall issue a certificate for value of the work accepted on final measurements, less advance payments and penalty as indicated in the Contract Data. The amount so arrived at shall be determined by the Engineer-in-Charge and shall be final and binding on both the parties.

28.2 Payment on termination under clause 27. 4 above -

If the Contract is terminated under clause 27.4 above, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

28.3 If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be recovered as per clause 24 above.

29. Performance Security

The Contractor shall have to submit performance security and additional performance security, if any, as specified in the Bid Data Sheet at the time of signing of the contract. The contractor shall have to ensure that such performance securityand additional performance security, if any, remains valid for the period as specified in the Contract Data.

30. Security Deposit-

30.1 Security Deposit shall be deducted from each running bill at the rate as specified in the Contract Data. The total amount of Security Deposit so deducted shall not exceed the percentage of Contract Price specified in the Contract Data.

30.2 The security deposit may be replaced by equivalent amount of bank guarantee or fixed deposit receipt assigned to the Employer, with validity up to 3 (three) months beyond the completion of Defect Liability Period/ extended Defect Liability Period.

30.3 The Security Deposit shall be refunded on completion of Defect Liability Period.TheAdditional Performance Security shall be refunded on satisfactory completion of of the work.

31. Price Adjustment

31.1 Applicability

1. Price adjustment shall be applicable only if provided in the Contract Data.
2. The price adjustment clause shall apply only for the works executed from the date of signing of the agreement until the end of the initial intended completiondate or extensions granted for reasons attributed to the Employer by the Engineer.
3. The Contractor shall not be entitled to any benefit arising from the price adjustment clause for extension in the contract period for reasons attributed to the Contractor.
4. In the Force Majeure event the price escalation clause shall apply.

31.2 Procedure

1. Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with following principles and procedures and as per formula given in the **contract data.**
2. The price adjustable shall be determined during each quarter from the formula given in the **contract data**.
3. Following expression and meaning are assigned to the work done during each**quarter:**

R = Total value of work during the quarter. It would include the amount of secured advance granted, if any, during the quarter, less the amount of secured advance recovered, if any during the quarter, less value of material issued by the department, if any, during the quarter.

4. Weightages of various components of the work shall be as per the **Contract Data.**

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

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

31.5 For the purpose of clarity it is pointed out that the price adjustment may be either positive or negative, i.e. if the price adjustment is in favour of the Employer, the same shall be recovered from the sums payable to the Contractor.

32. Mobilization and Construction Machinery Advance

32.1 Payment of advances shall be applicable if provided in the Contract Data.

32.2 If applicable, the Engineer in Charge shall make interest bearing advance payment to the contractor of the amounts stated in the Contract Data, against provision by the contractor of an unconditional Bank Guarantee in a form and by a nationalized/ scheduled banks, in the name as stated in the Contract Data, in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the contractor.

32.3 The rate of interest chargeable shall be as per Contract Data.

32.4 The construction machinery advance, if applicable, shall be limited to 80% of the cost of construction machinery and admissible only for new construction machinery.

32.5 The advance payment shall be recovered as stated in the Contract Data by deducting proportionate amounts from payment otherwise due to the Contractor. No account shall be taken of the advance payment or its recovery in assessing valuations of work done, variations, price adjustments, compensation events, or liquidated damages.

33. Secured Advance

33.1 Payment of Secured Advance shall be applicable if provided in the Contract Data.

33.2 If applicable, the Engineer shall make advance payment against materials intended for but not yet incorporated in the Works and against provision by the contractor of an unconditional Bank Guarantee in a form and by a nationalized/ scheduled bank, in the name as stated in the Contract Data, in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been adjusted, but the amount of the guarantee shall be progressively reduced by the amounts adjusted by the contractor.

33.3 The amount of secured advance and conditions to be fulfilled shall be as stipulated in the Contract Data.

33.4 The Secured Advance paid shall be recovered as stated in the Contract Data.

34. Payment Certificates

The payment to the contractor will be as follows for construction work:

(a) The Contractor shall submit to the Engineer monthly statements of the value of the work executed less the cumulative amount certified previously, supported with detailed measurement of the items of work executed.

(b) The Engineer shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.

(c) The value of work executed shall be determined, based on the measurements approved by the Engineer/ Engineer-in-charge.

(d) The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

(e) The value of work executed shall also include the valuation of Variations and Compensation Events.

(f) All payments shall be adjusted for deductions for advance payment, security deposit, other recoveries in terms of contract and taxes at source as applicable under the law.

(g) The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

(h) Payment of intermediate certificate shall be regarded as payments by way of advance against the final payment and not as payments for work actually done and completed.

(i) Intermediate payment shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or be considered as an admission of the due performance of the contractor any part thereof, in any respect or the occurring of any claim.

(j) The payment of final bill shall be governed by the provisions of clause 36 of GCC.

E.Finishing the Contract

35. Completion Certificate

35.1A Completion Certificate in the prescribed format in Contract Data shall be issued by the Engineer-in-Charge after physical completion of the Work.

35.2After final payment to the Contractor, a Final Completion Certificate in the prescribed format in the Contract Data shall be issued by the Engineer-in-Charge.

36. Final Account

36.1 The Contractor shall supply the Engineer with a detailed account of the total amount that the Contractor considers payable for works under the Contract within

21 days of issue of certificate of physical completion of works. The Engineer shall issue a Defects Liability Certificate and certify any payment that is due to the Contractor within 45 days of receiving the Contractor's account if it is correct and complete. If the account is not correct or complete, the Engineer shall issue within 45 days a schedule that states the scope of the corrections or additions that are necessary. If the Account is still unsatisfactory after it has been resubmitted, the matter shall be referred to the Competent Authority as defined in the Contract Data, who shall decide on the amount payable to the Contractor after hearing the Contractor and the Engineer in Charge.

36.2 In case the account is not received within 21 days of issue of Certificate of Completion as provided in clause 32.1 above, the Engineer shall proceed to finalise the account and issue a payment certificate within 28 days.

F. Other Conditions of Contract

37. Currencies

All payments will be made in Indian Rupees.

38. Labour

38.1 The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

38.2 The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employedby the Contractor on the Site and such other information as the Engineer may require.

39. COMPLIANCE WITH LABOUR REGULATIONS

39.1. During continuance of the Contract, the Contractor and his sub-Contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given in the Contract Data. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made their under,

regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/byelaws/Acts/Rules/ regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct from any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

40. Audit and Technical Examination

Government shall have the right to cause an audit and technical examination of the works and the final bill of the contract including all supporting vouchers, abstract etc. to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed by him to have been done under the contract and found not to, have been executed, the Contractor shall be liable to refund the amount of overpayment and it shall be lawful for Government to recover the same from him in the manner prescribed in clause 24above and if it is found that the Contractor was paid less than what was due to him, under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by Government to the Contractor.

41. Death or Permanent Invalidity of Contractor

If the Contractor is an individual or a proprietary concern, partnership concern, dies during the currency of the contract or becomes permanently incapacitated, where the surviving partners are only minors, the contract shall be closed without levying any damages/ compensation as provided for in clause 28.2 of the contract agreement. However, if the competent authority is satisfied about the competenceof the survivors, then the competent authority shall enter into a fresh agreement for the remaining work strictly on the same terms and conditions under which the contract was awarded.

42. Jurisdiction

This contract has been entered into the State of Madhya Pradesh and its validity, construction, interpretation and legal effect shall be subjected to the courts at the place where this agreement is entered into. No other jurisdiction shall be applicable.

Contract Data

GCC Clause	Particulars	Data
1.14	Employer	**Government of Madhya Pradesh**
1.15	Engineer	**Executive Engineer/Assistant Engineer/Sub Engineer/Consultant appointed by Department**
1.16	Engineer in Charge	**Executive Engineer**
1.22	Stipulated period of completion	Successful operation and maintenance of the Group Water Supply Scheme for 1 years
3	Language & Law of Contract	English & Indian Contract Act 1872
4	Address & Contact details of the Contractor	As per Annexure H
	Address & contact details of the Employer/Engineer-phone, Fax, e-mail	Executive Engineer P.H.E Division Balaghat Phone – 07632-241131 Fax- 07632-241131 Email- phedbal@nic.in
5	Sub contracting permitted for the Contract Value	More than Rs. **100** Lakhs
6	Technical Personnel to be provided by the contractor-requirement, &	As per Annexure-I (Format I-3)
	Penalty, if required Technical Personnel not employed	Rs.30,000 for Degree holder & Rs.18,000 for Diploma holder Engineer or **As per PWD latest orders for deduction for Diploma/Degree Holder Engineers OR as may be decided by the Draft NIT approving authority.**
10	Specifications	As per Annexure E
	Drawings	As per Annexure N
12	Competent Authority for deciding dispute under Dispute Resolution System	**Superintending Engineer, Public Health Engineering Department ProjectCircle Chhinddwara**
	Appellate Authority for deciding dispute under Dispute Resolution System	**Chief Engineer Public Health Engineering Department Jabalpur Zone Jabalpur**
13	Period for submission of updated construction program	**Initial work program shall be submitted within a week from the date of signing the agreement, thereafter, updated program on Quarterly basis in contracts where the contract period is more than 12 months.**
	Amount to be withheld for not submitting construction program in the prescribed period	**1% of the contract value subject to minimum Rs. 5,000/- per month.**
14	Competent Authority for granting Time Extension	**Up to one month - Executive Engineer. More than one month – Superintending Engineer (Full Powers).**
15	Milestones laid down for the contract	Yes

	if yes, details of milestones	As per Annexure O
	Liquidated damage	As per Annexure P
17	List of equipment for lab	As per Annexure Q
	Time to establish lab	**Within 15days from the date of agreement.**
	Penalty for not establishing field laboratory	**1% of the contract value subject to minimum Rs. 10,000/- per month.**
18	Defect Liability Period	**Trial-run/commissioning plus 12** Months after successful commissioning of work/Scheme.
21	Competent Authority for determining the rate	**Superintending Engineer Public Health Engineering Department Project Circle Chindwara**
27	Any other condition for breach of contract	**Less than 25% progress achieved during the half of the contract period. (Reason for delay attributed to the contractor.)**
28	Penalty	Penalty shall include (a) **Security deposit as per clause 30 of General Conditions of Contract and** (b) **Liquidated Damages imposed as per clause 15 or Performance Security (Guarantee) including additional performance security (guarantee), if any, as per clase 29 of General Conditions of contract, whichever is higher.**
29	Performance Guarantee (Security) shall be valid up to	Performance Guarantee (Security) for works shall be valid upto 3 months beyond the completion of Operation and maintance period. Performance Guarantee (Security) shall be released after completion of entire O&M period. Additinal Performance Guarantee(Security) shall be valid upto valid construction/execution period plus 03 months.
30	Security Deposit (SD) to be deducted from each running bill	At the rate of 5%. SD deducted during excution of works shall be refunded on completion of Defect Liability Period. SD deducted during O&M period shall be refunded at the time of release of performance guarantee.
	Maximum limit of deduction of Security Deposit	Up to 5% of Final Contract Amount.
31	Price Adjustment formula and procedure to calculate	**As per Annexure R**
31.1(1)	Price adjustment shall be applicable	As per Annexure R and will be applied as below :- (a) For Tenders upto Rs 5.00 crores–not payable in any case. (b) For Tenders costing more than Rs 5.00 crores- payable only in cases governed by Force Majeure. Price adjustment shall only be applicable on Probable Amount of Contract (PAC) of NIT. This clause

		shall not have any relation to the contract amount. The price adjustment shall apply only in respect of cement, steel and POL components.
32	32.1 Mobilization and Construction Machinery Advance Applicable	**No Mobilization and Construction Machinery Advance Payable.**
	32.2 If yes, Unconditional Bank Guarantee.	~~In the format prescribed in Annexure-S.~~ **(NOT APPLICABLE)**
	32.3 If yes, Rate of interest chargeable on advances.	~~10% annual simple interest.~~ **(NOT APPLICABLE)**
	32.4 If yes, Type & Amount of advance payment that can be paid.	~~1. Mobilization advance- Not more than ---% of contract amount. 2. Construction Machinery advance- Not more than ---% of contract amount.~~ **(NOTAPPLICABLE)**
	32.5 If yes, Recovery of advance payment.	~~Recovery of Mobilization and/or Construction Machinery advance shall commence when 10% of the Contract Amount is executed and recovery of total advance shall be done on pro-rata basis and shall be completed by the time work equivalent to 80% of the Contract Amount is executed. In addition to the recovery of principal amount, recovery of interest shall be carried out as calculated on the outstanding amount of principal at the close of each month. The interest shall be accrue from the day of payment of advance and the recovery of interest shall commence when 10% of the Contract Amount is executed and shall be completed by the time work equivalent to 80% of the Contract Amount is executed.~~ **(NOT APPLICABLE)**
33	33.1 Secured Advance Applicable	**No Secured Advance Payable.**
	33.2 If yes, Unconditional Bank Guarantee.	~~In the format prescribed in Annexure-T~~ **(NOT APPLICABLE)**
	33.2 If yes, Amount of Secured advances.	~~75% of value of material as determined by the Engineer in Charge.~~ **(NOT APPLICABLE)**
	32.3 If yes, Conditions for secured Advance.	~~a) The materials are in-accordance with the specification for Works; b) Such materials have been delivered to site, and are properly stored and protected against damage or deterioration to the satisfaction of the Engineer. The contractor shall store the bulk material in measurable stacks; c) The Contractor's records of the requirements, orders, receipt and use of materials are kept in a form approved by the Engineer and such records shall be available~~

		~~for inspection by the Engineer;~~ ~~d) The contractor has submitted with his monthly statement the estimated value of the materials on site together with such documents as may be required by the engineer for the purpose of valuation of the materials and providing evidence of ownership and payment thereof;~~ ~~e) Ownership of such materials shall be deemed to vest in the Employer for which the contractor has submitted and Indemnity Bond in an acceptable format; and~~ ~~f) The quantity of materials are not excessive and shall be used within a reasonable time as determined by the engineer. (Not applicable)~~ **(NOT APPLICABLE)**
	33.4 If yes, Recovery of Secured advance	~~The advance shall be repaid from each succeeding monthly payments to the extent materials [for which advance was previously paid] have been incorporated into the works.~~ **(NOT APPLICABLE)**
35	Completion Certificate- after physical completion of the Work	As per Annexure-U
	Final Completion Certificate- after final payment on completion of the work.	As per Annexure-V
36	Competent Authority	**Superintending Engineer, PHED Project Circle Chhinddwara**
39	Salient features of some of the major labour laws that are applicable	As per Annexure-W
41	Competent Authority	**Chief Engineer, PHED Jablpur Zone Jabalpur**

ANNEXURE – N

(See clause 10 of Section 3 – GCC)

Drawings

Nil

ANNEXURE – O

(See clause 15 of Section 3 -GCC)

Details of Milestones

S. No.	Activity	From the date of Agreement, or from the date of issue of the letter regarding commencement of work on scheme
1	Value of the work completed should be atleast 20% of the contract value (excluding provisions for repair and operation and maintenance).	Within 120 days
2	Value of the work completed should be atleast 60% of the contract value (excluding provisions for repair and operation and maintenance).	Within240 days
3	Value of the work completed should be 100% of the contract value (excluding provisions for repair and operation and maintenance).	Within 365 days

Note : - In case the NIT has more than one scheme, the milestones would be considered seperately on a per scheme basis.

ANNEXURE – P

(See clause 15 of Section 3 -GCC)

Compensation for Delay

If the contractor fails to achieve the milestones, and the delay in execution of work is attributable to the contractor, the Employer shall retain an amount from the sums payable and due to the contractor as per following scale -

i. Slippage up to 25% in financial target during the milestone under consideration —2.5% of the work remained unexecuted in the related time span.
ii. Slippage exceeding 25% but Up to 50% in financial target during the milestone under consideration
-5% of the work remained unexecuted in the related time span..
iii. Slippage exceeding 50% but Up to 75% in financial target during the milestone under consideration
-7.5% of the work remained unexecuted in the related time span..
iv. Slippage exceeding 75% in financial target during the milestone under consideration
-10% of the work remained unexecuted in the related time span.

Note: For arriving at the dates of completion of time span related to different milestones, delays which are not attributable to the Contractor shall be considered. The slippage on any milestone is if made good in subsequent milestones or at the time of stipulated period of completion, the amount retained as above shall be refunded. In case the work is not completed within the stipulated period of completion along with all such extensions which are granted to the Contractor for either Employer's default or Force Majeure, the compensation shall be levied on the contractor at the rate of 0.05% per day of delay limited to a maximum of 10% of contract price.

The decision of Superintending Engineer shall be final and binding upon both the parties.

ANNEXURE – Q

(See clause 17 of Section 3 -GCC)

List of Equipment for Quality Control Lab

Nil

ANNEXURE - R

(See clause 31 of Section 3 -GCC)

Price Adjustment

The formulas for adjustment of price are as follow:

R = Value of work as defined in Clause 31.2(3) of General Conditions of Contract

Weightages* of component in the work

S No.	Component	Percentage of component in the work
1	Cement - Pc	
2	Steel - Ps	
3	Bitumen - Pb	
4	POL - Pf	

* Weightages of various components of the work shall be as determined by the competent technical sanction authority.

Adjustment for cement component

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

VC= 0.85 x PC/100 x R x (C1-C0)/C0

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

Co= The all India wholesale price index for Grey cement on the date of opening of Bids as published by the Ministry of Industrial Development, Government of India, New Delhi. (www.eaindustry.nic.in)

C1= The all India average wholesale price index for Grey cement for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.(www.eaindustry.nic.in)

Pc= Percentage of cement component of the work

Note : For the application of this clause, index of Grey Cement has been chosen to represent Cement group.

Adjustment of steel component

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

Vs= 0.85 x PS x /100 x R x (S1-S0)/S0

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

S0= The all India wholesale price index for steel (Bars and Rods) on the date of opening of Bids as published by the Ministry of Industrial Development, Government of India, New Delhi. (www.eaindustry.nic.in)

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

Ps= Percentage of steel component of the work.

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

Adjustment of bitumen component

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

Vb=0.85x Pb / 100xRx(Bi – Bo) / Bo

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

Bo = The official retail price of bitumen at the IOC depot at nearest center on the date of opening of Bids.

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

Pb = Percentage of bitumen component of the work.

Adjustment of POL (fuel and lubricant) component

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

Vf= 0.85 x Pf / 100 x R x (Fi – Fo) / Fo

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

~~Fo = The official retail price of High Speed Diesel (HSD) at the existing consumer pumps of IOC at nearest center on the date of opening of Bids.~~

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

~~Pf = Percentage of fuel and lubricants component of the work.~~

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

Annexure – S

(See clause 32 of Section 3 -GCC)

Bank Guarantee Form for Mobilization and Construction Machinery Advance

To

_____[name of Employer]

_____[address of Employer]

_____[name of Contractor]

In accordance with the provisions of the General Conditions of Contract, clause 31 ("Mobilization and Construction Machinery Advance") of the above-mentioned Contract_____[name and address of Contractor] (hereinafter called "the Contractor") shall deposit with _____ [name of Employer] a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of _____[amount of Guarantee]* _____[in words].

We, the _____[bank of financial institution], as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to _____[name of Employer] on his first demand without whatsoever right of obligation on our part and without his first claim to the Contractor, in the amount not exceeding _____[amount of guarantee]*_____[in words].

We further agree that no change or addition to or other modification of the terms of the Contractor or Works to be performed thereunder or of any of the Contract documents which may be made between _____[name of Employer] and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until _____ [name of Employer] receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and Seal : _____

Name of Bank/Financial Institution: _____

Address : _____

Date : _____

_____

* An amount shall be inserted by the Bank or Financial Institution representing the amount of the Advance Payment, and denominated in Indian Rupees.

Annexure – T

(See clause 33 of Section 3 -GCC)

Bank Guarantee Form for Secured Advance
INDENTURE FOR SECURED ADVANCES

This indenture made the _____ day of _____ 20___ BETWEEN_____ (hereinafter called the contractor which expression shall where the context so admits or implies be deemed to include his executors, administrators and assigns) or the one part and the Employer of the other part.

Whereas by an agreement dated _____ (hereinafter called the said agreement) the contractor has agreed.

AND WHEREAS the contractor has applied to the Employer that he may be allowed advanced on the security of materials absolutely belonging to him and brought by him to the site of the works the subject of the said agreement for use in the construction of such of the works as he has undertaken to executive at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges)

AND WHEREAS the Employer has agreed to advance to the Contractor the sum of Rupees _____ on the security of materials the quantities and other particulars of which are detailed in Accounts of Secured Advance attached to the Running Account Bill for the said works signed by the Contractor on _____ and the Employer has reserved to himself the option of making any further advance or advances on the security of other materials brought by the Contractor to the site of the said works.

Now THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of the sum of Rupees _____ on or before the execution of these presents paid to the Contractor by the Employer (the receipt where of the Contractor doth hereby acknowledge) and of such further advances (if any) as may be made to him as a for said the Contractor doth hereby covenant and agree with the President and declare as follows:

That the said sum of Rupees _____ so advanced by the Employer to

(1) the Contractor as aforesaid and all or any further sum of sums advanced as aforesaid shall be employed by the Contractor in or towards expending the execution of the said works and for no other purpose whatsoever.

(2) That the materials details in the said Account of Secured Advances which have been offered to and accepted by the Employer as security are absolutely the Contractor's own propriety and free from encumbrances of any kind and the

contractor will notmake any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the Contractor indemnified the Employer against all claims to any materials in respect of which an advance has be made to him as aforesaid.

(3) That the materials detailed in the said account of Secured Advances and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereafter called the said materials) shall be used by the Contractor solely in the execution of the said works in accordance with the directions of the Engineer.

(4) That the Contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe custody and protection against all risks of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the Engineer or any officer authorized by him. In the event of the said materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the Contractor will forthwith replace the same with other materials of like quality or repair and make good the same required by the Engineer.

(5) That the said materials shall not be removed from the site of the said works except with the written permission of the Engineer or an officer authorized by him on that behalf.

(6 That the advances shall be repayable in full when or before the Contract receives payment from the Employer of the price payable to him for the said works under the terms and provisions of the said agreement. Provided that if any intermediate payments are made to the Contractor on account of work done than on the occasion of each such payment the Employer will be at liberty to make a recovery from the Contractor's bill for such payment by deducting there from the value of the said materials than actually used in the construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.

(7) That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said

agreement or of these presents the total amount of the advance or advances that may still be owing of the Employer shall immediately on the happening of such default be re- payable by the Contractor to be the Employer together with interest thereon at twelve percent per annum from the date or respective dates of such advance or advances to the date of repayment and with all costs, charges, damages and expenses incurred by the Employer in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor and theContractor hereby covenants and agrees with the Employer to reply and pay thesame respectively to him accordingly.

(8) That the Contractor hereby charges all the said materials with the repayment to the Employer of the said sum of Rupees_____ and any further sum of sums advanced as aforesaid and all costs, charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the power contained therein if and whenever the covenant for payment and repayment here-in-before contained shall become enforceable and the money owing shall not be paid in accordance there with the Employer may at any time thereafter adopt all or any of the following courses as he may deem best:

(a) Seize and utilise the said materials or any part thereof in the completion of the said works on behalf of the contractor in accordance with the provision in that behalf contained in the said agreement debiting the contractor with the actual cost of effecting such completion and the amount due to the contractor with the value of work done as if he had carried it out in accordance with the said agreement and at the rates thereby provided. If the balance is against the contractor, he is to pay same to the Employer on demand.

(b) Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaidrepayable or payable to the Employer under these presents and pay over thesurplus (if any) to the Contractor.

(C) Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.

(9) That except in the event of such default on the part of the contractor as aforesaid interest on the said advance shall not be payable.

(10) That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been here-in-before expressly provided for the same shall be referred to the Employer whose decision shall be final and the provision of the Indian Arbitration Act for the time being in force shall apply to any such reference.

Annexure – U

(See clause 35 of Section 3 -GCC)

Physical Completion Certificate

Name of Work:

Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of 16.92 MLD **Lalbarra Grouped Piped Water Supply Scheme for 102 Villages in Block Lalbarra of District Lallburra** comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KV Electric Sub Station at Lalbarra, D.I. Gravity Main& Distribution in the Respective Villages **for 1 years**

Agreement no. ……..……. Date ……..

Amount of Contract Rs ……

Name of Agency : ……..……

Used MB no. .....

Last measurement recorded

a. Page No. & MB No. .....

b. Date .....

Certified that the above mentioned work was physically completed on ……. (date) and taken over on …….. (date) and that I have satisfied myself to best of my ability that the work has been done properly.

Date of issue

Executive Engineer

…….

……..

Annexure – V

(See clause 35 of Section 3 -GCC)

Final Completion Certificate

Name of Work:

Providing manpower and all required chemicals as per BOQ and performing Operation and Maintenance of -- MLD **Lalbarra Grouped Piped Water Supply Scheme for 102Villages in Block Lalbarra of District Balaghat** comprising Raw Water & Clear Water Pumping Stations, Water Treatment Plant and 33 KV Electric Sub Station at Lalbarra, D.I. Gravity Main& Distribution in the Respective Villages **for 1 years**

Agreement no. ……..…….. Date ……..

Name of Agency : ……

Used MB no. .....

Last measurement recorded

a.Page No.& M B No.----------

b. Date----------

Certified that the above mentioned work was physically completed on ……. (date) and taken over on …….. (date).

Agreemented amount Rs. ……..

Final Amount paid to contractor Rs. ----------

Incumbency of officers for the work

I have satisfied myself to best of my ability that the work has been done properly.

Date of issue

Executive Engineer

……

……..

Annexure – W

(See clause 39 of Section 3 -GCC)

Salient Features of Some Major Labour Laws Applicable

a) **Workmen Compensation Act 1923: -** The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

b) **Payment of Gratuity Act 1972: -** Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed the prescribed minimum years (say, five years) of service or more or on death the rate of prescribed minimum days'(say, 15 days) wages for every completed year of service. The Act is applicable to all establishments employing the prescribed minimum number (say, 10) or more employees.

c) **Employees P.F. and Miscellaneous Provision Act 1952:** The Act Provides for monthly contributions by the Employer plus workers at the rate prescribed (say, 10% or 8.33%). The benefits payable under the Act are:

i. Pension or family pension on retirement or death as the case may be.

ii. Deposit linked insurance on the death in harness of the worker.

iii. Payment of P.F. accumulation on retirement/death etc.

d) **Maternity Benefit Act 1951: -** The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

e) **Contract Labour (Regulation & Abolition) Act 1970: -** The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ prescribed minimum (say 20) or more contract labour.

f) **Minimum Wages Act 1948: -** The Employer is to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of buildings, roads, runways is scheduled employment.

g) **Payment of Wages Act 1936: -** It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

h) **Equal Remuneration Act 1979: -** The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against female employees in the matters of transfers, training and promotions etc.

i) **Payment of Bonus Act 1965: -** The Act is applicable to all establishments employing prescribed minimum (say, 20) or more workmen. The Act provides for payments of annual bonus within the prescribed range of percentage of wages to employees drawing up to the prescribed amount of wages, calculated in the prescribed manner. The Act does not apply to certain establishments. The newly set-up establishmentsare exempted for five years in certain circumstances. States may have different number of employment size.

j) **Industrial Disputes Act 1947: -** The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

k) **Industrial Employment (Standing Orders) Act 1946: -** It is applicable to all establishments employing prescribed minimum (say, 100, or 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and gets these certified by the designated Authority.

l) **Trade Unions Act 1926: -** The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.

m) **Child Labour (Prohibition & Regulation) Act 1986: -** The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of child labour is prohibited in building and construction industry.

n) **Inter-State Migrant Workmen's (Regulation of Employment & Conditions ofService) Act 1979: -** The Act is applicable to an establishment which employs prescribed minimum (say, five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home up to the establishment and back etc.

o) **The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996: -** All the establishments who carry on any building or other construction work and employs the prescribed minimum (say, 10) or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

p) **Factories Act 1948: -** The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing the prescribed minimum (say, 10) persons or more with aid of power or another prescribed minimum (say, 20) or more persons without the aid of power engaged in manufacturing process.

Annexure – X

चेकलिस्ट

(निविदाकार द्वारा प्रस्तुत दस्तावेजों हेतु चेकलिस्ट। यह चेकलिस्ट लिफाफा–अ में ऑनलाईन प्रस्तुत की जावेगी)

1. सिस्टम निविदा क्रमांक – .....
2. कार्य का नाम – .....
3. निविदाकार का नाम – .....
4. उपरोक्त निविदा के अंतर्गत उल्लेखित कार्य के लिये निम्नानुसार दस्तावेज निविदा के साथ निर्धारित लिफाफों में ऑनलाईन संलग्न (**Online Attach**) किये गये है :–

क्र.	**दस्तावेज**	ऑनलाईन **संलग्न (है / नहीं) Online Attached (Yes/No)**
1-	ऑनलाईन ई.एम.डी.	
2-	बिड के साथ जमा किये गये दस्तावेजों की सत्यता बावत निविदाकार का शपथ पत्र मूल प्रति में	
3-	निविदाकार के पंजीयन (Registration) / पंजीयन हेतु आवेदन का साक्ष्य (दस्तावेज) की स्व–प्रमाणित छायाप्रति	
4.	अपेंडिक्स 2.10 की निविदाओं के लिये निर्धारित प्रारूप में (Annexure–H) अपनी संस्थागत जानकारी (Organisational Details)	
5.	निविदाप्रपत्र क्रय करने की रसीद	
6.	Envelope-B Annexure – I (1–5)	

निविदाकार के सील सहित हस्ताक्षर

Annexure – Y

Detailed Scope Of Work

1. सफल निविदाकार विभाग में प्रचलित Specifications, Relevant IS Code एवं समय–समय पर Engineer-in-Charge द्वारा दिये गये निर्देशों के अनुरूप कार्य का क्रियान्वयन सुनिश्चित करेगा।

2- However the brief description main items of work are as below:

3- The contractor shall be responsible for operation and maintenance of Raw Water & Clear Water Pumping Stations, Water Treatment Plant, Pumping/Gravity Main along with valves , Distribution system and allied works including all required materials, consumables, chemicals, all labour etc complete required for successful operation of the scheme for One year. The scope of work under this contract includes operation and maintenance of the Scheme as a whole and its parts as an individual component as well. Under this operation & maintenance for 12 Months period in all respects, the contractor has to run the scheme completely and will have to prove performance of each component individually and of whole scheme as per the standards laid down in contract.

4- During this period the contractor shall have to appoint necessary staff for running and maintenance of scheme. The candidature of the staff being engaged by contractor shall have to be approved by the Engineer In charge. During this period the staff engaged for running and maintenance of scheme will be paid by the contractor as per the wages rules and all the responsibilities of employees regarding safety/ insurance etc. will be of the contractor.

5- He should take readings of Flow meters daily and submit weekly production sheet to concerning Sub Engineer/ Assistant Engineer in prescribed format along with effective periodical communication of brief flow record to E.E./A.E./S.E. Loss in each rising pipe line is calculated on the basis of these readings. Contractor has to be very particular about losses in pipe lines. If leakages/reasons for losses are not rectified timely resulting in loss of clear water Penalty will be levied on the loss in pipe lines. Amount of penalty shall be decided by Engineer in charge.The O&M agency have to carry out routine check up and preventive / periodical maintenance of all the equipment / machinery. All the routine check up& periodical / preventive maintenance of equipment/ machinery shall be under taken as per manufacturers' manual / instructions and standard Engineering practice.

6- Operation of all control valves on rising mains, Feeder Main / distribution mains to fill the OHTs/ Cistern's and to supply water to consumers at adequate pressure.

7- Contractor shall be responsible for repairing and rewinding of Vertical Turbine / centrifugal pump sets. Installation/ de installation with loading of Centrifugal coupled/ Mono block/ Vertical Turbine Pump Sets in pump house/ sources as and when break down occurs, he should intimate immediately to concerning Sub Engineer/ Assistant Engineer and get it repaired/ replaced. He should repair the defective pump set within 7 days. If contractor fails to get pump set repaired with in stipulated time department .shall get it repaired at the risk and cost of contractor.

8- Daily distribution of drinking water through OHTs and Cistern's from treatment plant in pipe lines with valve operation as per time schedule in consultation of engineer-in-charge in morning and evening hours. Contractor shall make arrangement for identifying leakages in various pipe lines through regular patrolling and their quick removal.

9- Disinfection of drinking water before distribution as per instructions of EIC. The contractor shall use chemicals as per prescribed guide lines.

10- Contractor shall be responsible for chlorine testing of clear water and random checking of residual chlorine at distribution points, collections of water samples for chemical and bacteriological tests and keeping record of same.

11- Water supply shall be round the clock. However the same which may be changed as per availability of water, and contractor is bound to follow instruction of Engineer in charge. Total water supply per day shall be fixed by Engineer in charge and committee (VWSC if any) as per availability of water in sources.

12- Contractor has to apply all techniques to save energy charges. In case power charges increases due to negligence of contractor penalty equals to extra power charges paid to the MPPKVV Co. Ltd. may be imposed. Decision of EIC in this regard shall be final.

13- Length of pipe lines (rising and distribution) and duty condition of pump sets may vary at site. New Pipe line may be laid and commissioned during contract period for improvement or augmentation of water supply facility. Contractor shall operate and maintain the same also.

a) Procurement of the spares for plant and machinery and to maintain an inventory of spares for likely requirement. Any spares required / directed by Engineer-in-charge shall have to keep in stock.

b) Procurement of all consumable items e.g. Transformer oil, lubricating oil, diesel, grease, gland packing, fuse wire, lugs, tube rods, bulbs, nut bolts, electric tape roll, Kachcha 'rubber, internal panel wiring, on-off switch, spare kit for contactor, M-seal compound etc. shall be done by contractor. No extra payment on this account shall be made by the department.

c) Quarterly cleaning, desilting of all OHTs/ Cistern's shall be done by the contractor. The Dates of Cleaning of these units shall be finalized in consultation with the department and shall be marked on each OHTs/ Cistern's and showing next date of cleaning. OHTs/ Cistern's should be dust / silt free after cleaning.

d) The following records shall be maintained and produced periodically by the contractor for proper monitoring by Engineer-in-charge.

(i) Log book showing pressure, discharge, voltage, current, interruption of power if any. Reading of Bulk meters should also be recorded.

(ii) History sheets of overhauling/ maintenance/ replacement electrical/ mechanical equipment's which will be duly verified by the in charge of pumping stations.

(iii) A return in the format prescribed shall be prepared & submitted to the Assistant Engineer.

e) Inspection / Observation register will be maintained at each PS instruction recorded in the register shall be complied timely & shall be reported to Engineer-in-charge. Complaint register shall have to be maintained and each complaint received from department or public should be entered and during rectified.

f) Any other equipment which are not included in description but installed at pump houses shall be maintained by the contractor.

g) Minor Civil repair of pumping station premises etc. has to be carried out as directed by Engineer-in-charge for which payment shall be made on the basis of current schedule of rates (SOR) of specific works/departments with no percentage above or below.

h) Maintenance of Gardens in adjoining area of intake well, Treatment plant, OHTs, Sump well-cum Pump house and electric substation security of all campuses is included in the scope of work and O&M of scheme.

i) Maintenance of the lighting fixtures and the lighting system in the intake well, Treatment plant, OHTs, Sump well-cum-pump house and electric substation premises and replacement of all non-functional lighting fixtures within 24 hours with energy saving components.

j) Rehabilitation work should be carried out by the contractor during natural calamities.OPERATION AND MAINTENANCE OF PUMPING STATIONS /SOURCES AND TREATMENT PLANTS:
For the purpose of operating pumps, it shall be the responsibility of the contractor to properly control, operate, maintain and safely keep all electrical / mechanical / instrumentation units such as pump, motor, panel, etc. in working order.

k) Pumps, motors, dewatering pump and all other equipment, fitting etc. shall be operated and periodically overhauled as prescribed in the manuals provided by the manufacturer's standards, as per direction of Engineer-in-charge and schedule annexed.

L) All electrical installations shall also be operated and maintain periodically and checked for its performance as per manual provided by the manufacturer's standards, as directed by the Engineer-in-charge and schedule.

M) All type of valves and other apparatus shall also be operated and periodically maintained as per manufacturers manual & standards.

N) All measuring equipments/devices for measuring pressure discharge/levels etc. shall be operated and periodically maintained as per manufacturers manual

O) Old material recovered shall be returned to department. He shall carry out cutting/ threading of pipes whenever required at his own cost.

P) The contractor has to lower/ de lower the pump sets from intake well cum pump house and sump well cum pump houses whenever required at his cost.

Q) After completion of O&M period contractor has to hand over the pumps machinery to department with 75% of efficiency of present efficiency and in working condition.

PIPELINE:

- The tenderer shall have to do preventive maintenance and repairing / replacement of any defective part/item i.e. pipes, specials, valves etc. and also other items once pipe line is handed over under the contract.
- There shall be proper surveillance of pipe line.
- During maintenance of leakage /burst all safety precaution rules and regulations prescribed by other agency such as PWD / Telephone / Electrical / Mining /Revenue /Forest department and local body shall have to be followed strictly. He should keep all safety measures for the traffic along the pipe line during maintenance work. In case of non compliance of rules and regulations, the damages so caused, if any shall be responsibility of the contractor and any cost accorded there of shall be borne by the contractor.
- All the air valves and air cushion valves are to be checked daily. Any defect or leakage found is to be removed immediately and a routine checking of sluice valves, air valves, and other specials like bends, tees etc to be done and date of inspection checking the condition and repairing if any should be entered in corresponding log books.
- All consumable items like grease, gland packing, rubber sheet, G.M. rods and nuts of sluice valve, air valve, nut bolts of all types of specials, balls of air valve, air cushion valve ,C.I. Detachable Joints, Pipe pieces and valves etc. shall be arranged by contractor. No extra payment on this account. Regarding consumable of pipe line decision of Engineer-in-charge shall be final the pipe line section shall be properly surveyed and maintained for its proper

Earth cover and surface drainage along the alignment at the place where pipe Line crosses natural nallah's or culverts, bends etc. for the purpose pre and post Monsoon inspection shall have to be conducted and reports furnished to the Engineer-in-charge certifying that he has inspected the entire pipeline section and no such extra work is required to be done at site due to monsoon effect.

Contractor shall be responsible for attending and rectification of complaints regarding blockage of pipe lines, Polluted water supply including disconnection etc.

WATER TREATMENT PLANT

In addition to above following shall also be done by contractor for operation and maintenance of water treatment plans

- Contractor shall ensure quality of treated water, analysis of turbidity of water, suitable dosing of chemicals.
- Chemicals such as bleaching powder and Alumina ferric shall be provided by the contractor the cost of chemicals shall be borne by the contractor. The expenses of chemical shall be reimbursed to the contractor quarterly on the quality of chemical as certified of engineer in charge as per rates on LUN/DGS&D or the bill produced by the contractor. Whichever is less.
- Contractor shall be responsible for operation, preventive and scheduled

- Maintenance of all units of treatment plant including clarifloculator, filter beds etc. Backwashing, scrapping, cleaning of filter beds and clarifloculator shall be done by contractor as and when required as per O& M manual.
- Contractor shall be responsible to maintain the present efficiency of WTP till the completion of the contract period and return back the WTP to the department with the same efficiency.

DISPLAY OF DUTY CHART AND PHOTOGRAPHS:

Contractor shall have to display the duty chart with full details e.g. name, address, work description etc. of the staff engaged for the purpose of operation and maintenance of the treatment plant, intake well cum pump house and sump well cum pump houses at each pump house. Similarly duty chart for the staff engaged for patrolling and maintenance of pipeline shall also be displayed at each pump house. One copy of the complete duty chart along with complete details and photographs and list of T & P shall have to be provided to the Engineer in charge for record purpose. No extra payment for this shall be payable.

CONTRACTOR SHALL FOLLOW ALL THE DIRECTIONS/ GUIDE LINES ISSUED BY THE DEPARTMENT TIME TO TIME. HE SHALL FOLLOW THE GUIDE LINES LAID IN C.P.H.E.E.O. MANUAL AND RELEVANT IS SPECIFICATIONS.

SERVICE STANDARDS OF THE SERVICES & DELIVERABLES FOR O&M

1. Contractor should maintain desired production and distribution as per instructions of Engineer in Charge. The pumping hours/ production level will be decided by Engineer In Charge on monthly basis or shorter period for which order will be issued by Engineer in Charge in advance

2. The contractor shall have to do both preventive and break down maintenance of pipe line. The pipe line shall have to be under consistent surveillance. The required staff must be available at scheme. Major leakage and replacement of burst pipe shall have to be got repaired within 24 hours. Minor leakages which requires small repairs or and cramping etc. Shall he to be got repaired within 8 hours. Any delay in repairing is highly objectionable and liable for penalty.

3. Contractor shall replace all defective pump machinery from any source / pump house with in stipulated period. There should not be any disturbance in supply of water due to such delay.

4. Contractor should deploy skilled & minimum desired staff for operation and maintenance as and when required. There should not be any loss to departmental pump, machinery, pipe lines, properties etc. due to negligence of staff.

5. Records of operation of pumps, filters distribution, maintenance, material and public complaints should be maintained regularly.

6. All labour laws should be followed.

7. Adequate safety precautions against fire, flooding, lightening, electrical shocks, accident due to moving/ non moving heavy equipment's shall be strictly observed by the contractor at his own cost.

8. All sorts of tools, tackles required for operation and maintenance of the plant shall be arranged by the contractor at his own cost

9. The contractor shall also submit monthly report to the office of Assistant Engineer regarding day to day activities done and any failure / defect / difficulty experienced along with daily pumping report.

10. Department shall to supply water free from any objectionable chemical or bacteriological impurities. Contractor has to do regular chlorination of water before supply and maintain minimum required residual chlorine at tail end.

11. Regular backwashing of filter units is also required.

12. Regular cleaning of all storage tanks. Time between two cleanings should not exceed 6 months

13. There should not be any wastage of water due to overflow of any storage tank.

14. Regular patrolling of all pipe lines should be done. All leakages must be attended immediately to prevent wastage of water.

15. All public complaints must be attended within 24 hours.

16. All staff employed should be well mannered with public and departmental authorities. Any nuisance from staff person shall not be tolerated. Department may instruct to remove any ill mannered employee.

17. For the safety of the public barriers and warning signs shall be erected around any excavation works being carried out in public roads and foot paths

18. Workmanship Requirements during O&M the workmanship observed for all repair and maintenance work shall be in accordance with the approved Operations and maintenance Manual, the manufacturer's recommendations and "Good Engineering Practices". In particular the Contractor shall ensure:

a) The rubber gaskets/rings, nuts & bolts etc. and all other materials to be used shall be as per the approved specifications given for respective items.

b) After each repair the damaged coating of pipes must be repaired and if in trench conditions, the trench must be refilled with approved soil, the soil compacted as per the original specifications and the site shall be fully reinstated to a condition equal or better than the original condition.

c) Stretches along pipe alignments where cover is washed out or removed due to other reasons must be rehabilitated so that the minimum cover required is always maintained.

d) All cracks in pipe supporting structures, valve chambers and their edges must be racked, filled and made good with cement sand mortar 1:2.

19. The Contractor shall provide a continuously manned mobile/telephone to receive emergency call out requests from the Department. When necessary, additional staff required for emergency or periodic maintenance shall be provided in addition to the above, at the cost deemed to be included in the cost quoted for O&M. The Contractor's manpower shall be fully trained prior to the commencement of the operations and maintenance services

20. SCHEDULE OF PREVENTIVE MAINTENANCE

20.1. All the routine checkup Preventive/Periodicals maintenance of equipment's shall be under takes as per manufacture's manuals /instruction and standard Engineering practice.

20.2. General cleanness, removal of dust, dirt, grease, oil etc. from the equipment's and pump house shall have to be carried out daily.

20.3. Frequency of works to be undertakes is marked by asterix in appropriate column.

SCHEDUEL OF MAINTENANCE

	Daily	Weekly	Monthly	Quarterly	Half Yearly	Yearly
PUMP						
Installation checkup			✓			
Bearing Temp.	✓					
Cooling and lubricating system.	✓					
Vibration	✓					
Glands		✓				
Bearing oiling and Greasing		✓		✓		
Coupling bush/bolts			✓			

Checking of wear and tear of line shaft sleeve.					✓	
MOTOR						
Installation				✓		
Earthing					✓	
Terminal box with cable			✓			
Vibrations		✓				
Bearing lubrication,/greasing			✓			
Cooling system						
Anti Condensation Heater				✓		
Sluice valves				✓		
Full travel of gate			✓			
Stuffing box packing			✓			
Tightening of bolts			✓			
Non return valve.						
Tightening of bolts	✓	✓				
By pass valve operation						
Vibration / noise	✓					
STARTER PANEL						
Operating mechanism	✓					
Contacts	✓					
Check all indicating instruments, Lamps, Fuses.	✓					

21. SCHEDULE OF WATER TESTING:

The frequency of water testing of water shall be as under -

S. No.	Unit	Frequency of sampling
1	At outlet of Inlet Chamber	Once a day
2	At outlet of Chlariflocculator	Once a day
3	At Outlet of Filters	Once a day
4	At Outlet of Clear Water Sump	Once a day
5	At Outlet of CISTERN/Cistern	Once a day
5	Each Habitation	Once a day (Only residual chlorine)

The following parameters shall be tested in the laboratory as per above schedule-

S.n.	Name of quality parameters	Minimum Limit	Maximum Limit
1	Colour	5	15
2	Turbidity	1 N.T.U.	5 N.T.U.
3	pH	6.50 to 8.5	6.5 to 8.5
4	T.D.S./conductivity	500mg/lit.	2000mg/lit
5	Alkalinity	200 mg/lit.	600 mg/lit.
6	Chloride	250 mg/lit.	1000 mg/lit.
7	Total Hardness	200 mg/lit.	600 mg/lit.
8	Calcium	75 mg/lit.	200 mg/lit.
9	Nitrate	45 mg/lit.	45 mg/lit.
10	Residual Chlorine	0.2 mg/lit.	1.0 mg/lit.
11	Total colliform	0/100 mg/lit.	0/100 mg/lit.
12	Fecal Colliform	0/100 mg/lit.	0/100 mg/lit.

The magnesium, Iron, Fluoride, Sulphate and Arsenic shall be tested by contractor in the district laboratory in every three months or as directed by Engineer in Charge.

Annexure – Y-1

List of Preferred (Empanelled) Makes/Brands

S.No.		Make /Brand
1	Pump Motors	Kirloskar /Jyoti / Crompton Grieves / Falcon/ CRI/ Texmo/ BharatBijlee or equivalent
2	Power Transformers	ABB/Crompton Grieves/ Emco/Siemens or MPPVVCL approved make or equivalent
3	DI Pipes & Specials	Electrosteel / Jindal / Tata / Electrotherm/ Jai Balaji/ Rashmi Metaliks or equivalent
4	GI pipes & Specials	TATA/Jindal/Surya or equivalent
5	HDPE Pipes &specials	Reliance/Duraline/ Jain Irrigation / Godavari/Sangir/Kisan/ Kasta/ Time Technoplast/ Signet/ Ori Plast/ Kataria Plastics or equivalent
6	PVC Pipes	Kisan/ Kasta/ Jain Irrigation or equivalent
7	Sluice Valves/Scour Valves	Kirloskar/IVC/VAG/IVI/Fouress or equivalent
8	Butterfly Valve	Kirloskar/IVC/VAG/IVI/Fouress or equivalent
9	Non-return Valves	Kirloskar/IVC/VAG/IVI/Fouress or equivalent
10	Kinetic Air Valve	Kirloskar/IVC/VAG/IVI/Fouress or equivalent
11	Single Faced Sluice Gates	JASH/VAG/Kirloskar or equivalent
12	Water Hammer control Devices	Sureseal or equivalent or equivalent
13	Electromaganatic Flow Metter, Water Meter, Items For Instrumation/ Automation	Endress+Hauser(India)/ITRON India/NivoControls or equivalent
14	Woltman type Bulk watermeters	Zenner/Itron/Elster/Minol or equivalent
15	DI/CI Fitting &specials	Kiswok/Electrosteel/Kejriwal or equivalent

Note :-

1. Equivalent or Superior make/brand will be approved by the Superintending Engineer of the concerning Circle after evaluation of proposed make/brand. Superintending Engineer shall document that substitution is inevitable in the interest of the project and the alternate make/brand proposed by the contractor is substantially equivalent or superior to the one recommended in the abovetable.
2. The E-in-C Public Health Engineering Department can issue a revised list from time to time. The Contractor shall follow the latest list issued by theE-in-C.
3. Third party inspection (TPI) of the materials shall be done by the followingagencies.

For plastic viz HDPE, MDPE, CPVC, UPVC etc.items:-	Central Institute of Plastics Engineering and Technology(CIPET)and Technology(CIPET)
Other than PlasticItems:-	RITES/ IRS/EIL

SECTION 3
Conditions of Contract

Part – II Special Conditions of Contract (SCC)

1. शासन के आदेशक्रमांक एफ 16–50/2017/2/34 दिनांक 31 जुलाई 2017 के अनुसार 1 जुलाई 2017 से लागू माल एवं सेवाकर (GST) सभी वर्क कांट्रेक्ट पर 18 प्रतिशत की दर से लगेगा। शासन के इस आदेश अनुसार ठेकेदार को देयक भुगतान के समय जी.एस.टी. की जो दर देयक पर लागू हो सके अनुसार टैक्स का भुगतान पृथक से ठेकेदार को किया जावेगा। जी.एस.टी. को छोड़कर (Exclusive of GST) शेष समस्त कर, उपकर, लेवी, फी, टोल इत्यादि के भुगतान का दायित्व निविदाकार का होगा तथा यह माना जायेगा कि निविदाकार द्वारा प्रस्तुत वित्तीय प्रस्ताव (Financial Offer) में उक्त राशि का भुगतान सम्मिलित है।
2. निविदाकार का पी.डब्ल्यू.डी. विभाग में पंजीयन अनिवार्य होगा। देयक से आयकर, वाणिज्यकर, जी एसटी एवं कर्मचारी कल्याण उपकर का नियमानुसार कटोत्रा किया जावेगा।
3. सुरक्षा एजेन्सी द्वारा लेवर वेलफेयर फण्ड कमिश्नर, जबलपुर में जमा फण्ड की छायाप्रति संलग्न करें ।
4. पिछले तीन वित्तीय वर्षों (वर्ष 2023–24, 2024–25 एवं 2025–26) का आयकर जमा का प्रमाण और बैलेंस शीट प्रस्तुत करना होगा ।
5. निविदाकार द्वारा समकक्ष कार्य का पिछले तीन वर्षों का कार्य का अनुभव प्रमाण पत्र कार्यपालन यंत्री या उच्च अधिकारी द्वारा जारी किया हुआ प्रस्तुत करना होगा। प्रस्तुत न करने की दशा में उक्त निविदाकार का वित्तीय प्रस्ताव (लिफाफा–स) नहीं खोला जावेगा ।
6. सेन्ट्रल एक्साईज विभाग में सेवाकर हेतु पंजीयन की प्रति प्रस्तुत करना अनिवार्य होगा तथा वित्तीय वर्ष 2023–24, 2024–25 एवं 2025–26 का जी.एस.टी. जमा का चालान संलग्न करना होगा ।
7. निविदाकार को एनेक्सर–बी अनुसार स्वहस्ताक्षरित/स्वप्रमाणित शपथ पत्र प्रस्तुत करना होगा ।
8. निविदाकार को वित्तीय वर्ष 2023–24, 2024–25 एवं 2025–26 का ई.पी.एफ., ई.एस.आई.सी. जमा का चालान संलग्न करना होगा ।
9. निविदाकार द्वारा चाहे गये आवश्यक दस्तावेज (Mandatory Documents)- PAN CARD, EPF, EMD, श्रम विभाग में पंजीयन की प्रति, इत्यादि संलग्न करनी होगी ।
10. उपयोग की गई सामग्री से संबंधित रायल्टी की रसीदें देयक के साथ प्रस्तुत करना होगी अन्यथा देयक से रायल्टी काट कर राजस्व मद में जमा करली जावेगी, जिसे विभाग संबंधित निविदाकार को वापिस करने हेतु बाध्य नहीं होगा।
11. सशर्त निविदाए मान्य नहीं की जाएगी
12. ई.–ई.एम.डी. (e-EMD) जमा कर निविदा में भाग लेने वाले निविदाकारों के लिये निम्न प्रक्रिया निर्धारित की जाती है :–
13. निविदाओं में भाग लेने वाले निविदाकार अपने बैंक अकाउंट की जानकारी एम.पी. ई–प्रोक्योरमेंट पोर्टल (https://www.mptenders.gov.in) पर अपने लॉग–इन आई.डी. से लॉग–इन कर बैंक अकाउंट डिटेल्स फार्म में दर्ज करेंगे।
14. निविदाकार RTGS/NEFT/Debit Card/Credit Card/Net Banking के माध्यम से ई.एम.डी.(e-EMD) की राशि पोर्टल पर जमा कर सकेंगे उसके बाद वे निविदा में भाग लेने की कार्यवाही पूर्ववत करेंगे।
15. वित्तीय आफर खुलने के उपरांत न्यूनतम निविदाकार की ई.–ई.एम.डी. (e-EMD) की राशि को छोड़कर शेष सभी निविदाकारों द्वारा जमा ई.–ई.एम.डी.(e-EMD) की राशि पोर्टल के माध्यम से वापस की जाएगी, जो कि निविदाकार के पोर्टल पर रजिस्टर्ड बैंक खाते में ही वापस होगी। यहाँ यह स्पष्ट

किया जाता है कि ई.–ई.एम.डी. (e-EMD) जमा करने वाले निविदाकार किसी भी खाते से ई.–ई.एम. डी.(e-EMD) की राशि जमा कर सकेंगे परन्तु वापसी निविदाकार के रजिस्टर्ड बैंक खाते में ही होगी। सफल निविदाकार की ई.–ई.एम.डी.(e-EMD) की राशि अनुबंध करने तक रोक कर रखी जाएगी तथा अनुबंध निष्पादित किये जाने के उपरांत वापस की जाएगी।

16. यदि किसी कारण से ई.एम.डी.(EMD) राजसात करने का निर्णय लिया जाता है तो निविदाकार द्वाराजमाई.–ई.एम.डी.(e-EMD) की राशि पोर्टल पर राजसात की जाएगी तथा राजसात की गयी राशि सर्विस प्रोवाईडर द्वारा तुरंत लोक स्वास्थ्य यॉंत्रिकी विभाग के 8443 सिविल जमा खाते में जमा की जाएगी जिसे निक्षेप खाते के धारक द्वारा चालान के माध्यम से राजस्व प्राप्तियाँ **0215** शीर्ष में जमा कराई जाएगी।

17. प्राप्त न्यूनतम निविदा दर (एल–1) पंद्रह प्रतिशत से अधिक नीचे (More Than Fifteen Percent Below) होने पर निविदा दर को अव्यवहारिक दर (Unworkable Rates) माना जावेगा। अव्यवहारिक दरें (Unworkable Rate) प्राप्त होने पर सफलतम निविदाकार (एल–1) द्वारा निविदत्त दर अनुसार गणित निविदा राशि (Tendered amount) एवं एस.ओ.आर. पर निविदा की लागत से 15 प्रतिशत कम राशि (amount 15% below PAC) के अंतर की राशि अतिरिक्त परफारमेंस ग्यारंटी के रूप में (Additional performance guarantee) ली जायेगी।

18. अतिरिक्त परफोरमेंस गारंटी उसी प्रारूप में ली जावेगी जिसमें अरनेस्ट मनी/ परफारमेंस ग्यारंटी (Earnest Money / Performance Guarantee)ली जाती है।

19. Additional performance guarantee प्राप्त होने के उपरांत ही अनुबंध निष्पादित किया जायेगा।

20. Additional performance guarantee भौतिक रूप से कार्य पूर्णता प्रमाण पत्र (Physical Completion Certificate) जारी होने के पश्चात ही वापस की जाए।

21. निविदा अनुबंध के दस्तावेजों पर न्यूनतम रूपये 500/–तथा अधिकतम रूपये 500000/– के अध्याधीन रहते हुये ऐसे दस्तावेज द्वारा प्रतिभूत रकम अथवा मूल्य का 0.1 प्रतिशत स्टाम्प शुल्क प्रभारित होगा। यदि शासन द्वारा इस शुल्क में कोई परिवर्तन किया जाता है तो ऐसी परिस्थिति में अनुबंध के समय प्रचलित दरों पर स्टाम्प शुल्क प्रभारित होगा ।

22. बिना कारण बताए निविदा स्वीकृत/अस्वीकृत करने का पूर्ण अधिकार निविदा आमंत्रणकर्ता को होगा।

23. जी.सी.सी. कंडिका 8.1 में उल्लिखित "Physical Property" के अंतर्गत अन्य परिसम्पत्तियों के अलावा योजना के सभी अवयव (नवीन एवं विघ्मान) भी सम्मिलित होगें ।

24. श्रमिकों की व्यवस्था आवश्यकतानुसार सक्षम स्वीकृति उपरांत घटाई या बढ़ाई जा सकती है ।

25. ई.पी.एफ./ई.एस.आई.सी. विभागके द्वारा प्राप्त पंजीयन की प्रति संलग्न करें ।

26. लेबर कमिश्नर द्वारा जारी लाईसेंस की छायाप्रति संलग्न करें ।

27. शासकीय कार्यों में सम्पत्ति की सुरक्षा की जबाबदारी संस्था की होगी । शासकीय सम्पत्ति की किसी भी प्रकार की हानि या क्षति होने की स्थिति में ठेकेदार उत्तरदायी होगा एवं उसे सक्षम अधिकारी के द्वारा निर्धारित शासकीय राशि की क्षति पूति करनी होगी। जिसकी वसूली नगद या भू–राजस्व के बकाया राशि के तहत वसूल किया जावेगा ।

28. श्रमिकों की बीमारी /अवकाश /अन्य कारणों से स्थल पर अन्य श्रमिक की व्यवस्था संस्था को करनी होगी ।

29. शासकीय कार्यों के प्रभारी अधिकारी/कर्मचारी द्वारा प्रमाणित उपस्थिति प्रमाणपत्र प्रति माह भुगतान देयक के साथ संलग्न होने के उपरान्त ही भुगतान किया जावेगा ।

30. श्रमिकों के रहने/खाने–पीने की व्यवस्था के संबंध मेंविभाग की कोई जबाबदारी नहीं होगी । संस्था द्वारा सुविधाए श्रमिकों को प्रदान की जावेगी ।

31. प्रभारी अधिकारी से कर्मचारियों को सामांजस्य बनाये रखना होगा। एवं उनके द्वारा दिये गये निर्देशानुसार सुधार कार्य हेतु जाना होगा ।

32. श्रमिकों द्वारा कार्यस्थल पर किसी प्रकार का नशा मदिरा का उपयोग करने पर विभाग द्वारा उन्हें तत्काल कार्यस्थल से अलग कर दिया जावेगा। तथा एजेनसी द्वारा अन्य श्रमिकों की व्यवस्था तत्काल करना होगी ।

33. शासकीय अवकाश/व्यौहार/राष्ट्रीय अवकाश/साप्ताहिक अवकाश होने पर भी एजेन्सी को श्रमिकों की व्यवस्था जरूरत होने पर करनी होगी ।

34. यदि श्रमिक कार्य स्थल पर उपस्थित नहीं होता है अथवा कार्य के दौरान असजग पाया जाता है तो प्रति श्रमिक प्रतिदिन रूपये 1000/– के मान से अर्थदण्ड वसूला जावेगा ।

35. निविदा आवेदन पत्र के साथ संस्था का पंजीयन प्रमाण–पत्र आई.एस.आई.सी. हेतु लेबर कमिश्नर इंदौर के यहां एवं लेबर का रजिस्ट्रेशन संभागीय कमिश्नर के यहॉ होना अनिवार्य होगा ।

36. अग्रिम भुगतान किसी भी परिस्थिति में नहीं किया जावेगा ताकि निविदा स्वीकृति उपरान्त श्रमिकों को कलेक्टर द्वारा निर्धारित दर पर भुगतान किया जाना होगा, जिसका साक्ष्य भी प्रतिमाह प्रस्तुत किया जाना अनिवार्य होगा ।

37. श्रमिक को निर्धारित समय पर उपस्थित रहना होगा ।

38. आयकर इत्यादि की वसूली नियमानुसार की जावेगी ।

39. निविदाकर्त्ता/संस्था द्वारा लोक स्वास्थ्य यांत्रिकी विभाग के कार्य का दायित्व लेने के एवं जिन श्रमिकों की सेवायें प्रदान की जावेगी, उनके नाम, पूर्ण पता, आयु, फोटो, मेडिकलफिटनेस एवं पुलिस सत्यापन प्रमाण–पत्र उपलब्ध कराना अनिवार्य होगा ।

40. किसी कारण वश अगर श्रमिक बदला जाता है, तो उसकी सूचना निविदाकार द्वारा तत्काल विभाग को समस्त विवरण के साथ विभाग को उपलब्ध कराना होगी ।

41. समय–समय पर प्रभारी अधिकारी द्वारा दिये गये निर्देशों का पालन करना अनिवार्य होगी ।

42. श्रमिकों द्वारा यदि प्रभारी अधिकारी से वाद विवाद किया जाता है तो प्रभारी अधिकारी द्वारा उसे तत्काल प्रभास से हटाया जावेगा ।

43. किसी भी प्रकार के विवादास्पद स्थिति में न्याय क्षेत्र **बालाघाट** होगा ।

44. निविदा में श्रमिकों की दर श्रम आयुक्त इंदौर अनुसार ली गई हैं। जिससे श्रमिकों के कटोत्रे (पी.एफ.), इन्श्युरेन्स (ई.एस.आई.) सम्मिलित नहीं है ।

45. कार्य के दौरान यदि कोई श्रमिक दुर्घाटनाग्रस्त अथवा मुत्यु को प्राप्त होता है तो उसके लिये विभाग उत्तरदायी नहीं होगा ।

46. लेबर कमिश्नर द्वारा निर्धारित की गईदरों से कम प्राप्त हुई राशि/दर अस्वीकृत कर दी जावेगी।

47. संस्था/एजेंसी का पंजीयन प्रमाण–पत्र/ लेबर एक्त संबंधित पंजीयन प्रमाण प्रस्तुत करना अनिवार्य है तथा वर्कमेन कम्पन्सेशन एक्ट प्रोविडेंट फंड एवंलेबर एक्त एवं उस पर लागू सभी टैक्स आदि जमा करने संबंधी कार्य का पालन करने का उत्तरदायित्व निविदाकार का होगा ।

48. कार्य पर लगाये गये व्यक्ति की आयु 18 वर्ष से कम एवं 62 वर्ष से अधिक नहीं होना चाहिए तथ उनका नाम पूर्णपता एवं आयु संबंधी जानकारी उपस्थित प्रमाणपत्र के साथ उपलब्ध कराना आवश्यक होगा ।

49. कार्य पर लगाये गये श्रमिक/कम्प्यूटरआपरेटर/सुरक्षागार्ड को श्रमायुक्त मध्यप्रदेश द्वारा निर्धारित दर पर भुगतान किया जाना अनिवार्य होगा ।

50. ई.एस.आई.सी. का पंजीयन आवश्यक है ।

51. ऐजेंसी को श्रमायुक्त द्वारा निर्धारित की गई प्रचलित न्यूनतम दर एवं ई.पी.एफ. तथा ई.एस.आई.सी. का भुगतान करना होगा ।

52. ठेकेदार के द्वारा संबंधितों को भुगतान बैंक खाते में चेक अथवा ई भुगतान के माध्यम से करना होगा ।

53. कर्मचारियों के वेतन से उनकी ई.पी.एफ./ई.एस.आई.सी. की राशि कटौती के सबंध में ऐजेंसी के मासिक देयक के साथ विगत माह कटौती की गई राशि जमा होने का विवरण आवश्यक रूप से प्राप्त किया जाये । (प्र.अ. के पत्र क्रमांक 549 दिनांक 21.01.2021 को जारी निर्देश के परिपालन में)

54. निविदाकार को पुलिस अधीक्षक जिले द्वारा जारी किया हुआ अनापत्ति प्रमाण पत्र प्रस्तुत करना होगा।

55. निविदाकार का पिछले तीन वर्षों का ई.पी.एफ., ई.एस.आई.सी. तथाजी.एस.टी. जमा का चालान प्रस्तुत करना अनिवार्य है ।

56. गृहविभाग में ऐजेन्सी का पसारा रजिस्ट्रेशन प्रस्तुत करना अनिवार्य है ।

57. कार्य हेतु किसी भी प्रकार का परिवहन से संबंधित व्यय, तथा निविदाकार द्वारा प्रयुक्त किसी भी सामग्री अथवा उपकरण के खराब होने पर अथवा मानकों के अनुरूप न होने पर उसको बदलने/सुधार करने में हुये व्यय का विभाग द्वारा कोई भुगतान नहीं किया जावेगा।

58. विद्युत कनेक्शन कार्य निविदाकार द्वारा निविदा में स्वीकृत दरों के अनुरूप संबंधित म0प्र0 विद्युत वितरण कंपनियॉ द्वारा प्रदत्त प्राक्कलन/MPVVCLके SOR मे निर्धारित मापदंड अनुसार किया जावेगा।

59. नलजल प्रदाय का संचालन–संधारण निविदाकार को 1वर्ष की अवधि के लिये करना होगा। संचालन–संधारण संतोष जनक पाये जाने पर 1 वर्ष की अवधि को आपसी सहमति से 01 अतिरिक्त वर्ष के लिये आगे बढ़ायी जा सकेगी। यदिसंचालन–संधारण की अवधि बढ़ायी जाती है, तो बढ़ायी गई अवधि के लिये संचालन–संधारण की राशि के आधार पर परफॉरमेन्स गांरटी की राशि की गणना की जायेगी, जिसे पृथक से ठेकेदार को 1 वर्ष की संचालन–संधारण अवधि समाप्त होने के 3 माह पूर्व कार्यपालन यंत्री को जमा कराना होगा।

60. योजना के संचालन–संधारण हेतु अनुबंध की समयावधि 1वर्ष की होगी। निविदाकार को अनुबंध संपादन के दिनांक से 07 दिवस में योजनाओं के समस्त स्थापित अवयवों को, भौतिक सत्यापन उपरान्त, अपने अधिपत्य में लेना होगा। अनुबंध संपादन के 07 दिवस में सत्यापन न किये जाने की दशा में यह माना जायेगा कि विभाग द्वारा उल्लेखित तथ्य निविदाकार को मान्य/स्वीकार्य है, उसके उपरान्त कोई आपत्ति मान्य नहीं की जायेगी।

61. हस्तांतरण के समय निविदाकार के द्वारा Engineer-in-Charge द्वारा अनुमोदित As built drawings प्रस्तुत करना अनिवार्य होगा।

62. नलजल योजना का निविदाकार द्वारा अधिपत्य लेने के दिनांक से उदभूत होने वाली समस्त देनदारियों (विद्युत देयक की राशिको छोड़कर) को चुकता करने का दायित्व निविदाकार का होगा।

63. नलजल प्रदाय योजना के संचालन–संधारण में निविदाकार द्वारा नियोजित कर्मियों की सुरक्षा हेतु आवश्यक उपकरणों की व्यवस्था निविदाकार द्वारा स्वयं के व्यय पर की जायेगी।

64. निविदा में योजना के समस्त प्रकार के संचालन–संधारण यथा श्रमिक, सामग्री, समय–समय पर किये जाने वाले नियमित संधारण कार्यो पर होने वाले व्यय सम्मिलित है, परंतु इसमें विद्युत देयकों की राशि सम्मिलित नहीं है। विद्युत देयक की राशि का भुगतान सामान्यतः लो.स्वा.या. विभाग द्वारा किया जायेगा।

65. पेयजल स्त्रोत एवं जल वितरण प्रणाली का आवश्यकतानुसार डिस्इनफेक्शन (Disinfection) का दायित्व निविदाकार का होगा। इस हेतु पृथक से कोई भुगतान निविदाकार को नही किया जायेगा।

66. निविदाकार यह सुनिश्चित करेगा कि जल स्त्रोत की गुणवत्ता स्थानीय कारणों से (जैसे– स्त्रोत में प्रदूषित पानी मिलना, बाढ़ का पानी जाना, स्त्रोत के पास कूड़े–कचरे, गोबरहोना आदि) प्रभावित न हो। निविदाकार यह भी सुनिश्चित करेगा कि जिस गुणवत्ता का जल स्त्रोत में पाया जाता है, उपभोक्ता स्तर पर भी उसी गुणवत्ता का जल प्रदाय किया जाये, अर्थात जल वितरण के दौरान पेयजल पाईप लाईन में टूट–फूट, वाल्व लीकेज इत्यादि से प्रदूषित न हो ।

67. योजना के संचालन–संधारण की अवधि में यदि किसी व्यक्ति को नवीन घरेलू नल कनेक्शन की आवश्यकता हो, तो वह इस हेतु संबंधित ग्राम पंचायत/पेयजल उपसमिति को विहित शुल्क के साथ आवेदन करेगा। ऐसी ग्राम पंचायत/पेयजल उपसमिति द्वारा निविदाकार को अनुरोध करने पर आवेदक

को नलकनेक्शन उपलब्ध कराया जायेगा। इस हेतु निविदाकार को निविदा के प्रावधानों के अनुसार भुगतान किया जायेगा।

68. निविदाकार द्वारा नलजल योजना से जल प्रदाय की मात्रा मापने हेतु ''बल्कमीटर'' की स्थापना की जायेगी, जो कि विभाग द्वारा निर्धारित सूची में से होगा । बल्कमीटर को सुरक्षित रखने का उत्तरदायित्व संबंधित निविदाकार का होगा। मीटर की शुद्धता (accuracy) की जाँच संबंधित निविदाकार द्वारा विभाग द्वारा जब भी चाहा जायेगा अधिकृत संस्था से करायी जायेगी। निविदाकार द्वारा अधिकृत संस्था से प्रमाणित एक सील्ड मीटर पृथक से रखा जायेगा । मीटर के खराब होने की स्थिति में उसे प्रमाणित सील्डमीटर से तत्काल बदला जायेगा। जितनी अवधि मीटर खराब रहता है, उस अवधि के लिए निविदाकार को संचालन संधारण हेतु निर्धारित राशि की 50 प्रतिशत राशि ही देय होगी ।

69. योजना के अंतर्गत जल प्रदाय की मात्रा का सत्यापन ग्राम पंचायत के सरपंच/सचिव एवं विभाग के उपयंत्री द्वारा योजना में निविदाकार द्वारा स्थापित बल्कमीटर से किया जा सकेगा।

70. निविदाकार द्वारा जल प्रदाय के संबंध में एक पंजी संधारित की जायेगी, जिसमें बल्कमीटर की प्रारंभिक माप, अंतिम माप एवं प्रतिदिन किये गये जल प्रदाय की मात्रा अंकित की जायेगी । इस माप का सत्यापन ग्राम पंचायत सचिव द्वारा प्रति सप्ताह एवं विभागीय उपयंत्री द्वारा कम से कम 15 दिवस में एक बार किया जायेगा। भुगतान हेतु देयक प्रस्तुत करते समय उक्त पंजी की छायाप्रति निविदाकार द्वारा संलग्न किया जाना अनिवार्य होगा। सत्यापित मीटर रीडिंग की छायाप्रति संलग्न न होने की स्थिति में भुगतान नहीं किया जायेगा।

71. स्त्रोत असफल होने अथवा विद्युत प्रदाय अवरूद्ध (विद्युत विभाग के कारण) होने को छोड़कर यदि किसी अन्य कारण से नलजल योजना से जल प्रदाय अवरूद्ध होता है, तो निविदाकार द्वारा इसे अधिकतम 24 घंटे की समयावधि में सुधार कर चालू कराया जायेगा । योजना के बंद होने की समयावधि में प्रभावित क्षेत्र में निविदाकार द्वारा टैंकर के माध्यम से कम से कम 25 लीटर प्रति व्यक्ति प्रतिदिन जल प्रदाय सुनिश्चित किया जायेगा । 24 घण्टे के उपरांत योजना के बंद रहने की स्थिति में टैंकर से जल प्रदाय किये जाने के बावजूद रूपये 100/–प्रतिदिन अर्थदण्ड आरोपित किया जायेगा। यदिपरिवहन के माध्यम से 25 लीटर प्रति व्यक्ति प्रतिदिन जल प्रदाय सुनिश्चित नहीं किया जाता है तो जल प्रदाय न होने से प्रभावितप्रति 100 परिवार के लिये रूपये 1000/– प्रतिदिन का अर्थदण्ड आरोपित किया जायेगा। यदि 3 दिवस में सुधार कार्य नहीं किया जाता तो विभाग द्वारा योजना का सुधार कार्य कराकर जल प्रदाय चालू कराया जायेगा एवं सुधार पर होने वाले संपूर्ण व्यय, जिसमें विभागीय कर्मचारियों का उस दिवस का वेतन भी सम्मिलित है, की वसूली उक्त राशि पर 20 प्रतिशत अर्थदण्ड के साथ निविदाकार के देयकों से की जायेगी।

72. निविदाकार द्वारा योजना के विभिन्न अवयवों यथा पंप हाउस, उच्चस्तरीय टंकी, जल शोधन संयंत्र, पाईपलाईन एवं वाल्व्स आदि का सी.पी.एच.ई.ई.ओ. मैनुअल के प्रावधानों के अनुसार संधारण किया जायेगा। निर्देशानुसार संधारण न किये जाने की स्थिति में विभाग द्वारा स्वयं संधारण किया जायेगा एवं उस पर हुये व्यय की राशि तथा उस पर 20 प्रतिशत की धनराशि अर्थदण्ड के रूप में निविदाकार से वसूल की जायेगी।

73. यदि कोई व्यक्ति पेयजल को छोड़कर अन्य प्रयोजन (निर्माण कार्य छोड़कर) हेतु जल प्राप्त करना चाहता है, तो वह इस हेतु निर्धारित शुल्क के साथ ग्राम पंचायत/पेयजल उप समिति को आवेदन करेगा। ग्रामपंचायत/पेयजल उपसमिति के निर्देश प्राप्त होने पर निविदाकार संबंधित आवेदक को निर्धारित मात्रा में जल प्रदाय करेगा। यदि Engineer in Charge को ऐसा प्रतीत हो कि नलजल योजना से उपलब्ध जल को मात्र पेयजल हेतु आरक्षित करना है, तो वह ऐसा निर्देश निविदाकार को दे सकेगा तथा ऐसी परिस्थिति में किसी अन्य उपयोग के लिये जल उपलब्ध नहीं कराया जायेगा।

74. यदि किसी निविदाकार को विभाग द्वारा सूचीबद्ध Make / Brand की सामग्री उपलब्ध नहीं हो पा रही है तो वह Engineer-in-Charge को अवगत करायेगा।Engineer-in-Charge यदि आवश्यक हो तो ऐसी स्थिति में प्रस्ताव विभागाध्यक्ष स्तर पर गठित ''तकनीकी समिति'' को प्रस्तुत करेगा। तकनीकी समिति किसी अन्य Make/ Brand को सूचीबद्ध करने के संबंध समुचित निर्णय ले सकेगी।

75. निविदाकार द्वारा कार्य के क्रियान्वयन के दौरान यदि किसी विभाग से अनुमति की आवश्यकता होती है तो ऐसी अनुमतियॉ निविदाकार द्वारा ली जावेगी तथा विभाग द्वारा इन अनुमतियों को प्राप्त करने में यथा संभव मदद की जावेगी। अन्य विभागों से अनुमति प्राप्त करने में यदि इन विभागों द्वारा किसी भी प्रकार की फीस या राशि की मांग की जाती है, तो यह फीस/राशि निविदाकार द्वारा संबंधित विभाग को दी जावेगी जिसकी प्रति पूर्ति विभाग द्वारा निविदाकार को की जावेगी।

76. निविदाकारको योजना में प्रयुक्त होनी वाली सामग्री जैसे पाईप, वाल्व, स्पेशल्स सरिये, सीमेंट, रेतगिटटी, आदि आई.एस.आई. स्पेशिफिकेशन के अनुसार लगानी होगी। सामग्री की गुणवत्ता का सत्यापन मानक स्तर की थर्डपार्टी से कराकर प्रमाण पत्र विभाग में उपलब्ध कराना आवश्यक होगा ।

77. निर्धारित गुणवत्ता के पाईप एवं स्पेशल्स प्रदाय कर, नाली खोदकर पाईप लाईन बिछाकर, पाईप लाईन का उच्च दाब पर टेस्टिंग संतोषप्रद होने पर ही अंतिम देयक के भुगतान किया जावेगा टेस्टिंग के समय लीकेज व अन्य दोष ठेकेदार को स्वयं के व्यय पर ठीक करना होगा एवं चलित देयक से 10% राशि टेस्टिंग हेतु अलग से रोकी जावेगी ।

78. पाईपलाईन की खुदाई करते समय व पूर्व में दूरभाष विभाग से टेलीफोन केवल लाईन की जानकारी अनुसार ही खुदाई का कार्य करेगें, यदि टेलीफोन केवल इत्यादि एवं अन्य कोई क्षति होती है तो ठेकेदार की सम्पूर्ण जवाबदारी होगी ।

79. पाईप लाईन हेतु पाईप व स्पेशल ठेकेदार द्वारा प्रदाय किया जावेगा। परिवहन ठेकेदार द्वारा किया जावेगा, टूटफूट की सम्पूर्ण जवाबदारी ठेकेदार की होगी ।

80. निविदाकारों का आयकर विभाग में स्थायी लेखा नम्बर (PAN) तथा माल एवं सेवाकर(GST) में पंजीकृत होना भी अनिवार्य हैं। जिसका प्रमाण–पत्र आवेदन पत्र के साथ देना होगा।

81. देयक से नियमानुसार करों व अन्य कटौत्रा किया जावेगा।

82. यदि ब्लास्टिंग की आवश्यकता होती है तो ठेकेदार द्वारा नियमानुसार अनुमति प्राप्त कर किसी लायसेन्सिंग होल्डर से ब्लास्टिंग कार्य किये जावेगें। यदि किसी प्रकार की दुर्घटना व अनियमितता होती है तो ठेकेदार स्वयं जिम्मेदार रहेगा।

83. आवश्यकतानुसार सीमेंट कांकीट रोड को काटकर पाईप लाईन बिछानी होगी तथा पाईप लाईन की टेंस्टिंग उपरांत पुनः एम. 20 ग्रेड की कांक्रीट कर रोड को सही करना होगा ।

84. सभी सिविल कार्य लोक निर्माण विभाग के मेन्युअल अनुसार मान्य होगा ।

85. विद्युत कार्य हेतु आवश्यक सामग्री म.प्र.वि.वि.कंपनी के संबंधित अधिकारी (कार्यपालन यंत्री/सहायक यंत्री/कनिष्ठ अभियंता) से निरीक्षण के उपरांत उचित गुणवत्ता की पाई जाने पर ही उपयोग की जावेगी तथा ट्रांसफार्मर मरम्मत की गारंटी की अवधि एक वर्ष की होगी । एक वर्ष के अंदर ट्रांसफार्मर खराब होने पर ठेकेदार को स्वयं के व्यय पर ट्रांसफार्मर तत्काल सही कराना होगा।

86. कार्य हस्तांतरण के पूर्व म.प्र.शासन के विधुत निरीक्षक से ली जाने वाली प्रिकमीशनिंग रिर्पोट ठेकेदार को लाकर देना होगी।

87. विद्युतकार्यपूर्णहोने के उपरांतठेकेदारकोसंपादितकार्य म.प्र.वि.वि.कंपनीकोहस्तांतरितकरहस्तांतरणपत्रक प्रस्तुतकरनेपरहीअंतिमदेयक का भुगतानकियाजावेगा

88. विद्युत कार्य विद्युत कंपनी के नियमानुसार कंपनी में ''अ'' श्रेणी में पंजीवद्व ठेकेदार के माध्यम से ही कराना होगा ।

89. योजना के सिविल/पाईप लाईन एवं विद्युत संबंधी कार्य में किसी भी कार्य का कटोत्रा अथवा अतिरिक्त मात्रा का मूल्यांकन लोक स्वास्थ्य यांत्रिकीय विभाग के एस.ओ.आर जो 01.09.2023 से प्रभावशील है तथा विद्युत कंपनी के प्रचलित एस.ओ.आर.के अनुरूप निविदा में प्रदत्त दरों के आधार पर किया जावेगा।

90. नल कनेक्शनों के खडे पाईपों को मजबूती प्रदान करने के लिए सामान्यतः उसके आधार में 30X30X30 से.मी. की कांक्रीट करना होगी। जिसका अलग से भुगतान नहीं किया जावेगा

91. ठेकेदार द्वारा जल गुणवत्ता का परीक्षण फिल्टर प्लांट पर स्थित लेब में प्रतिदिन, टरबिडीटी, पी.एच., क्लोरिन, हार्डनेस, केलशियम, क्षारीयता, कलर, कंडक्टीविटी, नाइट्रेट, टी.डी.एस., टोटल कोलीफार्म, फीकल/इकोली फार्म एवं आडर आदि का परीक्षण कर पंजी संधारित की जाकर प्रस्तुत की जाना होगी। इसके अलावा शेश टेस्ट जैसे सल्फेट, मेगनिज, आरसेनिक, आयरन एवं फलोराइड टेस्ट जिला स्तरीय प्रयोग शाला में निर्धारित अंतराल पर परीक्षण करवाकर रिपोर्ट पंजी सहीत प्रस्तुत की जाना अनिवार्य है।

92. इंटेक–फिल्टर, उच्चस्तरीय टंकी एवं सम्पवेल पर लगे सारे इक्वीपमेंट जेसे मोटर पम्प, स्टार्टर, विद्युतबल्ब, ट्यूबलाईट, तथाफिल्टर की लेब में रखे सारे उपकरण कार्यादेश उपरान्त तुरंत अपने अधीन लेना होंगे एवं कार्यादेश समाप्ति पर चालू स्थिति में विभाग को हस्तांतरित करना होगा।

93. ठेकेदार को समस्त पम्प्स ,पाइप लाइन्स, टंकिया, संयंत्र आदि समस्त अवयवो की संचालन संधारण की दैनिकपंजी / लागबुक संधारित कर देयक के साथ प्रस्तुत करना होगा।

94. संचालन एवं संधारण के दौरान अगर ट्रांसफार्मर/पंप/मोटर आदि जैसे उपकरण पूरी तरह से क्षतिग्रस्त हो जाते है तो उस स्थिति में उपकरण मुख्य अभियंता लोकस्वास्थ्य यांत्रिकी **जबलपुर** परिक्षेत्र **जबलपुर,** के अनुमोदन के साथ तीसरे पक्ष/मूल निर्माता के प्रमाणीकरण पर विभाग द्वारा पुनः प्रति स्थापित किया जाएगा।

1. All expenses to operate and maintainshall be borne by the contractor. Energy charges (electric bill) will be paid by the department. However penalties arising from low power factor will not be payable. Therefore contractor should maintain power factor as per I.E. rules and guidelines of MPPKVVCL. After successful completion of O&M period (to be certified by the Engineer in Charge) the scheme as a whole and its components individually will be handed over to PHE Department for further Operation &maintenance. The scheme and all its components individually shall be handed over to PHE Department in a very good maintained condition. (Decision of Engineer in Charge will be final in this regard).

2. The rates quoted in the tender schedule shall be inclusive of all charges covering all operations necessary foar the satisfactory running of the plant and shall include all charges for labour, T&P for routine maintenance including handling, transport, lead lift, watch & ward, lighting pumping, cleaning, disposal of Garbage etc.

3. After successful completion ofO&M period the scheme as a whole and its components individually will be handed over to PHE Department in a very good maintained condition.for further Operation &maintenance

4. The BOQ items/quantities are taken for showing the nature of work that may be executed, however, actual items/quantities may be increase or decrease, the contractor is bounded to execute the work accordingly, and the payment shall be made as per acual work done.

5. Extra work if any like extension of pipelines, major repair of motor pumps/sub stations, major repair of any components of WTP or other components of the scheme or etc required other than BOQ to be executed on capital work/maintenance work will be executed with the due permission of S.E. /C.E. (PHED) as the case may be. The payment for such items shall be determined as per the condition of contract agreement.

6. For any items included in the BOQ or subsequently included in the BOQ, contractor has to supply the said item as per the make /brand as empanlled by the department, or wherever quality standards have been specified, the contractor shall engage supplier and abide by the specified quality standards. Information in this regard may be seen in Annexure–Y-1.

7. During Operation and Maintenance period, there is possibility of execution of unscheduled extra items, these will be regulated as per current prevailing USOR's of relevant department for consideration.All such rate would be derived as per contract clause 21 of contract data.

Sr. No.	Item	USOR/SOR with upto date amendments upto Bid Submission date
1	Works related with pipelines	PHED w.e.f. 01.09.2023
2	Works related with buildings	PWD w.e.f. 01.12.2020
3	Works related with dam/barrage/river	WRD w.e.f. 2009 and 01.09.2017
4	Works related with electricity (Panel and electrical fittings)	PWD(Electrical Works) w.e.f. 01.08.2014

8. The operation is the continuous process; however, the maintenance shall have to be done as and when required and shall be done as per the instructions of the department.

9. Some components, which are presently working in good condition, are also included in the BOQ considering that the repair may occur in such components during O& M period , if such major items are be executed it should be informed to Superintending Engineer. If quantum of such items exceeds as mentioned in BOQ, then prior approval of Superintending Engineer is required. Employee has full power to increase or decrease the quantity of any item. The contractor will be bound to execute the work accordingly.

10. If the departmental chemicals, valves, specials, consumables etc used by the contractor, then the cost of such items shall be deducted from their bills on the issue rates and if the rates are not available then rates shall be decided by Superintending Engineer.

11. If the contractor fails to provide minimum Maintanance Vehicle as mentioned in Contract document a penalty of Rs. 1500/- per day shall be imposed on the contractor

12. If the contractor fails to provide minimum labour as mentioned in agreement the following penalty shall be imposed on the contractor -

S.No	Type	Panelty
1	High skilled labour(Chemist)	1.5 times the prevailing rates of High - skilled labour decided by Labour Commissioner, Indore.
2	Skilled labour (Pump Operator/ Mechanic/ Electrician)	1.5 times the prevailing rates of skilled labour decided by Labour Commissioner, Indore.
3	Semi skilled labour (Fitter /Valve man/Helper)	1.5 times the prevailing rates of semi-skilled labour decided by Labour Commissioner, Indore.
4	Unskilled labour (Watchmen/ labour/Gardner)	1.5 times the prevailing rates of un-skilled labour decided by Labour Commissioner, Indore.

13. If the contractor fails to provide chemical such as Alum and Bleaching Powder or liquid chlorine as per requied dosing as mentioned in Contract document a penalty of Rs. 205/- per day for Alum and Rs. 44/- Per day for Bleaching powder or liquid chlorine shall be imposed on the contractor

14. निविदा की बी.ओ.क्यू. (Bill of Quantities) के ऐसे आयटम जिसम "Providing laying /jointing/ installation and testing/ commissioning" का कार्य सम्मिलित है,उन आयटमों का भुगतान निम्नानुसार ब्रेकअप में किया जायेगा :–

1	सामग्री का स्थलसाइटपरप्रदाय (Providing/ Procurment)	आयटमदर का 60 प्रतिशत
2	सामग्री निर्धारितस्थलपर लगाना(Laying / Jointing/Installation)	
(a)	पावरपंप / ट्रांसफार्मरस्थापनासंबंधीकार्य :– पंपस्थापना एवंनियमितविद्युतसंयोजनकार्यपूर्णकरनेपर।	आयटमदर का 20 प्रतिशत
(b)	पाईपलाईनकार्यजहॉRoadCuttingकीस्थितिहो :– Laying/Jointingतक का कार्यपूर्णकरनेपर	आयटमदर का 20 प्रतिशत
(c)	पाईपलाईनकार्यजहॉRoadCuttingकीस्थिति न हो :– Laying/Jointingतक का कार्यपूर्णकरनेपर	आयटमदर का 30 प्रतिशत
3.	Testing &Commissioning :-	
(a)	पावरपंप / ट्रांसफार्मरस्थापनासंबंधीकार्य :– Testing &Commissioningपूर्णकरनेपर	आयटमदर का 20 प्रतिशत
(b)	पाईपलाईनकार्यजहॉRoad Cuttingकीस्थितिहो :– Testing &Commissioning एवंRoad Restoration (Making good the same) का कार्यपूर्णकरनेपर।	आयटमदर का 20 प्रतिशत
(c)	पाईपलाईनकार्यजहॉRoadCuttingकीस्थिति न हो :– Testing &Commissioning एवंपाईपलाईनट्रेंच की Backfill का कार्यपूर्णकरनेपर।	आयटमदर का 10 प्रतिशत

उपरोक्त ब्रेक अप पाईप, पंप, स्पेशल्स, ट्रांसफार्मर, Electric Conductor AndPole के प्रदाय संबंधी आयटमों पर ही लागू होगा। अन्य आयटमों के भुगतान पर उक्त ब्रेकअप लागू नहीं होगा तथा उनका भुगतान बी.ओ.क्यू. की दर के अनुरूप संबंधित आयटम के पूर्ण रूप से क्रियान्वित होने पर ही होगा। उपरोक्त प्रावधान निविदाकार के Cash Flow को बनाये रखने के उददेश्य से किया गया है। अतः निविदाकार की जिम्मेदारी होगी कि वह

सामग्री के प्रदाय के साथ–साथ laying/ jointing/ installation का कार्य भी शीघ्रता पूर्वक करे। यदि निविदाकार द्वारा मात्र सामग्री का प्रदाय किया जाता है और उसका laying/ jointing/ installation का कार्य नहीं किया जाता है तो ऐसी स्थिति में उक्त ब्रेकअप से भुगतान निविदा में प्रदाय संबंधित सामग्री की 50 प्रतिशत मात्रा तक ही किया जावेगा तथा शेष 50 प्रतिशत मात्रा हेतु भुगतान प्राप्त करने की पात्रता आयटम में सम्मिलित समस्त कार्य के पूर्ण होने के उपरांत ही होगी।

93. TESTS: - The work as a whole and also its individual components will have to be tested. The clear water supplied will have to be tested as per the standard procedure for the acceptable limit of the treated water.

94 SCOPE OF WORK: - The scope of work in detailed in Annexure "E". However the brief description main items of work are as below:

95 General: The scope of work under this contract includes operation and maintenance of the Scheme as a whole and its parts as an individual component as well. Under this operation & maintenance for 12 Months period in all respects, the contractor has to run the scheme completely and will have to prove performance of each component individually and of whole scheme as per the standards laid down in contract. Operation and maintained for 12 Months and then handed over to PHE Department. During this period the contractor shall have to appoint necessary staff for running and maintenance of scheme. The candidature of the staff being engaged by contractor shall have to be approved by the Engineer In charge. During this period the staff engaged for running and maintenance of scheme will be paid by the contractor as per the wages rules and all the responsibilities of employees regarding safety/ insurance etc. will be of the contractor.

96 Intake Well: The contractor will provide the staff to run & maintain and keep records of the machinery and equipments, installed in intake well.Initial inventory of the consumables like oil, Grease, Gland packing; all type of fuses, T & P etc. will be provided by the contractor at his own cost and expenses. The contractor shall have to maintain consumption and stock of the inventory so as not to interrupt the water supply. The contractor shall have to arrange for security, watch and maintain the premises of intake well approach bridge and treatment plants during this period.

97 Raw and Clear water pumping Mains: The contractor will have to arrange and provide for regular surveillance of pumping mains from intake well to treatment plant and plant to all overhead Tanks and all cisterns, will have to arrange for any repairs and maintenance during the O & M period all necessary T&P, consumables pipes etc. will be provided by the contractor at his own cost and expenses.

98 Treatment Plant and Pump House: The contractor will provide necessary staff to run and maintain the treatment plant i/c the cost of chlorine, alum, lime and other chemicals required for Treatment Plant shall be borne by the contractor. However the Department shall pay the energy charges for running the machinery installed at Intake well, treatment Plant and all the Pumping stations including campus lighting.

The contractor will maintain the record of consumption of chemicals and inventory of stock and will apprise the Engineer in charge with the stock position. The contractor will bring in the notice of Engineer in charge all repairs and maintenance works done during the day and will generate and submit reports on each important parameter being monitored and an alarm enunciated during the day. The contractor shall have to arrange and provide for watch and ward, security and upkeep of premises of the plant during the O&M period. He will maintain/replace the furniture/ Instruments etc. if damaged during this period.

99 Overhead tank and Cisterns:-

The contractor will provide necessary staff for watch and ward and maintenance of All Over

head tanks and cisterns under this scheme and will upkeep the premises of the tanks to the satisfaction of Engineer-in-Charge. The contractor's staff will maintain the record of water level in tanks and stock of Inventory if any at these tanks.

100. Gravity Feeder Mains:

The contractor will have to arrange and provide for regular Surveillance of gravity feeder mains from Overhead and cistern of the villages and will have to arrange for any repairs and maintenance during the O&M period. All Necessary T&P, consumables, pipes etc. will be provided by the contractor at his own cost and expenses.

101. Electrical Substations and Electric Supply Line:

The contractor will provide necessary staff and arrange for the maintenance/ repairs of electrical substationsand systems developed/ constructed under this contract at intake well, treatment plant and in the other premises. All expenses to operate and maintainshall be borne by the contractor. Energy charges (electric bill) will be paid by the department. However penalties arising from low power factor will not be payable. Therefore contractor should maintain power factor as per I.E. rules and guidelines of MPPKVVCL. After successful completion ofO&M period (to be certified by the Engineer in Charge) the scheme as a whole and its componentsindividually will be handed over to PHE Departmentfor further Operation &maintenance.

Before handing over the components to PHE Department all the structures shall be Finished by painting as per specifications. All the Electrical & Mechanical equipments shall be finished by painting as per specifications and these must be in good running Conditions. The PHE Department Will not take any responsibility of the employees Engaged by the Contractor to run the scheme during O&M period. The scheme and all its components individually shall be handed over to PHE Department in a very Good maintained condition. (Decision of Engineer in Charge will be final in this regard).

102. The department will not provide any accommodation for the staff of contractor

103 The rates quoted in the tender schedule shall be inclusive of all charges covering all operations necessary for the satisfactory running of the plant and shall include all charges for labour, T&P for routine maintenance including handling, transport, lead lift, watch & ward, lighting pumping, cleaning, disposal of Garbage etc.

104 The tenderer will have no claim whatsoever in case operation of the plants is done partially on administrative grounds.

105 Safety of all the employees deployed by the contractor is the responsibility of thecontractor. Hence all the necessary arrangements such as supply of protective accessories like gloves, gum boots, goggles, gas masks and adequate first aid etc in this regard are to be made by the contractor In addition to this the contractor on occurrence of accident, arising out of the work which results in serious injuries to the person or property etc will immediately lodge a FIR in the nearest police station for such occurrence and will also report to the Engineer-in-charge stating clearly and with sufficient details, the facts and circumstances of the accident and the action taken by the contractor. In all cases the contractor shall indemnify PHE Department against all losses or damages including penalties or fines sustained by PHE Department resulting directly or indirectly from contractor’s failure to give notice under the workman’s compensation act or otherwise.

In every case in which by virtue of the provisions of the workmen's compensation Act applicable at that time if PHE Department is obliged to pay compensation to a workman deployedbythe contractor during running and maintenance of the plant then Department will recover from the dues of the contractor, the amount of the compensation so paid. The contractor should note very carefully that if health of any employee deployed by him on the works suffers due to the adverse environment at site, then the compensation or the expenditure on the proper medical treatment of that employee as the case may be shall have to be born by the contractor.

106 The contractor is solely responsible for the peaceful and orderly conduct of their labours The

Engineer-in-charge shall have full powers to order the contractor to prevent undesirable labor force from entering the work site. Further the Engineer-in-charge has full powers to ask the contractor to remove from the site of works any person who misconducts and is undesirable at site.

107 All the statutory liabilities such as salary, Bonus, allowances, provident fund, gratuity, insurance and any other benefit compensation of the personals deployed by the tenderers shall be the responsibility of successful tenderers. Department will have no any concern for the same.

108 The period of operation, maintenance and repair may be extended with the mutual/written consent/agreement between contractor and department for any specified period/ periods after expiry of the contract.

109 Except where issue/ matter vot specified in this contract the decision of the Superintending EngineerProjectCircle Chhinddwara shall be final and binding on both parties.

110 It is advisable to bidders to impact whole Water supply scheme including plants before quoting their rates and they may discuss about any matter with the Engineer in charge which they feel confusing.Detailed design & drawings of any components may be seen by the bidder in office during any working day.

111 On award of work, contractor has to provide the details of their technical representative which will be deputed on plants.

112 Pump Operator/Mechanic/Electrician should be minimum I.T.I. certificate holder of relevant field**.**

113 Chemist Lab should be minimum B.Sc. II class with chemistry as a subject with minimum two years experience as water analysis or M.Sc. in chemistry.

114 Lab Assistant should be minimum Intermediate pass with Science subject.

115 All components should be well attended round the clock. If due to negligence of contractors staff or due to his absence from the components of plants, any damage/fault occur, then this will be bearded by contractor.

116 Any leak repair or breakdown in pipe line or its appurtenant works should be attended immediately & should be repaired within 24 hour. In case of major breakdown, inform immediately to the Engineer In charge or his technical representative.

117 All the chemicals and consumable glassware for water testing lab should be arranged by contractor as per Standard norms & frequency of water sampling will be in accordance of direction of Engineer In charge.It is the duty and full responsibility of the contractor, to give due care and to keep every component in functions.Water sample lab will run 8 hours per day. During power failure hours in night contractor will provide sufficient no of patromax or gas lantern for light for safety and watch& Ward purpose.

118 The E.E. is to have at all times access to the works which are to be entirely under his control. He may require the contractor (s) to dismiss any person in the contractor's (s) employ upon the works who may be incompetent or misconduct himself and the contractor (s) is/are forthwith to comply with such requirements.

119 Any authority given by the E.E. for any alternations or additions in or to works is not to vitiate the contract but all additions, omissions or variations made in carrying out the works are to be measured and valued and certified by the E.E. and added to or deducted from the amount of the contract, as the case may be, at rates in force in the Public Health Engg. Department in the jurisdiction of do not exist; the Executive Engineer will fix the rates to be paid**.**

120 The E.E. has full power to require the removal from the premises of all materials which, in his opinion, are not in accordance with the specification and in case of default the E.E. is to be at liberty to employ other person to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The E.E. is also to have full power to require other proper materials to be substituted and in case of default the E.E.

may cause the same to be supplied and all costs which may attend in such removal and substitution are to be borne by the contractor(s).

121 If in the opinion of the E.E. any of the works, are executed with improper materials or defective workmanship, the contractor (s) is/are when required by the E.E from with to re-execute the same and to substitute proper materials and workmanship and in case of default of the contractor (s) in so doing within a week the E.E. is to have full power to employ other persons to re-execute the work and the cost thereof shall be borne by the contractor(s).

122 The E.E. is to have full power to send workmen upon the premises to execute fittings and other works not included in the contract for whose operations the contractor (s) is/are to afford every reasonable facility during ordinary working hours, provided that such operation shall be carried on such a member as not to impede the progress of the work include in the contract but the contractor (s) is/are not to be responsible for any damage which may happen to or be occasioned by any such fitting or other works.

123 The contractor shall be fully responsible and accountable for obtaining all the required permission from the concerned authorities & for abiding all the laws, local regulations such as for water, power, extraction of sand and metal, excavation, blasting transportation of material, safety traffic related to this work

124 The contractor shall be fully responsible for safety of the work, workmen and public etc. at all the stage of work of activities related to this work and shall be solely responsible for any consequences. During Completion of work, the contractor will be fully responsible for happening of any accidents. The Department will not be held responsible for that

125 After Successful Completion of the O.& M. for which he is given time period i.e. One year he will do all the proper painting and washing/anticorrosive treatment for the preventing leakages/seepages by using proper chemicals polyurethane/Easters etc. i.e. water proofing compound in each 2 and Half year means he will do all the works in 2 times (when the contractor have to awarded O.&M. of the project for the period of two years.) it means that the O.&M. of the project will include all the treatment sub units/RCC OHT Sump with pump house/ intake well / Pump house/ W.T.P./Sump Pump House/ Electric Sub station/Store building/ Residential Quarters all proper functioning of the different type of valves chambers / maintenance of approach road, bridge, Pitching works, all cistern of project , Maintenance of internal road of W.T.P., and street light of intake well campus and W.T.P. with building electricity work etc

126 Atlest one maintenance vehicle (light loading vehicle) must be always available for quick timely maintenance.

127 Sufficient stock of chemical as per the list must be always available to ensure safe and potable water supply.

128 Sufficient stock of pipes and specials must be always available for quick maintenance.

129 Extra work if any required to be executed on capital work it will be executed with the due permission of Chief Engineer, P.H.E., Jabalpur Zone, Jabalpur

130 Employee has full power to increase or decrease of quantity of any item

Aforesaid are only important guidelines for the contractors and shall also be a part of the agreement and all other terms and conditions of the detailed Notice Inviting Tender shall also be a part of the agreement

131 Operational work will be effective from ----------

132 Team of Qualified& Eligible Engineers **(Resident)** should be employed by the Contractor.

133 During operation and mainteance of the scheme if any major change in capital cost occurs, it will be beared by the department. (eg.parmanent damage to transformer or intek pumps etc).

134 Sufficient **Warranty** of any major repair or change (as mentioned above) shall be upon the contractor.

135 Concurrent MP Labour Commissioner Rates to be taken for payments.

Section 4

B.O.Q.

General Description of work :- Operation and Maintenance of 16.92 MLD capacity Multi village Piped Water Supply Scheme for 102 Villages (407 Habitations) in Block Lalbarraa District Balaghat comprising of Raw Water & Clear Water Pumping Stations, Water Treatment Plant, Raw Water Rising Main,Clear Water Rising Main, Feeder Main, Distribution system and allied works including all required materials, consumables chemicals, all labour etc complete (excluding energy charges) required for successful operation of the scheme for One years.

Probable Amount of Contract (Rs. In Figure):- 5,86,99,765/-

S.NO	P.H.E. SOR inforce from 01/09/2023	Particulars Item	Qty.	Rate	Unit	Amount
1		2	3	4	5	6
1		Operation & Maintenance				
(A)	श्रमायुक्त मध्यप्रधेश इंदौर की स्वीकृत दरो अनुसारदिनांक 1/10/2025 से 31/03/2026 तक	High Skilled , Skilled ,Semi Skilled& Unskilled Labour for differene component & part of flow work of Treatment Plant as per requirement of CPHEEO Manual				
		Highly Skilled Labour Engineer & Project Manger 03 Labour per Month * 3 Months = 09 Man Day				
		1St Quarter	9	16494	Month	148446.00
		2nd Quarter	9	17319	Month	155871.00
		3rd Quarter	9	17319	Month	155871.00
		4th Quarter	9	18185	Month	163665.00
					TOTAL	623853.00

(B)	श्रमायुक्त मध्यप्रधेश इंदौर की स्वीकृत दरो अनुसारदिनांक 1/10/2025 से 31/03/2026 तक	**Skilled Labour 3 nos Raw water Pump House , 4 nos for Treatment work & Clear water pump ,06 nos. for service reservoir , 1 no for Raw water rising main ,1 no for treatment work & clear water pump , 2 nos for clear water rising main , 20 nos. for distribution system 1 no Electrician / Mechanic for raw water pump house , 2 no Electrician / mechanic forTreatment work & Clear water pump , 1 no Chemist, 1no Bacteriologist ,3 nos Laboratory technician ,1 no Typist cum Cleark & 1 no Computer operator Total 47 Labours per Month X 3 Months = 168 Man Day**				
		1St Quarter	**141**	**14869**	**Month**	**2096529.00**
		2nd Quarter	**141**	**15612**	**Month**	**2201292.00**
		3rd Quarter	**141**	**15612**	**Month**	**2201292.00**
		4th Quarter	**141**	**16393**	**Month**	**2311413.00**
					TOTAL	**8810526.00**
(C)	श्रमायुक्तमध्यप्रधेश इंदौर की स्वीकृत दरो अनुसार दिनांक 1/10/2025 से 31/03/2026 तक	**Semi Skilled Labour 3 nos. for Raw Water Pump House, 1 nos Raw water rising main, 3 nos treatment work & clear water pump ,4 nos clear water rising main, 60 no for distribution system & 3 nos for semmpaltakera TOTAL 74 Helpers Per Months * 3 Months = 222 Man Day**				
		1St Quarter	**222**	**13146**	**Month**	**2918412.00**
		2nd Quarter	**222**	**13803**	**Month**	**3064266.00**
		3rd Quarter	**222**	**13803**	**Month**	**3064266.00**
		4th Quarter	**222**	**14493**	**Month**	**3217446.00**
					TOTAL	**12264390.00**
(D)	श्रमायुक्तमध्यप्रधेश इंदौर की स्वीकृत दरो अनुसार दिनांक 1/10/2025 से 31/03/2026 तक	**Unskilled Labour 03 nos Watchman for Raw Water Pump House (each in one shift of 8 hours) 03 nos Watchman for W.T.P.& Pump House (each in one shift of 8 hours) 5 nos For Service reservoir & Laboratory Cleaners 3nos TOTAL 14 Labour Per Months * 3 Months = 42 Man Day**				
		1St Quarter	**42**	**12150**	**Month**	**510300.00**
		2nd Quarter	**42**	**12758**	**Month**	**535836.00**
		3rd Quarter	**42**	**12758**	**Month**	**535836.00**

		4th Quarter	42	13396	Month	562632.00
					TOTAL	2144604.00
		Total (A) + (B) + (C) + (D)				23843373.00
		Add @13.36% E.P.F.				3185474.63
		Add @3.25% E.S.I.C.				774909.62
		Grand Total				27803757.26
2		Mechanical Electrical works Per annum				
(A)	As per attatched sub estimate no. 5	Raw Water V.T.Pump 180 H.P.3 Set	Job	1992080	Year	1992080.00
(B)	As per attatched sub estimate no. 6	Clear Water Centrifugal Pump Set 3 Nos.	Job	968700	Year	968700.00
(C)	As per attatched sub estimate no. 1,2,3,4	Electric Sub Station				
		Estimate 1	Job	564896	Year	564896.00
		Estimate 2	Job	1054385	Year	1054385.00
		Estimate 3	Job	1048805	Year	1048805.00
		Estimate 4	Job	310625	Year	310625.00
(D)	As per attatched sub estimate no. 10	Supply of street light , Tube Light ,Led Bulb, for T.P. Site, Intake Well site , Office Campus & supply & fitting of C.C.Tv camera at intake well site & T.P. Site	Job	1554216	Year	1554216
		Total (A) + (B) + (C) +(D)				7493707.00
3		Civil Work				

(A)		**Inatake Well Cum Pump House (Cost Rs.85.88 Lakhs)**	**1.00%**	**8588000**	**Year**	**85880.00**
(B)		**Water Treatment Plant , Clear Water Sump Well & Pump House (Cost Rs. 318.00 Lakhs)**	**1.00%**	**31800000**	**Year**	**318000.00**
(C)		**Over Head Tank 5 Nos. (Cost Rs. 696.30 Lakhs)**	**1.00%**	**69630000**	**Year**	**696300.00**
(D)		**Over Head Tank 46 Nos. (Cost Rs. 542.92 Lakhs)**	**1.00%**	**54292000**	**Year**	**542920.00**
(E)		**Staff Quarter/I.B. /Boundary Wall/ Approach Road (Cost Rs. 1246.45 Lakhs)**	**1.00%**	**124645000**	**Year**	**1246450.00**
		Total (A) + (B) + (C) + (D) +(E)				**2889550.00**
4		**Repairing of Pipeline Work**				
		RawWater 600 mm Dia D.I. Pipe Line 7.65 K.M. (Cost Rs. 727.33 Lakhs),Clear Water 150 mm to 600 mm Dia D.I. K - 9 Pipe Line 43246 M (Cost Rs. 1745.93 Lakhs),Feeder main 150 mm to 600 mm Dia D.I. Class K - 9 & K-7 Pipe Line 204166 M (Cost Rs. 6547.44 Lakhs),Distribution P.V.C. Pipe Line 90 mm to 210 mm Dia 6 to 10 Kg/Sq.m Pipe Line 452830 M 90 to 110 mm Dia H.D.P.E. Pipe Line 70332 Meter (Cost Rs. 1673.13 + 277.51 = 1950.64 Lakhs) Total Cost of Pipe Line (727.33+1745.93+6547.44+1950.64)= 10971.34 Lakhs				
	Reff.	**Particulars**	**Qty.**	**Rate**	**Unit**	**Amount**

4.1	**SOR Item No. 15.6.1/ P. No. 257**	**Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be leveled and neatly dressed. All kind of soil**	**2700.00**	**209**	**Cum**	**564300.00**

4.2	**SOR Item No. 15.6.2/ P. No. 257**	**Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be leveled and neatly dressed.in Muddy Area**	**28511.73**	**251.00**	**Year**	**7156444.23**
4.3	**SOR Item No. 15.12/ P. No. 258**	**Filling available excavated earth in trenches, lead up to 50m and lift up to 1.5m in all kind of soil excluding watering and ramming.**	**31211.73**	**31.00**	**Cum**	**967563.63**

4.4	**SOR Item No. 14.7/ P. No. 232**	**Dismantling following old cast iron socket and spigot pipes class 'L.A.' 'A' & 'B' including breaking lead caulked joints, melting of lead and making it in to blocks including stacking of pipes at site lead upto 50 meters.**				
	14.7.1	**(a) 150 mm Dia**	**500.00**	**21.00**	**Mtr**	**10500.00**
	14.7.2	**(b) 200 mm Dia**	**600.00**	**29.00**	**Mtr**	**17400.00**
	14.7.3	**(c) 250 mm Dia**	**150.00**	**40.00**	**Mtr**	**6000.00**
	14.7.4	**(d) 300 mm Dia**	**350.00**	**53.00**	**Mtr**	**18550.00**
	14.7.5	**(e) 350 mm Dia**	**250.00**	**65.00**	**Mtr**	**16250.00**
	14.7.6	**(f) 400 mm Dia**	**150.00**	**78.00**	**Mtr**	**11700.00**
	14.7.7	**(g) 450 mm Dia**	**150.00**	**90.00**	**Mtr**	**13500.00**
	14.7.8	**(h) 500 mm Dia**	**100.00**	**103.00**	**Mtr**	**10300.00**
	14.7.9	**(i) 600 mm Dia**	**200.00**	**139.00**	**Mtr**	**27800.00**
4.5	**SOR Item No. 1.1/ P. No.3**	**Providing, laying and jointing including testing following socket & spigot centrifugally cast (Spun) Ductile Iron pressure pipes with inside cement mortar lining (class K-7) conforming to IS 8329/2000 with suitable Rubber Gasket (Push on) joints as per IS:5382/85**				
	1.1.3	**(a) 150 mm Dia**	**30.00**	**2139.00**	**Mtr**	**64170.00**
	1.1.4	**(b) 200 mm Dia**	**12.00**	**2671.00**	**Mtr**	**32052.00**
	1.1.5	**(c) 250 mm Dia**	**12.00**	**3520.00**	**Mtr**	**42240.00**
	1.1.6	**(d) 300 mm Dia**	**18.00**	**4433.00**	**Mtr**	**79794.00**
	1.1.7	**(e) 350 mm Dia**	**12.00**	**5344.00**	**Mtr**	**64128.00**
	1.1.8	**(f) 400 mm Dia**	**12.00**	**6597.00**	**Mtr**	**79164.00**

	1.1.9	(g) 450 mm Dia	12.00	7764.00	Mtr	93168.00
	1.1.10	(h) 500 mm Dia	12.00	9054.00	Mtr	108648.00
	1.1.11	(i) 600 mm Dia	12.00	11737.00	Mtr	140844.00
4.6	SOR Item No. 1.2/ P. No.3	Labour for laying in position including testing following socket & spigot Ductile Iron(K-7) pressure pipes				
	1.2.2	(a) 150 mm Dia	120.00	36.00	Mtr	4320.00
	1.2.3	(b) 200 mm Dia	125.00	49.00	Mtr	6125.00
	1.2.4	(c) 250 mm Dia	50.00	66.00	Mtr	3300.00
	1.2.5	(d) 300 mm Dia	50.00	81.00	Mtr	4050.00
	1.2.6	(e) 350 mm Dia	50.00	111.00	Mtr	5550.00
	1.2.7	(f) 400 mm Dia	30.00	132.00	Mtr	3960.00
	1.2.8	(g) 450 mm Dia	30.00	156.00	Mtr	4680.00
	1.2.9	(h) 500 mm Dia	20.00	179.00	Mtr	3580.00
	1.2.10	(i) 600 mm Dia	40.00	235.00	Mtr	9400.00
4.7	SOR Item No. 1.5/ P. No.4	Providing Rubber ISI marked Gasket (push on) joint as per IS-5382/85 to following DI pipes class K-7 and K-9 including testing of joints and cost of jointing materials (Rubber Gasket and soap solution etc.)				
	1.5.2	(a) 150 mm Dia	80.00	146.00	Each	11680.00
	1.5.3	(b) 200 mm Dia	80.00	251.00	Each	20080.00
	1.5.4	(c) 250 mm Dia	25.00	293.00	Each	7325.00
	1.5.5	(d) 300 mm Dia	30.00	319.00	Each	9570.00
	1.5.6	(e) 350 mm Dia	15.00	363.00	Each	5445.00
	1.5.7	(f) 400 mm Dia	15.00	566.00	Each	8490.00
	1.5.8	(g) 450 mm Dia	10.00	654.00	Each	6540.00
	1.5.9	(h) 500 mm Dia	8.00	723.00	Each	5784.00
	1.5.10	(i) 600 mm Dia	10.00	821.00	Each	8210.00
4.8	SOR Item No. 1.6/ P. No.5	Labour for providing including testing, Rubber Gasket (push on) joints to following D.I. Pipes class K-7 & K-9 including joints but excluding cost of Rubber Gasket.				
	1.6.2	(a) 150 mm Dia	80.00	92.00	Each	7360.00
	1.6.3	(b) 200 mm Dia	80.00	100.00	Each	8000.00

	1.6.4	(c) 250 mm Dia	25.00	118.00	Each	2950.00
	1.6.5	(d) 300 mm Dia	30.00	129.00	Each	3870.00
	1.6.6	(e) 350 mm Dia	15.00	151.00	Each	2265.00
	1.6.7	(f) 400 mm Dia	15.00	191.00	Each	2865.00
	1.6.8	(g) 450 mm Dia	10.00	213.00	Each	2130.00
	1.6.9	(h) 500 mm Dia	8.00	228.00	Each	1824.00
	1.6.10	(i) 600 mm Dia	10.00	276.00	Each	2760.00
4.9	SOR Item No. 8.3/ P. No.104	Providing lead caulked joints to following socket & spigot cast iron (spun) pipes and specials class 'LA' 'A' and 'B' including testing of the joints and cost of jointing materials (i.e. pig lead and spun yarn) etc. complete.				
	8.3.4	(a) 150 mm Dia	80.00	910.00	Each	72800.00
	8.3.5	(b) 200 mm Dia	80.00	1292.00	Each	103360.00
	8.3.6	(c) 250 mm Dia	30.00	1589.00	Each	47670.00
	8.3.7	(d) 300 mm Dia	75.00	1888.00	Each	141600.00
	8.3.8	(e) 350 mm Dia	30.00	2116.00	Each	63480.00
	8.3.9	(f) 400 mm Dia	20.00	2506.00	Each	50120.00
	8.3.10	(g) 450 mm Dia	20.00	3393.00	Each	67860.00
	8.3.11	(h) 500 mm Dia	10.00	3464.00	Each	34640.00
	8.3.12	(i) 600 mm Dia	10.00	4454.00	Each	44540.00
4.1	SOR Item No. 14.3/ P. No.230	Labour for cutting following cast iron pipes of any type and class.				
	14.1.3	(a) 150 mm Dia	10.00	116.00	Each	1160.00
	14.1.4	(b) 200 mm Dia	5.00	154.00	Each	770.00
	14.1.5	(c) 250 mm Dia	8.00	191.00	Each	1528.00
	14.1.6	(d) 300 mm Dia	8.00	274.00	Each	2192.00
	14.1.7	(e) 350 mm Dia	8.00	302.00	Each	2416.00
	14.1.8	(f) 400 mm Dia	8.00	340.00	Each	2720.00
	14.1.9	(g) 450 mm Dia	8.00	378.00	Each	3024.00
	14.1.10	(h) 500 mm Dia	6.00	453.00	Each	2718.00
	14.1.11	(i) 600 mm Dia	4.00	566.00	Each	2264.00

4.11	**SOR Item No. 14.6/ P. No.231**	**Chamfering cast iron pipes of all types and classes to make suitable for tyton joints.**				
	14.6.1	**(a) 150 mm Dia**	**10.00**	**905.00**	**Each**	**9050.00**
	14.6.2	**(b) 200 mm Dia**	**5.00**	**1119.00**	**Each**	**5595.00**
	14.6.3	**(c) 250 mm Dia**	**8.00**	**1243.00**	**Each**	**9944.00**
	14.6.4	**(d) 300 mm Dia**	**8.00**	**1385.00**	**Each**	**11080.00**
	14.6.5	**(e) 350 mm Dia**	**8.00**	**1385.00**	**Each**	**11080.00**
	14.6.6	**(f) 400 mm Dia**	**8.00**	**1606.00**	**Each**	**12848.00**
	14.6.7	**(g) 450 mm Dia**	**8.00**	**1830.00**	**Each**	**14640.00**
	14.6.8	**(h) 500 mm Dia**	**6.00**	**1959.00**	**Each**	**11754.00**
	14.6.9	**(i) 600 mm Dia**	**4.00**	**2168.00**	**Each**	**8672.00**
4.12	**SOR Item No. 4.1/ P. No.64**	**Providing, laying and jointing following P.V.C. pipes with solvent cement joint for 6, 8 and 10 kg/cm2. pressures including testing of joints, cost of jointing materials etc. complete in all respect.**				
	4.1.1	**(a) 90 mm Dia 6 Kg/Cm2**	**2000.00**	**184.00**	**Each**	**368000.00**
	4.1.2	**(b) 110 mm Dia6 Kg/ Cm2**	**1000.00**	**259.00**	**Each**	**259000.00**
4.13	**SOR Item No. 4.2/ P. No.65**	**Labour for laying in position including testing following PVC pipes of 6, 8 and 10 kg/cm2 Pressure.**				
	4.2.1	**(a) 90 mm Dia 6 Kg/Cm2**	**2000.00**	**6.00**	**Each**	**12000.00**
	4.2.2	**(b) 110 mm Dia6 Kg/ Cm2**	**1000.00**	**7.00**	**Each**	**7000.00**
4.14	**SOR Item No. 4.4/ P. No.65**	**Providing, Solvent Cement Joints to PVC Pipes and fittings of 6, 8 and 10 kg/cm2 Pressure including testing of joints and cost of jointing materials (i.e. socket, coupler & solvent cement)**				
	4.4.1	**(a) 90 mm Dia**	**250.00**	**20.00**	**Each**	**5000.00**
	4.4.2	**(b) 110 mm**	**100.00**	**21.00**	**Each**	**2100.00**
	4.4.3	**© 140 m m Dia**	**25.00**	**24.00**	**Each**	**600.00**

	4.4.4	(d)160 mm Dia	30.00	26.00	Each	780.00
	4.4.6	(e) 200 mm Dia	10.00	34.00	Each	340.00
4.15	SOR Item No. 1.7/ P. No.5	Providing and Laying including testing ductile iron PN 16 type flanged sockets conforming to IS:9523/2000 having dimension as per table 23 of IS:9523/2000 in the following nominal diameter/sizes with external bitumen coating and internal cement mortar lining with finishing as per clause 13 of IS:9523/2000.				
	1.7.2	(a) 150 mm Dia	3.00	2107.00	Each	6321.00
	1.7.3	(b) 200 mm Dia	2.00	2750.00	Each	5500.00
	1.7.4	(c) 250 mm Dia	2.00	4532.00	Each	9064.00
	1.7.5	(d) 300 mm Dia	2.00	5044.00	Each	10088.00
	1.7.6	(e) 350 mm Dia	2.00	7055.00	Each	14110.00
	1.7.7	(f) 400 mm Dia	2.00	8576.00	Each	17152.00
	1.7.8	(g) 450 mm Dia	1.00	10518.00	Each	10518.00
	1.7.9	(h) 500 mm Dia	1.00	14946.00	Each	14946.00
	1.7.10	(i) 600 mm Dia	1.00	21086.00	Each	21086.00
4.16	SOR Item No. 8.4/ P. No.105	Labour for providing lead caulked joints to following socket & spigot cast iron (spun) pipes and specials class 'LA' 'A' and 'B' including testing of joints but excluding cost of jointing materials (i.e. pig lead and spun yarn).				
	8.4.4	(a) 150 mm Dia	4.00	305.00	Each	1220.00
	8.4.5	(b) 200 mm Dia	2.00	405.00	Each	810.00
	8.4.6	(c) 250 mm Dia	2.00	505.00	Each	1010.00
	8.4.7	(d) 300 mm Dia	2.00	605.00	Each	1210.00
	8.4.8	(e) 350 mm Dia	2.00	621.00	Each	1242.00
	8.4.9	(f) 400 mm Dia	2.00	812.00	Each	1624.00
	8.4.10	(g) 450 mm Dia	1.00	911.00	Each	911.00
	8.4.11	(h) 500 mm Dia	1.00	963.00	Each	963.00
	8.4.12	(i) 600 mm Dia	1.00	1309.00	Each	1309.00
4.17	SOR Item No. 8.45/ P. No.127	Providing and laying in position including testing following cast iron flanged spigot (tail piece) Heavy Class				

	8.45.1	(a) 80 mm Dia	6.00	898.00	Each	5388.00
	8.45.2	(b) 100 mm Dia	4.00	1047.00	Each	4188.00
	8.45.4	(c) 150 mm Dia	4.00	1721.00	Each	6884.00
	8.45.5	(d) 200 mm Dia	2.00	2917.00	Each	5834.00
	8.45.6	(e) 250 mm Dia	2.00	3965.00	Each	7930.00
	8.45.7	(f) 300 mm Dia	6.00	5087.00	Each	30522.00
	8.45.8	(g) 350 mm Dia	2.00	6655.00	Each	13310.00
	8.45.9	(g) 400 mm Dia	2.00	8142.00	Each	16284.00
4.18	SOR Item No. 8.62/ P. No.138	Providing & fixing of following Cast iron double flanged sluice valves as per I.S.:14846-2000 fitted with cast iron cap including jointing & testing with cost of jointing material such as bolts, nuts, rubber insertions etc. all complete.				
	8.62.3	(a) 80 mm Dia	25.00	3863.00	Each	96575.00
	8.62.4	(b) 100 mm Dia	15.00	5097.00	Each	76455.00
	8.62.6	(c) 150 mm Dia	10.00	7915.00	Each	79150.00
	8.62.7	(d) 200 mm Dia	2.00	13989.00	Each	27978.00
	8.62.8	(e) 250 mm Dia	2.00	21719.00	Each	43438.00
	8.62.9	(f) 300 mm Dia	10.00	25389.00	Each	253890.00
4.19	SOR Item No. 8.64/ P. No.139	Labour for laying and fixing of following cast iron double flanged sluice valves (vide item no.1) including jointing and testing but without cost of Jointing materials.				
	8.64.3	(a) 80 mm Dia	20.00	111.00	Each	2220.00
	8.64.4	(b) 100 mm Dia	10.00	162.00	Each	1620.00
	8.64.6	(c) 150 mm Dia	4.00	237.00	Each	948.00
	8.64.7	(d) 200 mm Dia	2.00	347.00	Each	694.00
	8.64.8	(e) 250 mm Dia	2.00	512.00	Each	1024.00
	8.64.9	(f) 300 mm Dia	10.00	642.00	Each	6420.00
	8.64.10	(g) 350 mm Dia	2.00	1131.00	Each	2262.00
	8.64.11	(h) 400 mm Dia	2.00	1353.00	Each	2706.00
	8.64.12	(i) 450 mm Dia	1.00	1576.00	Each	1576.00
	8.64.13	(j) 500 mm Dia	1.00	1936.00	Each	1936.00

	8.64.14	(k) 600 mm Dia	1.00	2809.00	Each	2809.00
4.2	SOR Item No. 8.75/ P. No.142	Providing & fixing following cast iron double acting air valves, flanged with inbuilt isolating valve as per IS :14845- 2000 including jointing & testing with cost of jointing material and rubber insertion all complete as per IS :13095-1991.				
	8.75.1	(a) 40 mm Dia	4.00	1734.00	Each	6936.00
	8.75.2	(b) 80 mm Dia	2.00	2272.00	Each	4544.00
	8.75.3	(c) 100 mm Dia	2.00	2663.00	Each	5326.00
	8.75.4	(d) 150 mm Dia	2.00	2721.00	Each	5442.00
	8.75.5	(e) 200 mm Dia	2.00	10097.00	Each	20194.00
4.21	SOR Item No. 8.76/ P. No.143	Labour for laying and fixing, including testing following Cast Iron double acting air valves, flanged with in-built isolating valve.				
	8.76.1	(a) 40 mm Dia	4.00	47.00	Each	188.00
	8.76.2	(b) 80 mm Dia	2.00	101.00	Each	202.00
	8.76.3	(c) 100 mm Dia	2.00	140.00	Each	280.00
	8.76.4	(d) 150 mm Dia	2.00	191.00	Each	382.00
	8.76.5	(e) 200 mm Dia	2.00	301.00	Each	602.00
4.22	SOR Item No. 14.5/ P. No.231	Labour for cutting following P.V.C pipes of any type and class.				
	14.5.1	(a) 90 mm Dia	150.00	12.00	No	1800.00
	14.5.2	(b) 110 mm Dia	80.00	17.00	No	1360.00
	14.5.3	(c) 140 mm Dia	20.00	31.00	No	620.00
	14.5.4	(d) 160 mm Dia	20.00	33.00	No	660.00
	14.5.6	(f) 200 mm Dia	10.00	42.00	No	420.00
4.23	SOR Item No. 4.1/ P. No.64	Providing, laying and jointing following P.V.C. pipes with solvent cement joint for 6, 8 and 10 kg/cm2. pressures including testing of joints, cost of jointing materials etc. complete in all respect. 6kg/sqcm				
	4.1.3	(c) 140 mm Dia	40.00	430.00	Meter	17200.00
	4.1.4	(d) 160 mm Dia	20.00	539.00	Meter	10780.00
	4.1.6	(f) 200 mm Dia	20.00	844.00	Meter	16880.00

4.24	**SOR Item No. 4.2/ P. No.65**	**Labour for laying in position including testing following PVC pipes of 6, 8 and 10 kg/cm2 Pressure.6kg/sqcm**				
	4.2.3	**(c) 140 mm Dia**	**40.00**	**8.00**	**Meter**	**320.00**
	4.2.4	**(d) 160 mm Dia**	**20.00**	**10.00**	**Meter**	**200.00**
	4.2.6	**(f) 200 mm Dia**	**20.00**	**13.00**	**Meter**	**260.00**
4.25	**SOR Item No. 4.3/ P. No.65**	**Providing, Solvent Cement Joints to PVC Pipes and fittings of 6, 8 and 10 kg/cm2 Pressure including testing of joints and cost of jointing materials (i.e. socket, coupler & solvent cement)6kg/sqcm**				
	4.3.3	**(c) 140 mm Dia**	**40.00**	**37.00**	**Each**	**1480.00**
	4.3.4	**(d) 160 mm Dia**	**20.00**	**44.00**	**Each**	**880.00**
	4.3.6	**(f) 200 mm Dia**	**20.00**	**67.00**	**Each**	**1340.00**
4.26	**SOR Item No. 4.4/ P. No.65**	**Labour for providing solvent cement joints to PVC pipes and fittings of 6, 8 and 10 kg/cm2 Pressure including testing of joints but excluding cost of jointing materials (i.e. coupler and solvent cement)**				
	4.4.3	**(c) 140 mm Dia**	**20.00**	**24.00**	**Each**	**480.00**
	4.4.4	**(d) 160 mm Dia**	**10.00**	**26.00**	**Each**	**260.00**
	4.4.6	**(f) 200 mm Dia**	**10.00**	**34.00**	**Each**	**340.00**
4.27	**SOR Item No. 6.4/ P. No.83**	**Providing & fixing detachable joints to following size asbestos cement pressure pipes and fittings including cost of C.I. detachable joints conforming to IS/8794/1988 with bolts, nuts and rubber rings conforming to IS-5382/85 & IS-10292/88 manufactured by mazza process including testing. Class15**				
	6.4.1	**(a) 80 mm Dia**	**120.00**	**311.00**	**Each**	**37320.00**
	6.4.2	**(b) 100 mm Dia**	**60.00**	**402.00**	**Each**	**24120.00**
	6.4.4	**(d) 150 mm Dia**	**40.00**	**614.00**	**Each**	**24560.00**
	6.4.5	**(e) 200 mm Dia**	**20.00**	**866.00**	**Each**	**17320.00**
	6.4.6	**(f) 250 mm Dia**	**10.00**	**1081.00**	**Each**	**10810.00**
	6.4.7	**(g) 300 mm Dia**	**10.00**	**1322.00**	**Each**	**13220.00**
	6.4.8	**(h) 350 mm Dia**	**10.00**	**2208.00**	**Each**	**22080.00**

4.28	**SOR Item No. 6.5/ P. No.83**	**Labour for providing detachable joints to asbestos cement pressure pipes and fittings Class 15, 20 & 25 including testing of joints but excluding cost of C.I. Detachable joints.**				
	6.5.1	**(a) 80 mm Dia**	**100.00**	**82.00**	**Each**	**8200.00**
	6.5.2	**(b) 100 mm Dia**	**50.00**	**116.00**	**Each**	**5800.00**
	6.5.3	**(c) 125 mm Dia**	**20.00**	**136.00**	**Each**	**2720.00**
	6.5.4	**(d) 150 mm Dia**	**20.00**	**149.00**	**Each**	**2980.00**
	6.5.5	**(e) 200 mm Dia**	**10.00**	**168.00**	**Each**	**1680.00**
	6.5.6	**(f) 250 mm Dia**	**10.00**	**178.00**	**Each**	**1780.00**
	6.5.7	**(g) 300 mm Dia**	**10.00**	**203.00**	**Each**	**2030.00**
	6.5.8	**(h) 350 mm Dia**	**10.00**	**226.00**	**Each**	**2260.00**
4.29	**SOR Item No. 13.1/ P. No.225**	**Woltman Turbine Bulk Meters Supply of Woltman Turbine Bulk meters class B, multi jet, magnetically coupled as per specifications conforming to IS : 770/1994, ISO 4064/1 and EEC approved, including transportation to site, storage, safety, installation, testing, commissioning, making connections with existing pipeline, including excavation at site, dewatering and reinstating the same after completion of installation as per specifications and drawings including all taxes.**				
	13.1.8	**(a) 200 mm Dia**	**5.00**	**44419.00**	**Each**	**222095.00**

4.3	**SOR Item No. 13.3/ P. No.225**	**Electromagnetic Bulk Flow Meters Supply of Electromagnetic full bore meter complete as per specification including transportation to site, storage,safety, installation, testing, commissioning, making connections with existing pipe line, including excavation at site, cuts in the existing pipe system, dewatering and reinstating the same after completion of installation as per specification and drawings including all taxes. Accuracy of meter + 0.3% of measured value, Flange connection as per AWWA & IS, Liner:Hard Rubber, Fully welded sensor housing complying to IP 68 standard, Electrodes SS 316, Sensor housing SS 304, Cable gland 1/2" NPT, Sensor housing fully welded SS 304 housing with protective Polyurethane paint, Flow Transmitter/ Converter: Microprocessor based, modular design display 2 line back lit LCD for indication of actual flow rate, forward, reverse, sum totalizer, Perfection category: IP 65 Output: One current output (4-20 mA) one scalable pulse output**				
	13.3.8	**(a) 200 mm Dia**	**1.00**	**181444.00**	**Each**	**181444.00**
4.31	**SOR Item No. 1.11/ P. No.7**	**Providing and Laying including testing Ductile iron Mechanical joint collar with follower glands conforming to IS-9523/2000 having dimension as per table 24 of IS-9523/2000 in the following nominal diameter/sizes with external bitumen and internal cement mortar lining.**				
	1.11.3	**(a) 200 mm Dia**	**2.00**	**5048.00**	**Each**	**10096.00**
	1.11.4	**(b) 250 mm Dia**	**2.00**	**6627.00**	**Each**	**13254.00**
	1.11.5	**(c) 300 mm Dia**	**2.00**	**8335.00**	**Each**	**16670.00**
	1.11.6	**(d) 350 mm Dia**	**2.00**	**11380.00**	**Each**	**22760.00**
	1.11.7	**(e) 400 mm Dia**	**2.00**	**13960.00**	**Each**	**27920.00**
	1.11.8	**(f) 450 mm Dia**	**1.00**	**17883.00**	**Each**	**17883.00**
	1.11.9	**(g) 500 mm Dia**	**1.00**	**20542.00**	**Each**	**20542.00**
	1.11.10	**(h) 600 mm Dia**	**1.00**	**26187.00**	**Each**	**26187.00**

4.32	**SOR Item No. 1.12/ P. No.8**	**Labour only for Laying including testing Ductile Iron Mechanical Joint collar with follower glands conforming to IS-9523/2000 having dimension as per table 24 of IS-9523/2000 in the following nominal diameter /sizes with internal cement mortar lining.**				
	1.12.3	**(a) 200 mm Dia**	**2.00**	**163.00**	**Each**	**326.00**
	1.12.4	**(b) 250 mm Dia**	**2.00**	**222.00**	**Each**	**444.00**
	1.12.5	**(c) 300 mm Dia**	**2.00**	**286.00**	**Each**	**572.00**
	1.12.6	**(d) 350 mm Dia**	**2.00**	**390.00**	**Each**	**780.00**
	1.12.7	**(e) 400 mm Dia**	**2.00**	**494.00**	**Each**	**988.00**
	1.12.8	**(f) 450 mm Dia**	**1.00**	**573.00**	**Each**	**573.00**
	1.12.9	**(g) 500 mm Dia**	**1.00**	**662.00**	**Each**	**662.00**
	1.12.10	**(h) 600 mm Dia**	**1.00**	**839.00**	**Each**	**839.00**
		Total Item 4.1 To 4.32				**12732389.86**
5	**SOR Item No. 14.26/ P. No. 241**	**Provision for inter connection of old to new pipe line with excavation of trench as per requirement/ repairing of leakage of pipe line of any diameter & type of pipe line in muddy area i/c searching of leakage point,deweterinthe trench, repairing the leakage laying& jointing of pipe and specials, back filling the trench i/c testing of joints cost of labour & specials such as Djoints couplers, solvent cement etc. complete Job work as per approved specification and as directed by Engineer in charge.**				
	No. 14.26.4/	**90 mm dia**	**200**	**1890**	**Nos**	**378000.00**
	No. 14.26.3/	**110 mm dia**	**125**	**2363**	**Nos**	**295375.00**
					Total Rs.	**673375.00**
6	**SOR Item No. 14.30/ P. No. 241**	**Provision for Repairing of old existing CI Sluice Valve i/c repairing of spindle, check nut, changing of gland, lathe work as per requirement, changing of nut bolt, rubber sheet etc. complete as per approved pecification and as directed by Engineer in charge.**				
		80 mm dia to 450 mm dia	**200**	**1375**	**Nos.**	**275000.00**

7	**As Per Last Tender Rate**	**Providing, spreading / mixing and filling as per requirement fine sand / filter media of filter plant. Market rate of any type of sand is approx.5000 rs/tonne including transportation. Density of sand is 1725 kg/m3. Rate for per cum of sand is = 1000/1725= 0.58 = 5000/0.58 = 8621 rs/m3**	**201**	**2414**	**cum**	**485214.00**
8	**SOR Item No. 15.2/ P. No. 257 As per attatched Sub Estimate No.8**	**Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared. at Intakewell Site Chindlai,T.P. Site Jam & Office Campus Awalyakanhar**	**41188.00**	**685.00**	**100Sq.M**	**282137.80**

9	SOR Item No. 15.3/ P. No. 257 As per attatched Sub Estimate No.9	Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.at Intakewell Site Chindlai,T.P. Site Jam & Office Campus Awalyakanhar	41188.00	351.00	Sq.M	144569.88

10		Chemicals				
(A)	As per Last Tender Rate	Total Alum Required for 365 Days 224.94 Ton				
			224.94	16000.00	Ton	3599040.00
(B)	As per Last Tender Rate	Total Chlorine Required for 365 Days 24703 Kg				
			24703	26.00	Kg	642278.00
(C)	As per Last Tender Rate	Requirement of Lime	50000	10	Kg	500000.00
(D)	As per Last Tender Rate	Chemicals For Water Testing				
		12 Month	As Per Attached Estimate no. 7			271205.00

		Total (A) + (B) + (C) + (D)	**5012523.00**
11	**As per attatched sub estimate no. 11**	Construction of temparary Bori Bandhan D/S of Intake Well Chindlai to stop the flow of Water in Summer Season (Wainganga River)	**907541.00**
		GRAND TOTAL (Item 1 to 11)	**58699764.80**
		Say Rs.	**58699765.00**

Sub Engineer
P.H.E.Project Sub Division
Lalburra

Assistant Engineer
P.H.E. Project Sub Division Lalburra

Executive Engineer
P.H.E. Division
Balaghat

Sub Estimate No.1

Estimate for Transformer 33/11 KVA Rewinding Repairing Work in Jam and chhindlai

Sr. No.	Item	Qnt	Unit	Rate	Amount	Remark
1	250 KVA/11 KV Transformer winding copper strip for L/T coil 143 KG	285.00	Nos	926.30	263995.50	W.O.No. 2268 Dt. 17/06/2019 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
2	LESS OLD SCRAP STRIP PURCHASE	285.00	Kilo	236.00	67260.00	
3	250 KVA/11 KV Transformer winding copper strip for L/T coil ,250/11 KV Transformer winding copper strip for H/T coil ,Insulation Packing Material with fixing ,250/11 KV Transformer ovening ,250/11 KV Transformer Painting ,250/11 KV Transformer Testing with fitting	1.00	Nos	97940.00	97940.00	W.O.No. 2344 Dt. 24/06/2019 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
4	Installation / Fitting Charges Under GST ,250 KVA/11 KV Transformer cheking ,250 KVA /11 KV Transformer , Transformer leiting 2 Time with HVDRA	1	Job	70800.00	70800.00	W.O.No. 2276 Dt. 18/06/2019 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
5	Oil , Transformer Oil	500	Ltr.	129.80	64900.00	
				Sub Total Rs.	**564895.50**	
				Add 18 % G.S.T. Amount Rs.	**101681.19**	
				Grand Total Rs.	**666576.69**	
				Say Rs.	**666577.00**	
In Words- Six Lacs Sixty Six Thousand Five Hundred Seventy Seven Only						

Sub Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Assistant Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Sub Estimate No- 02

Estimate for Repairing of 33/11kv 3.15 MVA Power Transformer at Jam Sub station

Sr.	Item	Qnt	Unit	Rate	Amount	Remark
1	HV Leg Coils Complete with TPC	330	kg	880.00	290400.00	
2	LV Leg Coils Complete with TPC	242	kg	880.00	212960.00	
3	HV Bushing 33kv	3	Nos	900.00	2700.00	
4	HV Bushing 11kv	3	Nos	800.00	2400.00	
5	Metal Parts for HV bushing	3	Set	1500.00	4500.00	
6	Metal parts for LV bushing	3	Set	1500.00	4500.00	
7	set of Gaskets	3	Job	3000.00	9000.00	
8	Silica gel Breather 3kg	6	Job	2000.00	12000.00	
9	33kv Tapping Switch	1	Mtr	3800.00	3800.00	Agree. No. 63/A/2023-24 Dt. 06/10/2023 W.O.No. 4138 .Dt.6/10/2023 के अनुसार स्वीकृत दरें ही लगाई गई है।
10	Magnetic type oil meter gauge	1	Nos	2400.00	2400.00	
11	EMV Gr II Oil	2200	Ltr	102.00	224400.00	
12	Labour charges	1	Nos	80000.00	80000.00	
13	Testing and ovening charges	1	Set	50000.00	50000.00	
14	Transportation of transformer from Jam to Bhopal and back	1	Job	54000.00	54000.00	
15	Loading by Crain and unloading	1	Job	18000.00	18000.00	
16	Labour charges for opening and fitting of transformer radiator fins	1	Job	10000.00	10000.00	
17	Post insulator 11kv DO post insulated chini	50	Nos	616.00	30800.00	
18	Post insulator 11 kv AB Post insulated chini	30	Nos	476.00	14280.00	
19	Polymer insulator 11 kv AB Post insulated polymer	30	Nos	231.00	6930.00	
20	Polymer insulator 11kv	15	Nos	210.00	3150.00	
21	Porcelin insulator 11 kv	15	Nos	196.00	2940.00	
22	Polymer insulator 33 kv AB Post insulated polymer	15	Nos	518.00	7770.00	
23	Porcelin insulator 33 kv	15	Nos	497.00	7455.00	
				Sub Total Rs.	**1054385.00**	
				Add 18 % G.S.T. Amount Rs.	**189789.30**	
				Grand Total Rs.	**1244174.30**	
				Say Rs.	**1244174**	
In Words- Twelve Lacs Fourty Four Thousand One Hundrad Seventy Four Only						

Sub Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Assistant Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Sub Estimate No- 03

Estimate for Repairing of 33/11 kv 3.16 MVA Power Transformer at Chhindlai Substation

Sr. No.	Item	Qnt	Unit	Rate	Amount	Remark
1	HV Leg Coils Complete with TPC	235	kg	880.00	206800.00	Agree. No. 63/A/2023-24 Dt. 06/10/2023 W.O.No. 4138 .Dt.6/10/2023 के अनुसार स्वीकृत दरें ही लगाई गई है।
2	LV Leg Colis complete with TPC	265	kg	880.00	233200.00	
3	Metal Parts for HV Bushing	6	No	1500.00	9000.00	
4	Set of Gaskets	3	Set	3000.00	9000.00	
5	EMV Gr II Oil	1600	Ltr	102.00	163200.00	
6	Labour charge	1	Job	50000.00	50000.00	
7	Testing and ovening charges	1	Job	30000.00	30000.00	
8	Providing, stinging 11kv Arial Bunched cable	50	Mtr	1300.00	65000.00	
9	Providing, jointing 11kv End Termination Kit	3	No	8300.00	24900.00	
10	H Beam Clamp	6	No	325.00	1950.00	
11	Providing stinging 70 sqmm LT cable	110	Mtr	78.00	8580.00	
12	Providing , installing of 33kv DO Fuse unit	1	Set	18500.00	18500.00	
13	Providing, installing DC Channel for mountir	2	No	8300.00	16600.00	
14	Copper Strip	6	Mtr	3000.00	18000.00	
15	Palm Connector	3	No	425.00	1275.00	
16	11kv AB switch complete	18	No	5600.00	100800.00	
17	Transportation of transformer from chhindlai to Bhopal and back	1	Job	54000.00	54000.00	
18	Loading by crain and unloading	1	Job	18000.00	18000.00	
19	Labour charges for opening and fittings of transformer radiator fins	1	Job	10000.00	10000.00	
20	Repairing of oil likage work for 11 kv transfo	1	No	10000.00	10000.00	N.I.Q. 1452 Dt. 10/07/2024 T/S No. 99 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
				Sub Total Rs.	**1048805.00**	
				Add 18 % G.S.T. Amount Rs.	**188784.90**	
				Grand Total Rs.	**1237589.90**	
				Say Rs.	**1237590**	
In Words- Twelve Lacs Thirty Seven Thousand Five Hundred Ninety Only						

Sub Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Assistant Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Sub Estimate No- 04

Estimate for Sub Station Repairing of 33/11 kv 3.15 MVA Power Transformer at Chhindlai & Jam

Sr. No.	Item	Qnt	Unit	Rate	Amount	Remark
1	2V - 100 Ah Batteries for 33/11 Kv VCB Pane	30	No	3200.00	96000.00	W.O.No. 1703 Dt. 22/06/2020 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
2	11 KV AB Switch	1	No	4200.00	4200.00	W.O.No. 1717 Dt. 23/06/2020 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
3	33 kv LA Set	1	No	19300.00	19300.00	
4	11 KV LA Set	2	No	1225.00	2450.00	
5	11 kv Pin insulator	15	No	175.00	2625.00	
6	33 kv Pin Insulator	10	No	450.00	4500.00	
7	AB Switch Pipe	2	No	2100.00	4200.00	
8	Nuts and Bolt	20	kg	80.00	1600.00	
9	33 KV AB Switch	1	No	22000.00	22000.00	
10	Labour Charges	20	No	450.00	9000.00	
11	MCB Single phase 10-Amp	10	No	185.00	1850.00	N.I.Q. No. 2171 Dt. 07/09/2020 W.O.No. 2508 Dt. 16/09/2020 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
12	MCB Single Phase 16-Amp	10	No	185.00	1850.00	
13	Push Button 24v DC	20	No	110.00	2200.00	
14	Indicator Lamp 24v DC	20	No	125.00	2500.00	
15	Glass Relay 8 pin 24v DC with base	18	No	925.00	16650.00	
16	Digital Voltmeter 3 Phase 220V AC	4	No	1600.00	6400.00	
17	T/C Switch 25 Amp Trip & Closr	4	No	2225.00	8900.00	
18	Timer 800XA 230v DC	4	No	1625	6500.00	
19	Digital Voltmeter 3 Phase 220V AC	4	No	1600	6400.00	
20	IDMT relay 24 volts	5	No	13500	67500.00	N.I.Q. No. 2120 Dt. 07/09/2020, W.O.No. 2510 Dt. 16/09/2020 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
21	Repairing and Replace Insulator A.B. Switch and D.O. Set	12	No	2000	24000.00	N.I.Q. 2058 Dt. 06/10/2023 T/S. No. 109 Dt. 20/02/2020 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
				Sub Total Rs.	**310625.00**	
				Add 18 % G.S.T. Amount Rs.	**55912.50**	
				Grand Total Rs.	**366537.50**	
				Say Rs.	**366538**	

In Words- Three Lacs Sixty Six Thousand Five Hundred Thrity Eighty Only

Sub Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Assistant Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Sub Estimate No- 05

Estimate for 180 HP V/F Motor Pump and Pannel Repairing Work at Chhindlai

Sr. No.	Item	Qnt	Unit	Rate	Amount	Remark
1	Spaider gaide	12	No	12000.00	144000.00	N.I.Q. No. 1502 Dt. 18/07/2023 T/S No. 102 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
2	Imppuler Saft- S.S. 50*1730 MM	2	No	42700.00	85400.00	N.I.Q. No. 1503 Dt. 18/07/2023 T/S No. 97 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
3	Baowl bush G.M. 50*60*150 mm	4	No	9500.00	38000.00	
4	Section Cash Bush G.M. 50*60*150mm	3	No	14000.00	42000.00	N.I.Q. 1596 Dt. 02/08/2023 T/S No. 95 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
5	Lain Shaft 0.50*1 Mtr	3	No	15000.00	45000.00	
6	Rubbar bush for Spaider	12	No	2550.00	30600.00	
7	Stufing box Bush	3	No	13500.00	40500.00	
8	Baowl Machining	4	No	2500.00	10000.00	
9	Crinping of lax 300 Cabel	12	No	250.00	3000.00	N.I.Q. 1452 Dt. 10/07/2024 T/S No. 99 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
10	Wiring and Repairing of 180 HP Starter	3	No	3200.00	9600.00	
11	Cabel work for starter to motor 300sqmm	2	No	5000.00	10000.00	
12	Opeinging Pump assembly into Intake well	3	No	20000.00	60000.00	N.I.Q. 1597 Dt. 02/08/2023 T/S No. 94 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
13	Dismentling Pump Assembly Baowl	3	No	8000.00	24000.00	N.I.Q. 1597 Dt. 02/08/2023 T/S No. 94 Dt. 20/02/2024
14	Stud Nut Waisor T.V.S.	3	No	7000.00	21000.00	

15	Key for Imppuler S.S.	4	No	80.00	320.00	
16	Colet S. S.	6	No	2000.00	12000.00	
17	Sarclip S.S.	6	No	90.00	540.00	
18	Assembly Fitting	3	No	8000.00	24000.00	
19	Pump Assembly Lowering Intake	1	No	20000.00	20000.00	
20	Nut Bolt waisor T.V.S. for Assemb	224	No	80.00	17920.00	
21	Nut Bolt for flange	3	No	4000.00	12000.00	
22	Openining and Repairing of A.C.B	3	No	6000.00	18000.00	N.I.Q. 1914 Dt. 15/09/2023 T/S No. 105 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
23	Change the timer repairing contractor and wiring of starter	3	No	10000.00	30000.00	
24	Change New Contractor M.N.X. 400A in starter No.2	3	No	55000.00	165000.00	
25	New Copper Windig Wair	2	No	97500.00	195000.00	N.I.Q. 2014 Dt. 29/09/2023 T/S No. 103 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
26	Terminal with Insulator	2	No	1600.00	3200.00	N.I.Q. No. 2015 Dt.29/09/2023 T/S No. 107 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
27	Repairing machining of Bearing sheet	2	No	7000.00	14000.00	
28	Belesing of Motor	2	No	6500.00	13000.00	
29	Openining fittings and testing of Motor	2	No	10000.00	20000.00	
30	Insulation Material etc.	2	No	15000.00	30000.00	
31	Transportation charge.	1	No	8000.00	8000.00	
32	Labour charge for motor winding	1	No	20000.00	20000.00	
33	Rewinding of Auto Transformer with New Copper Wire and Insulation Material	3	No	61000.00	183000.00	N.I.Q. No. 2071 Dt. 09/10/2023 T/S No. 108 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
34	Opening Fittings and Transportation Charge ofter Rewinding of Auto Transformer	3	No	7000.00	21000.00	
35	Repairing wiring and fittings of contrator in pannel	3	No	6000.00	18000.00	
36	Replacement and winding of 1 coil of Auto Transformer	3	No	10000.00	30000.00	
37	Bearing-7322B-SKF	6	No	67500.00	405000.00	N.I.Q. 1460 Dt. 11/07/2023 T/S. No. 98 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
38	Motor Insulation work greeshing and finishing work	3	No	15000.00	45000.00	
39	Motor opening and fittings	3	No	8000.00	24000.00	N.I.Q. 1461 Dt. 11/07/2023 T/S. No. 100 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
40	Motor Trasportation	1	No	7000.00	7000.00	

41	Neckring for Imppuler	6	No	13000.00	78000.00	N.I.Q. 1501 Dt. 18/07/2023 T/S. No. 101 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
42	Neckring machining for Baol	6	No	2500.00	15000.00	
				Sub Total Rs.	**1992080.00**	
				Add 18 % G.S.T. Amount Rs.	**358574.40**	
				Grand Total Rs.	**2350654.40**	
				Say Rs.	**2350654**	
In Words- Twenty Three Lacs Sixty Eight Thousand Seven Hundred Eight Only						

Sub Engineer **PHE Project Sub Division** **Lalburra (Balaghat)**	**Assistant Engineer** **PHE Project Sub Division** **Lalburra (Balaghat)**	

Sub Estimate No- 06

Estimate for 180 HP C/T Motor Pump and Pannel Repairing Work at Jam

Sr. No	Item	Qnt	Unit	Rate	Amount	Remark
1	Neckring	6	No	14000.00	84000.00	N.I.Q. 1675 Dt. 11/08/2023 T/S. No. 96 Dt. 20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
2	Nut Bolt Sait T.V.S.	3	No	4000.00	12000.00	
3	Pump Opeining and fittings	3	No	20000.00	60000.00	
4	Pump Transportation	3	No	8000.00	24000.00	
5	Shaft Sleeve S.S.	6	No	22500.00	135000.00	N.I.Q. 1768 Dt. 25/08/2023 T/S. No. 106 Dt.20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
6	Linterm Ring	6	No	7000.00	42000.00	
7	Bearing 6311 S.K.F.	12	No	3000.00	36000.00	
8	Openining Pump at Site	2	No	5000.00	10000.00	N.I.Q. 1915 Dt. 15/09/2023 T/S. No. 104 Dt.20/02/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
9	Openining Motor at Site	2	No	5000.00	10000.00	
10	Alayment Greesing and Fitting of Motor	6	No	5000.00	30000.00	
11	Fitting of Bearing and Pump and Repairing Pump	6	No	5000.00	30000.00	
12	Rubbar Bush of coppling 12 no	3	No	3500.00	10500.00	
13	Repairing and Cleaning of Motor Startar	3	No	7500.00	22500.00	
14	Repairing of B.C.B. Terminal Plat (aluminium) with Nut Bolt.	18	No	2500.00	45000.00	N.I.Q. 2058 Dt. 06/10/2023 T/S. No. 109 Dt. 20/02/2020 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
15	Repairing and replace of Diwatering Pump	4	No	1500.00	6000.00	
16	Pressure Gauge Fitting Welding in Pumps Header	1	No	2000.00	2000.00	
17	Bridge Slipring	1	No	12000.00	12000.00	N.I.Q. 89 Dt. 22/01/2024 T/S. No. 116 Dt. 01/03/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
18	Opening and Fitting of Slipring	1	No	5000.00	5000.00	
19	Corben Brush	1	No	7000.00	7000.00	
20	Rubber Coppling for C.F. 180 HP Pump	3	No	2500.00	7500.00	
21	Rewinding and Repairing 1HP Dewatering motor Pump	4	No	3000.00	12000.00	
22	Rewinding and Repairing of 5HP over head motor pump	2	No	3500.00	7000.00	
23	Bearing sheet welding and machining	2	No	3200.00	6400.00	N.I.Q. 90 Dt. 22/01/2024 T/S. No. 117 Dt. 01/03/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
24	Ampullar Neckring S.S.	2	No	7000.00	14000.00	
25	Paiking kit	1	No	2000.00	2000.00	
26	Contractor 400 M.N.X.	1	No	55000.00	55000.00	
27	Relay Unit	1	No	9000.00	9000.00	N.I.Q. 104 Dt. 25/01/2024

28	Fitting wiring and Transporting of Panel no. 1	1	No	15000.00	15000.00	T/S. No. 118 Dt. 01/03/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
29	Rewinding of auto Transformer with New Copper wire and Insulation Material	1	No	61000.00	61000.00	N.I.Q. 108 Dt. 27/01/2024 T/S. No. 119 Dt. 01/03/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
30	Auto Transformer opening fittings and Testing starter No.1	1	No	7000.00	7000.00	
31	Repairing of Contractor opening fitting and Testing starter No. 1	1	No	7500.00	7500.00	
32	Winding Copper Wire	75	kg	1300.00	97500.00	N.I.Q. 143 Dt. 01/02/2024 T/S. No. 120 Dt. 01/03/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
33	Repairing finishing of Motor Startar	1	No	7500.00	7500.00	N.I.Q. 144 Dt. 01/02/2024 T/S. No. 121 Dt. 01/03/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
34	Welding and Machining of Bearing sheet	2	No	7000.00	14000.00	
35	Motor turminal with insulator	1	Set	1600.00	1600.00	
36	Balancing of Roter	1	No	6500.00	6500.00	
37	Motor Opening fittings and testing	1	No	10000.00	10000.00	
38	insulation material	1	No	15000.00	15000.00	
39	Transportation charge	1	No	8000.00	8000.00	
40	Motor winding labour charge	1	No	20000.00	20000.00	
41	0.5 HP /1 HP Bridge Motor Repairing Work	2	No	600.00	1200.00	N.I.Q. 89 Dt. 22/01/2024 T/S. No. 1036 Dt. 14/03/2024 पूर्व में प्राप्त कोटेशन के आधार पर स्वीकृत दर के अनुसार ही दरें ली गई है।
42	Main Pannel Repairing work for bridge and blower at T.P.	2	Job	500.00	1000.00	
				Sub Total Rs.	**968700.00**	
				Add 18 % G.S.T. Amount Rs.	**174366.00**	
				Grand Total Rs.	**1143066.00**	
				Say Rs.	**1143066**	
In Words- Eleven Lacs Fourty Three Thousand Sixty Six Only						

Sub Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Assistant Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Sub Estimate No- 07

Chemical Required for WTP Site

Sr.No.	Name of Item	UOM	Required Qty	AS Per Old Market Rate	Amount	Remark
1	Methyle Orange	100ml	14	147.00	2058.00	Agree. No. 93/2023-24 Dt. 12/03/2024 W.O.No. 1010 .Dt.12/03/2024 के अनुसार स्वीकृत दरें ही लगाई गई है।
2	0.02 N Sulphuric Acid	500ml	24	330.00	7920.00	
3	Turbidity 1000NTO	500ml	6	3675.00	22050.00	
4	Turbidity 400NTO	500ml	7	3675.00	25725.00	
5	Echrome Black T	50gm	4	450.00	1800.00	
6	N/50 EDTA Solution	500ml	25	205.00	5125.00	
7	Ammonia Perpurate Power	25gm	6	350.00	2100.00	
8	Mengnous sulphate	500gm	10	620.00	6200.00	
9	Sodium Hydraxide	500gm	10	350.00	3500.00	
10	Pottasium Hydraxide	500gm	10	430.00	4300.00	
11	Sodium Iodide	100gm	10	2310.00	23100.00	
12	Pottasium Iodide	100gm	10	2100.00	21000.00	
13	Sulphuric Acid	500ml	20	520.00	10400.00	
14	Starch Power	500gm	2	2465.00	4930.00	
15	Sodium Thiosulphate	500gm	15	1240.00	18600.00	
16	Silver Nintrate Power	25gm	6	5400.00	32400.00	
17	Pottasium Chromate	500gm	5	1240.00	6200.00	
18	Ammonia Buffer Solution	500ml	12	280.00	3360.00	
19	M7 F.C. Ager	500gm	2	4890.00	9780.00	
20	Hydroxile Ammine Hydrochloride	500ml	8	678.00	5424.00	
21	Hydrochlorice acid	500ml	6	686.00	4116.00	
22	Sodium Acitet Solution	500ml	12	440.00	5280.00	
23	1:10 Phinonrtholine	500ml	7	328.00	2296.00	
24	Alzarinred Solution	500ml	9	327.00	2943.00	
25	Zirconile Solution	500ml	8	520.00	4160.00	
26	Ammonia Solution	500ml	12	264.00	3168.00	
27	Phenol di Sulphuric acid	500ml	9	2820.00	25380.00	
28	Ph indicator	500ml	5	350.00	1750.00	
29	Iron Standard	500ml	10	289.00	2890.00	
30	Conditivity Standard	500ml	7	250.00	1750.00	
31	Ph standard Solution	500ml	6	250.00	1500.00	
				Total Rs.	**271205.00**	

In Word - Two Lacs Seventy One Thousand Two Hundred Five Only

Sub Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Assistant Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Sub Estimate No.-08

Estimate for Clearing Jungle in Office Campus, W.T.P. Jaam And Intake Well Chhindlai

Sr. No.	S.O.R. REFERRED 01/09/20	Sub Head of Works	Qnt	Unit	Rate	Amount	Remark
1	MP USoR Item No. & Page No. 15.2/257	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.					
		Clearing jungle in Office Campus **(Two Times in a Year)**	10924.00	100 Sqm	685.00	74829.40	
		Clearing jungle in W.T.P. Jaam **(Two Times in a Year)**	22762.00	100 Sqm	685.00	155919.70	
		Clearing jungle in Intake Well Chhindlai **(Two Times in a Year)**	7502.00	100 Sqm	685.00	51388.70	
					Sub Total Rs.	**282137.80**	
					Add 18 % G.S.T. Amount Rs.	**50784.80**	
					Grand Total Rs.	**332922.60**	
					Say Rs.	**332923**	
In Words- Three Lacs Thirty Two Thousand Nine Hundred Twenty Three Only							

Sub Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Assistant Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Sub Estimate No.-09

Estimate for Clearing grass in Office Campus, W.T.P. Jaam And Intake Well Chhindlai

Sr. No.	S.O.R. REFERRED 01/09/20	Sub Head of Works	Qnt	Unit	Rate	Amount	Remark
1	MP USoR Item No. & Page No. 15.3/257	Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.					
		Clearing jungle in Office Campus **(Two Times in a Year)**	10924.00	100 Sqm	351.00	38343.24	
		Clearing jungle in W.T.P. Jaam **(Two Times in a Year)**	22762.00	100 Sqm	351.00	79894.62	
		Clearing jungle in Intake Well Chhindlai **(Two Times in a Year)**	7502.00	100 Sqm	351.00	26332.02	
					Sub Total Rs.	**144569.88**	
					Add 18 % G.S.T. Amount Rs.	**26022.58**	
					Grand Total Rs.	**170592.46**	
					Say Rs.	**170592**	
In Words- One Lacs Seventy Thousand Five Hundred Ninety Two Only							

Sub Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Assistant Engineer
PHE Project Sub Division
Lalburra (Balaghat)

Sub Estimate No.-10

Estimate for Luminaires (Tube light, CFL/LED, Street light) Camera & wire (PWD Schedule of rates (SOR) for Electrical in Force From January, 1st 2024)

				Estimated cost Rs.		1833975	
S.No.	**S.O.R. REFERRED 01/01/2024**	**Sub Head of Works**	**Qty**	**Rate**	**Unit**	**Amount**	**Remark**
1	2	3	4	5	6	7	8
1	MPPWD USOR ITEM No. & Page NO. 31.3.4/73	Supply and fixing Led tube rod comprising of LED tube with non integral/integral driver, upto 6500K color temp having 40000 burning hrs life with minimum @ L 70, system lumen output should beminimum with system efficacy> 100 lm/Watt. LED driver PF> 0.95 & THD < 20%. The colour rendering index of LED light should be more than 70. Submission LM 79-08/IS16106 (2012), IEC60598,IEC61347i/c connection wire, testing etc. to complete the job.Tube light LED 1 X 20/22 Watt Integral i/c batten aluminium body, PC diffuser (TUBE Light LED 1 X 20/22 W)	60	782.00	EACH	46920.00	
2	MPPWD USOR ITEM No. & Page NO. 31.13.2/76	Supply and fixing street light with high power LED of 3 to 6 Watt each on existing bracket assembled on single MCPCB and additional unique peanut lens on each LED, system lumens output with efficacy>120 lm/Watt. luminiare having color temp upto 6500K & 50000 hrs. burning life with minimum @ L 70, The colour rendering index of LED light should be more than 70. Luminiare comprises of driver, PF> 0.95 & surge protection 10KV. Housing made of pressure die cast aluminium with heat resistant flat glass, IP65 protection. Submission LM 79-08/IS16106 (2012), IEC60598, IEC61347 i/c connection wire, testing etc. to complete the job.Street light with high power LED system					
		(60W) 60 Watt, Color Temp 3000-6500k as required	60	9791.00	Each	587460.00	
		(90W) 90 Watt, Color Temp 3000-6500k as required	30	14173.00	Each	425190.00	
3	MPPWD USOR ITEM No. & Page NO. 31.14.3/77	Supplying and fixing flood light with high power LED of 3 to 6 Watt each assembled on single MCPCB and additional unique peanut lens on each LED, system lumens output with efficacy>120 lm/Watt. luminiare having color temp upto 6500K & 50000 hrs. burning life with minimum @ L 70, The colour rendering index of LED light should be more than 70. Luminiare comprises of driver, PF > 0.95 & surge protection 10KV. Housing made of pressure die cast aluminium with heat resistant flat glass, IP65 protection. Submission LM 79-08/IS16106 (2012), IEC60598, IEC61347i/c connection wire, testing etc. to complete the job.LED flood light 60Watt, color temp 3000-6500k as required	10	7872.00	Each	78720.00	
4	MPPWD USOR ITEM No. & Page NO. 29.7/66	Supply and fixing in position LED lamp (Bulb) of approved make .					
		9W 250Volt	100.00	110.00	Each	11000.00	
		12W 250Volt	100.00	191.00	Each	19100.00	
		25/27W 250Volt	60.00	722.00	Each	43320.00	
5	MPPWD USOR ITEM No. & Page NO.	Supplying and drawing single core PVC insulated cable FRLS with copper multi strand conductor ISI marked in existing rigid PVC casing and capping/conduit in surface or concealed as per specification. Single core PVC insulated FRLS cable .					
		1.5 sq. mm. wire	500.00	19.00	Mtr	9500.00	
		2.5 sq. mm. wire	500.00	30.00	Mtr	15000.00	
6	M-0402197	PVC insulated 2 core 2.5 sqmm Armoured Aluminium conductor 1100 Volts	1000.00	27.00	Mtr	27000.00	

7	MPPWD USOR ITEM No. & Page NO. 54.10/223	Supply, installation testing and commissioning of the IP bullet camera shall be equipped with a 1/3" 4 MP progressive scan CMOS imager tocapture full HD 1080p (25/30 fps)/2688 × 1520 (20fps), images, 2.7 -13.5 mm, MFZ lens, digital zoom 16x and a waterproof (IP66) IK10 impact resistant camera housing, as a true day/night solution, the camera shall use smart IR technology and provide up to 164ft (50 m) of IR illumination. The camera shall accept PoE (802.3af) or 12 V DC power input. min. illumination:-0.08 lux color @ F2.0 (color, 1/3s,30 IRE),0 lux B/W with IR LEDs on @ F2.0) video compression :- H.265 +, noise reduction: 3DNR,backlight compensation :- True WDR 120 DB, angle of view104°/87° (H), 57°/48°(V), UL listed. for Treatment Plant site					
		4MP IP varifocal MFZ IR bullet camera	29192.00	6.00	EACH	175152.00	
8	MPPWD USOR ITEM No. & Page NO. 54.8/222	Supply, installation testing and commissioning of the IP bullet camera shall be equipped with a 1/3" 4MP progressive scan CMOS imager to capture full HD 1080p (25/30 fps)/2688 × 1520(20fps) images, a 3.6 mm fixed lens, and a waterproof (IP66) IK10 impact-resistant camera housing, As a true day/night solution, the camera shall use Smart IR technology and provide up to 98 ft (30 m) of IR illumination. The camera shall accept PoE (802.3af) or 12 V DC power input. min. illumination:-0.08 lux color @ F2.0 (Color,1/3s, 30 IRE),0 lux B/W with IR LEDs on @ F2.0) video compression :- H.265 +, noise reduction: 3DNR,backlight compensation :-True WDR 120DB, angle of view :-104°/87°(H), 57°/48° (V),UL listed. For					
		bullet camera 4MP IP fixed IR bullet camera	19309.00	6.00	Each	115854.00	
					Total Rs.	**1554216.00**	
					Add 18% G.S.T. Rs.	**279758.88**	
					Gr. Total Rs.	**1833974.88**	
					Say Rs.	**1833975**	
In Words:-		**Eighteen Lacs Thirty Three Thousand Nine Hundred Seventy Five Only/-**					

Sub Engineer
PHE Project Sub Division
Lalbarra

Assistant Engineer
PHE Project Sub Division
Lalbarra

Sub Estimate No. 11

Office of The Assistant Enginner P.H.E. Project Sub-Division Lalburra

Name of Work:- Estimate for Supply of Empty cement bags and Construction of (After filling avaiable sand) Bund for Collecting water near Intake well site (Down streme) & hiring charges of Hydraulic Excavator 20 to 30 Tonne for making channel in the River Wainganga to carry water up to the site of Intake well Chindlai including Operator, Helper, Diesel/Oil and maintenance charges. at village Chindlai of Group Water

Estimated Cost Rs. - 1081607.00 Lacs

USOR Applicable:- USOR of WRD in force from 15.07.2024

S.No.	Particulars	No.	L	B	D	Quantity	Rate	Unit	Amount	Remark
1	Providing and placing sand bags consisting of empty cement bags filled with 35 to 40 kg locally available sand for forming ring bund including cost of all materials, labour, plugging joints with selected earth, etc., complete.**(MPUSOR ITEM/PAGE-6.01/85)**	6000	0	0	0	6000	46.00	Each	276000.00	
2	Excavation in all kind of soft /loose /hard /dense soils,, moorun& moorum mixed with boulders and mud including dressing, placing the excavated soil neatly in specified dump areas or disposing off the same as directed, including cost of site clearance, all materials, machinery, labour and dressing etc. Complete. WRD In force from 15/07/2024 **(MPUSOR ITEM/PAGE-2.01/42)**.	1	180.00	1.80	1.50	486	46	Cum	22356.00	
3	transportation of Soil From Pit to River Bank lead 3 to 4 km .**(Annexure ii(9)/168)**					486	114.8	Cum	55792.80	
4	Filling clayey soil between two rows of sand bags placed for forming ring bund including cost of all materials, labour, tamping, plugging leakage points etc. complete. **(MPUSOR ITEM/PAGE-6.02/85).**	Job				486	72.00	Cum	34992.00	

5	Transportation of HEM by Trailer truck open body approx 14m long for HEM and equaivalent machinery/Items transportation work capacity above 20MT. (TFor transportation of Hydraulic Excavator 20 to 30 Tonne from other site to site of work wainganga River at Village Chindlai and after completion of work return back) (Approximate lead 75 Kilometer)**(MPUSOR ITEM/PAGE-8.26/125).**	Job				150	126.00	K.M.	18900.00	
6	Hiring of Hydraulic Excavator 20 to 30 Tonne Operating weight Capacity without rock breaking attachment & with 0.9 to 1.2 cum Bucket attachment & with 0.9 to 1.2 cum Bucket Capaciety including Operator, Helper, Diesel/Oil and Capacity including Operator, Helper, Diesel/Oil and maintenance charges. **(MPUSOR ITEM/PAGE-8.44/130).**	Job				180	2775.00	Hour	499500.00	
								Total Rs.	907540.80	
								Add 18% G.S.T. Rs.	163357.34	
								Grand Total Rs.	1070898.14	
								Say Rs.	**1070898.00**	
Say Rs. Ten Lacs Seventy Thousand Eight Hundred Ninety Eight Only.										

Sub.- Engineer
P.H.E. Project Sub-Division
Lalburra (Balaghat)

Assistant Engineer
P.H.E. Project Sub-Division
Lalburra (Balaghat)

Sub Estimate No. 12

Estimate For Supply of Filter Media (Sand)

S.No.	Particulars	Nos.	L	W	D	Qty in Cum	Rate	Amount	Remarks
1	Supply of Filter Media (Sand) for 16.92 M.L.D. Filter Plant Jam of group water supply scheme Lalbarra	8	5.16	4.06	1.20	201.00	2414	485214	As per Old Tender Rate
							Total Rs.	485214	
							Add 18 % G.S.T. Amount Rs.	87338.52	
							Grand Total Rs.	572552.52	
							Say Rs.	572553	

In Words:- Five Lacs Seventy Two Thousand Five Hundred Fifty Three Only/

Sub Engineer	Assistant Engineer
P.H.E. Project Sub Division	P.H.E. Project Sub Division
Lalbarra	Lalbarra

Consumption of Alum		
Water Demand Per Day	**16.92 MLD**	
Required alum @ 20 mg per litre for one day	82.81 Ton	
For 245 Days		82.81 Ton
Required alum @ 70 mg per litre for one day (Rainy Season)	142.128 Ton	
For 120 Days		121.824 Ton
Total Alum Required For One Year		**224.94 Ton**

Consumption of Chlorine		
Water Demand Per Day	**16.92 MLD**	
Required Chlorine@ 4 mg per litre for one day	**24703 Kg**	
Total Chlorine Required For One Year		**24.70 Ton**

Total Lime Required For One Year	**50.00 Ton**

Sub Engineer
P.H.E.Project Sub Division
Lalburra

Assistant Engineer
P.H.E. Project Sub Division
Lalburra

Sub Estimate No. 13

Estimate For Supply of Alum

S.No.	Particulars	Nos.	L	W	D	Qty in Ton	Rate	Amount	Remarks
1	**Supply of Alum**	**1**	0	0.00	0.00	224.94	16000	3599040	**Qty Taken From Calculation & Rate As per Old Tender Rate Agreement No. 93/2023-24**
							Total Rs.	3599040	
							Add 18 % G.S.T. Amount Rs.	**647827.20**	
							Grand Total Rs.	**4246867.20**	
							Say Rs.	**4246867.00**	

In Words:- Four Two Lacs Fourty Six Thousand Eight Hundred Sixty Seven Only/-

Sub Engineer	**Assistant Engineer**
P.H.E. Project Sub Division	**P.H.E. Project Sub Division**
Lalbarra	**Lalbarra**

Sub Estimate No. 14

Estimate For Supply of Chlorine

S.No.	Particulars	Nos.	L	W	D	Qty in Kg	Rate	Amount	Remarks
1	**Supply of Chlorine**	**1**	0	0.00	0.00	24703.00	26	642278	**Qty Taken From Calculation & Rate As per Old Tender Rate Agreement No. 93/2023-24**
							Total Rs.	642278	
							Add 18 % G.S.T. Amount Rs.	**115610.04**	
							Grand Total Rs.	**757888.04**	
							Say Rs.	**757888.00**	

In Words:- Seven Lacs Fifty Seven Thousand Eight Hundred Eighty Eight Only/-

Sub Engineer	**Assistant Engineer**
P.H.E. Project Sub Division	**P.H.E. Project Sub Division**
Lalbarra	**Lalbarra**

Sub Estimate No. 15

Estimate For Supply of Lime

S.No.	Particulars	Nos.	L	W	D	Qty in Kg	Rate	Amount	Remarks
1	**Supply of Lime**	**1**	0	0.00	0.00	50000.00	10	500000	**As per Old Tender Qty. & Rate Agreement No. 93/2023-24**
							Total Rs.	**500000.00**	
							Add 18 % G.S.T. Amount Rs.	**90000.00**	
							Grand Total Rs.	**590000.00**	
							Say Rs.	**590000.00**	

In Words:- Five Lacs Ninety Thousand Only/-

Sub Engineer	**Assistant Engineer**
P.H.E. Project Sub Division	**P.H.E. Project Sub Division**
Lalbarra	**Lalbarra**

B.O.Q. Item No. 4

Repairing Of Pipe Line Work

S.No.	Item No.	Particulars	Length	Width	Depth	Qty in Cum
1	SOR Item No. 15.6.1/ P. No. 257	**Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be leveled and neatly dressed. All kind of soil**				
1.1		**Distribution Pipe Line**				
		90 mm Dia P.V.C. Pipe Line	2829.1	0.55	1.00	1556.00
		110 mm Dia P.V.C. Pipe Line	1250	0.60	1.00	750.00
		160 mm Dia P.V.C. Pipe Line	510	0.60	1.00	306.00
		200 mm Dia P.V.C. Pipe Line	100	0.80	1.10	88.00
			Total			**2700.00**
2	SOR Item No. 15.6.2/ P. No. 257	**Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be leveled and neatly dressed.in Muddy Area**				
2.1		**Raw Water Pipe Line**				
		600 mm Dia D.I. Pipe Line	300	1.20	1.80	648.00
2.2		**Clear Water D.I. Pipe Line**				
		150 mm Dia D.I. Pipe Line	25	0.75	1.50	28.13
		200 mm Dia D.I. Pipe Line	1800	0.80	1.60	2304.00
		300 mm Dia D.I. Pipe Line	500	0.90	1.60	720.00
		500 mm Dia D.I. Pipe Line	300	1.10	1.70	561.00
		600 mm Dia D.I. Pipe Line	200	1.20	1.80	432.00
2.3		**D.I. Feeder Main**				
		(a) 150 mm Dia	1600	0.75	1.50	1800.00
		(b) 200 mm Dia	800	0.80	1.60	1024.00
		(c) 250 mm Dia	1000	0.85	1.60	1360.00
		(d) 300 mm Dia	1200	0.90	1.60	1728.00
		(e) 350 mm Dia	200	0.95	1.65	360.50
		(f) 400 mm Dia	350	1.00	1.70	595.00
		(g) 450 mm Dia	600	1.10	1.70	1122.00

		(h) 500 mm Dia	200	1.25	1.70	425.00
2.4		**Distribution Pipe Line**				
		90 mm Dia P.V.C. Pipe Line	16000	0.60	1.00	9600.00
		110 mm Dia P.V.C. Pipe Line	9000	0.60	1.00	5400.00
		160 mm Dia P.V.C. Pipe Line	450	0.70	1.10	346.50
		200 mm Dia P.V.C. Pipe Line	60	0.80	1.20	57.60
				Total		**28511.73**
3	**SOR Item No. 15.12/ P. No. 258**	**Filling available excavated earth in trenches, lead up to 50m and lift up to 1.5m in all kind of soil excluding watering and ramming.**				
		As Per Excavated Qty				
		2700.00 + 28511.73 = 40257.81 Cum				**31211.73**

Sub Engineer
P.H.E.Project Sub Division
Lalburra

Assistant Engineer
P.H.E. Project Sub Division
Lalburra

INTEGRATED WATER SUPPLY SCHEME FOR 102 VILLAGES OF BLOCK LALBARRA, DISTRICT BALAGHAT

RECOMMENDED MINIMUM OERATION AND MAINTENANCE STAFF

FOR SURFACE SOURCE WITH CONVENTIONAL TREATMENT
(FOR 5 TO 25 MLD)

SN	CATEGORY OF STAFF	SYSTEM COMPONENT AS PER FLOW LINE								WATER WORKS LABORA-TORIES (for grater than 7.5 mld
		RAW WATER PUMP HOUSE	RAW WATER RISING MAIN	TREATMENT WORKS AND CLEAR WATER PUMP	CLEAR WATER RISING MAINS	SERVICE RESERVOI R	GRAVITY MAIN (FEEDER MAINS)	DISTRI-BUTION SYSTEM	TOTAL	
1	2	3	4	5	6	7	8	9	10	11
1	Assistant Engineer	-		1	-	-	-	-	1	-
2	Sub engineer	-	-	3					3	
3	Operators	3		4	-	10	-	-	17	-
4	Helpers	4	1	3	6	-	-	77	91	-
5	Fitters	-	1	1	2	-	-	25	29	-
6	Electrician/Mechanic	1		2	-	-	-	-	3	-
7	Watchman	3		3	-	5	-	-	11	-
8	Chemist	-		-	-	-	-	-	-	1
9	Bacteriologist	-		-	-	-	-	-	-	1
10	Laboratory Technician	-		-	-	-	-	-	-	3
11	Typist cum Clerck	-		-	-	-	-	-	-	1
12	Sample takers	-		-	-	-	-	-	-	3
13	Laboratory Cleaners	-		-	-	-	-	-	-	3
14	Computer operator	-		-	-	-	-	-	-	1
	Total	**11**	**2**	**17**	**8**	**15**	**0**	**102**	**155**	**13**

NOTE : As per Appendix 13.2 of CPHEEO Manual of Water Supplly & Treatment

SECTION 5
AGREEMENT FORM
Agreement

This agreement, made the _____ day of _____

between _____ (name and address of Employer) (hereinafter called " the Employer) and_____ (name and address of contractor) hereinafter called "the Contractor" of the other part.

Whereas the Employer is desirous that the Contractor execute _____ _____ (name and identification number of Contract) (hereinafter called "the Works") and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein, at a cost of Rs._____

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be ready and construed as part of this Agreement viz.
   i. Letter of Acceptance
   ii. Contractor's Bid
   iii. Condition of Contract: General and Special
   iv. Contract Data
   v. Bid Data
   vi. Drawings
   vii. Bill of Quantities and
   viii. Any other documents listed in the Contract Data as forming part of the Contract.

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____ was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said _____ _____ in the presence of :

Binding Signature of Employer _____

Binding Signature of Contractor _____

Email

कार्यालय प्रमुख अभियंता
लोक स्वास्थ्य यांत्रिकी विभाग
जल भवन, बाणगंगा, भोपाल–462 003
दूरभाष क्रमांक (0755) 2779411–12
(An ISO 9001:2015 Certified Office)

1865
क्रमांक /मोनि./प्र.अ./लोस्वायॉवि/2021 भोपाल, दिनांक 26/2/21

प्रति,

1. **मुख्य अभियंता,**
   लोक स्वास्थ्य यांत्रिकी विभाग
   भोपाल/इंदौर/ग्वालियर एवं जबलपुर
2. **अधीक्षण यंत्री,**
   लोक स्वास्थ्य यांत्रिकी विभाग
   समस्त मण्डल म.प्र.
3. **कार्यपालन यंत्री,**
   लोक स्वास्थ्य यांत्रिकी
   समस्त खण्ड म.प्र.

विषय :– म.प्र. जल निगम मर्यादित द्वारा सूचीबद्ध सामग्री के मेक/ब्रांड को विभागीय नलजल योजनाओं में शामिल किये जाने के संबंध में।

संदर्भ :– 1. म.प्र. जल निगम के पत्र क्रं. 10079/03/D&M-II/MPJNM/2020 Bhopal Dated 18.12.2020
2. म.प्र. जल निगम के पत्र क्रं. 10545/03/D&M-II/MPJNM/2020 Bhopal Dated 31.12.2020

––00––

उपरोक्त विषयान्तर्गत लेख है कि म.प्र. जल निगम मर्यादित द्वारा संदर्भित पत्रों से नलजल योजनाओं में लगने वाली सामग्री के मेक/ब्रांड सूचीबद्ध किये गये हैं, जिन्हें विभागीय एकल ग्राम नलजल योजनाओं की निविदा में पूर्व से सूचीबद्ध मेक/ब्रांड के साथ–साथ इन नवीन मेक/ब्रांड को भी शामिल किये जाने हेतु निर्देशित किया जाता है।

संलग्न :– संदर्भित पत्र की प्रति।

25.2.2021
(के. के. सोनगरिया)
प्रमुख अभियंता
भोपाल, दिनांक 26/2/21

1865
पृ.क्र. /मोनि./प्र.अ./लोस्वायॉवि/2021

प्रतिलिपि :–

अपर मुख्य सचिव, मध्यप्रदेश शासन लो.स्वा.यॉ. विभाग, मंत्रालय, वल्लभ भवन भोपाल की ओर सूचनार्थ प्रेषित।

25.2.2021
प्रमुख अभियंता

S. No.	Name of Item	Name of Firm		Address of Manufacturing Unit	CM/L No. of Manufacturing Unit
1	HDPE Pipes	10	M/S Wonder Agritech Pvt. Ltd., Indore 452 010	Prabhu Kripa, 53, Shanti Niketan, Near Bombey Hospital, Niranjanpur, Indore-452 010	8200089916
		11	M/S Bhagwati Plastric & Pipe Industries, Jaipur 302012	H-457, Jhotwara, Ext. II, Sarna, Dungar, Jhotwara, Jaipur	8876210
		12	M/S Flexiflow Polymers LLP, Delhi 110081	Khasra No. 45/15, 45/16 00 Main Bawana Road, Near Kalidevi Mandir, Prahladpur, Bangar, Delhi	8100079106
		13	Falcon Pipe Pvt. Ltd., Rajkot-360 311	Survey No. 55/1, Village ; Sadak Pipaliya, Taluka; Gondal, Distt. Rajkot, Gujrat	7633389213
		14	M/S Konark Irrigation Private Limited, Aligarh	Pachpera, Baroth, Chhajhamal Roa, Tehsil Gabana, Aligarh.	8700065517
2	HDPE Fittings/ specials/ compression Fittings	1	M/S Arihant Plast, Jaipur 302 006	Plot No. 2 Road No. 4 Bhind, Berger Paint Godown, 22 Indusriial Area, Jaipur	-
		2	M/S VIP Venkatesh - Indigenous Pipes Pvt. Ltd., Raisen	B-96, Kastoorba Nagar, Near Chetak Bridge, Bhopal	-
3	WTP equipments : (Rotating Bridge, Agitators, Weirs & Notches, Loss of Head Meter etc.)	1	M/S Micro Transmission Systems, Noida 201306	D-29, Site-B, UPSIDC, Surajpur Industrial Area, Greater Noida-201306, (U.P.)	-
4	WTP equipments : (Chlorination system)	1	M/S Toshcon Jesco (India) Pvt. Ltd., Ajmer	H 1-74, Gegal Industrial Area, Ajmer - 305023, Distt. Ajmer (Rajasthan)	-
		2	M/S Pristine Water New Delhi	Plot No. B-234, Okhla Industrial Area, Phase-1, New Delhi	-

S. No.	Name of Item	Name of Firm		Address of Manufacturing Unit	CM/L No. of Manufacturing Unit
4	WTP equipments : (Chlorination system)	3	M/S Hindustan Water Engineeing Company Unit-2, Mandsaur	Jaggakhedi Industrial Area, Mandsaour	-
5	Sluice Gate	1	M/S Hindustan Water Engineeing Company, Mandsaur	HWE Bhavan, 47 Industrial Area, Mandsaur (M.P.)	-
6	Dismantling Joint	1	M/S Shiva Industries, Jaipur	Near Vaidh Ji Chouraha, Niwaroo Road, Jhotwara, Jaipur 302012.	-
		2	M/S Bikaner Engineering Works, Jaipur 302 001	O-12, Ashok Marg, C-Scheme, Room No. 3, Jaipur	-
7	Float valve to control the over flow from ESRs/GSRs	1	M/S Bikaner Engineering Works, Jaipur 302 001	F-445, Road No. 12, V.K.I. Area, Jaipur	-
8	D.I. D.F. Pipe	1	M/S Chandranchal Enterprise (P) Ltd., Chandigarh 160101	Survey No. 76 Chinna, Shivbamoor, Chegunta, MDl, Medak	630003984
		2	M/S tru-form engineers, Nagpur-440026	Survey No. 155/3 Village Kawatha, Taluka, Kamptee, Nagpur	3625358
9	Panel Enclosures and consoles	1	M/S Hira RR Ispat (A Unit of Godawari Power and Ispat Limited), Raipur-493111	phase-I, Siltara Industrial Area, Raipur-493111, Chhattisgarh	-
10	Flow controller valve remote operation type	1	M/s Talis Valves India Private Limited, Telangana	The Platina Block B, B-907, Near Radisson Hotal, Gachibowli, Hydrabad, Telangana	-
		2	M/S Mcwane India Private Limited., Coimbatore	Kamarajar Road, Uppilipalayam Post, Coimbatore	-

(N. P. Malvia)
Project Director

Bhopal
Date : 18.12.2020

pg. 3

MADHYA PRADESH JAL NIGAM

(A Govt. of Madhya Pradesh Undertaking)
"D" Wing, 2nd Floor, Vindhyachal Bhawan, Bhopal - 462004
Web: www.mpjalnigam.mp.gov.in, E-mail: mpjalnigam@mp.gov.in
Ph: 0755-2579034, 2579874 Fax: 0755-2579873
CIN: U41000MP2012SGC028798

No. 10,545 / 03 /D&M-II/ MPJNM/2020 Bhopal, Dated 31.12.2020

Name of firms & their manufacturing Units empanelled against EOI Notice No. 9224/03 /D&M-II/ Dated 16.11.2020 :-

S. No.	Name of Item	Name of Firm		Address of Manufacturing Unit	CM/L No. of Manufacturing Unit
(1)	(2)	(3)		(4)	(5)
1	HDPE Pipe	1	M/S Crestia Polytech 'P' Ltd.	Plot No. – A-7, Phase-1, Industrial Area Fatuha, Distt: Patna (Bihar) 803201	5300041176

(N. P. Malvia)
Project Director

Bhopal
Date : 31.12.2020

pg. 1

Updated list of Firms/Manufacturing units Empanelled up to 31.12.2020 in Madhya Pradesh Jal Nigam, Bhopal

Annexure A

S. No.	Item / Component	Recommended makes
1	VT and Centrifugal Pumps	Kirloskar / Jyoti / Mather+Platt /WPIL/Becon Weir/Flowmore Ltd., Gudgaon.
2	Electric motors	Kirloskar / Jyoti / Crompton Grieves / ABB / Marathon/BHEL/Siemens/ Bharat Bijlee
3	Power Transformers	ABB / Crompton Greaves/ Emco / Siemens/ Shriram Switchgears/ Vardhman Electro-Mech Pvt. Limited/ Star Delta Transformers Limited
4	DI Pipes	Electrosteel / Jindal / Tata / Electrotherm/ Jai Balaji Industries/ Rashmi Metaliks/ Shrikalahasthi pipe/ Electrosteel Steel Limited
5	HDPE Pipes & specials	Reliance / Duraline / Jain Irrigation/ Sangir/ Time Technoplast/ Signet Industries/ ORI-Plast/ Kataria Plastics/ Kriti Industries/ The Supreme Industries/ Makknow Industries/ Texmo Pipes and Products/ Kisan Irrigations and Infrastructure/ Tufropes Pvt. Ltd. / Apollo Pipes/ Vishal pipes/ Vectus Industries/ Parixit Irrigation/ Sagar Polytechnic/ Nimbus Pipes/ Godavari Polymers/ Shree TNB Polymers Ltd/ VEEKAY PLAST/ Miraj Pipes and Fittings Pvt. Ltd/ Delight Enterprises Pvt. Ltd/ Kothari Agritech Pvt. Ltd/ Tijariya Polypipes Ltd/ Kisan Mouldings Limited/ Tirupati Structurals Limited/ Delta Irrigation LLP/ Mohit Polytech/ Hitech Polyplast/ Pragati Pipe / VIP Venkatesh Indigenous Pipes / Vinayak Polypipes/ Gautam Plastics/ Borana Industries/ Rupam Industries/ Wonder Agritech/ Bhagwati Plastric & Pipe/ Flexiflow Polymers LLP/ Falcon Pipe/ Konark Irrigation/ Crestia Polytech.
6	Sluice Valves / Scour Valves/ Butterfly Valve/ Non-return Valves/ Kinetic Air Valve	Kirloskar / IVC / VAG /IVI/ Fouress/ Sachdeva Metal Works/ Jupiter Engineering Co/ G.M. Engineering Pvt. Ltd/ G.M. DALUI & SONS Pvt. Ltd/ R&D Multiples (Metal Cast) Pvt. Ltd/ Kartar Valves Pvt. Ltd/ Shiva Industries/ R S Valve & Products/ Durga Valves Pvt. Ltd/ AVK Valves India Private Limited/ McWane India Private Limited/Sigma Flow Control India Ltd.
7	Valve Actuators	Auma / Rotork / Limitork
8	Hydraulically operated Flow cum Pressure control valves	VAG / Darling-Muesco / Singer
9	Flow control valve remote operation type	Talis Valves India/ Mcwane India.
10	Zero Velocity Valve	Vardhman Electromech/ Flownix Valves

Updated list of Firms/Manufacturing units Empanelled up to 31.12.2020 in Madhya Pradesh Jal Nigam, Bhopal

S. No.	Item / Component	Recommended makes
11	Single faced Sluice Gates	JASH / VAG / Kirloskar/ Hindustan Water Engineering.
12	Water Hammer Control Devices	Sureseal or equivalent
13	Electro-magnetic Flow meters.	Emerson / Krohne Marshall / Yokogawa/ Siemens/ Endress+Hauser (India)/ Itron India/ Nivo Controls
14	Electro-magnetic Flow meters, Water Meter, Items for Instrumentation/ Automation	Endress+Hauser (India)/ Itron India/ Nivo Controls
15	Woltman type Bulk water meters	Zenner / Itron / Elster / Minol
16	WTP equipement : *Flash mixers, Clariflocculators, Flocculators, Rotating bridge, Blowers etc.*	Triveni / Shivpad / Dorr-Oliver / Voltas/ Adroit Associates/ Imac Engineering/ Reliable Equipments/ Hindustan Water Engineering Company /TMVT INDUSTRIES PVT.LTD (*Blowers* Only) / KPT. Industries Ltd (*Blowers* Only)/ Kay International (*Blowers* Only)/ Micro Transmission Systems.
17	Single Faced Sluice Gate/ WTP equipment : (*Flash mixers, Clariflocculators, Flocculators, Rotating bridge & Chlorination Equipment's)*	GEO Miller/Kay International
18	Chlorination equipment : Chlorinator, Chlorine leak detector, Residual Chlorine analyzer, Scrubber etc.	Pennwalt / W&T / Alldos/ ZION TECHNOLOGIES/ Tosheon Jesco/ Pristine Water/ Hindustan Water Engineering.
19	DI / CI Fittings & specials	Kiswok / Electrosteel/ Kejriwal./ R.G. Industries/ Kartar Valves Pvt. Ltd/ Jindal Saw Ltd/ Chandranchal Enterprise Pvt. Ltd/ Truform Techo Products Ltd
20	Dismantling joints	Anup Engg. / LoneStar / Vedanta / Precise/ Shiva Industries / Bikaner Engineering Works.
21	Expansion joints	Anup Engg. / LoneStar / Vedanta / Precise/ Shiva Industries
22	HDPE Fittings (Compression fittings, Tapping Saddles, Electrofusion Couplers)	Kimplas /, George ficher / Glynwed / Frialen / Trustlene / GPS / Durafuse/ AL-Aziz Plastics/ AIVA Engineering Private Limited/ Lesso Buildtech Pvt. Ltd/ Bentlay Fittings Pvt. Ltd/ TEGA MUHENDISLIK SANAYi VE TiCARET A.S.Turkey/ Arihant Plast/ VIP Venkatesh Indigenous Pipes.
23	Float valves to control the overflow from ESRs/GSRs	Shiva Industries/ Bikaner Engineering Works.
24	D.I. Double Flanged Pipe	Sachdeva Metal works/ SRIKALAHASTHI PIPES/ Delight Enterprises Pvt. Ltd/ Chandranchal Enterprise/ tru-form engineers.
25	Steel For Reinforcement	TATA, RINL, SAIL/ Shri Bajrang Power and Ispat Limited.

Updated list of Firms/Manufacturing units Empanelled up to 31.12.2020 in Madhya Pradesh Jal Nigam, Bhopal

Annexure B

Items for Instrumentation / Automation

S. No.	Item / Component	Recommended makes
1	Programmable Logic Controllers (PLC)	Rockwell *(Allen Bradly)* / Siemens / Honeywell
2	Moulded Case Circuit Breaker (MCCB)	Siemens / Schneider M.G. / Jyoti / L&T
3	Relay and Contactors	Siemens / Marathon / Jyoti / ABB / L&T
4	Cables	Tropodur / Finolex / Asian / Gloster / Incab / Universal / Polycab
5	Panel Enclosures and Consoles	Rittal / President / Cutler Hammer/ Hira RR Ispat
6	Switch fuse Disconnector	L & T, FN Type, Siemens 3 KL Type, GEPC
7	Multi-Function Energy Meters	Enercon, L & T, SOCOMEC
8	Capacitor bank	Crompton Greaves, Khatau Junker, Malde, L&T
9	Cable Termination kit	Raychem, Denson, M-Seal
10	Battery	HBL NIFE, Exide, Amco
11	Battery Charger	Chaabi Electrical, Masstech
12	Ultrasonic Type Level Measurement Device	Endress+Hauser / Krohne Marshall / Hycontrol UK, Electronet
13	Pressure switch	Indfoss, Switzer,Tag Process Instruments
14	Pressure gauge	WAREE, WIKA, AN Instruments, Guru, Hitek, Electronet
15	Flow switch	Switzer, General Instrument,Forbes Marshall
16	Pressure Transmitter	Emerson, Foxbro, Druck, Endress – Hauser, ABB, Honeywell Automation, Electronet
17	Engineering cum Operator work Station	IBM, Compaq, Dell
18	Local Supervisory Station	IBM, Compaq, Dell
19	HMI Software	Wincc, Rs View, Monitorpro, Intellution, Indusoft
20	Alarm Annunciator	Minilec, Peacon, ICA, APLAB, Electronet
21	Uninterruptible Power Supply	HI-Real, Pulse, Tata Libert, APC, APLAB
22	Lightening Protection Unit	MH Inst, Crompton Greaves, MTL, Pepper & fuchs, Rittmeyer, Cirprotec
23	Instruments & Control Cables	Delton, Asian, Servel, TCL, Thermopad
24	Receiver Indicator/Digital panel meter	Masibus, Yokogawa, Lectrotek, NISHKO, SaiTech, MTL INSTS, Electronet
25	Conductivity level switch	Pune techtrol, SBEM, Krohne Marshall, Endress+Hauser India, NIVO, Electronet
26	SCADA System	Mitsubishi Electric/ Schneider Electric
27	Computer (Servers & Workstation)	HP-Compaq / IBM / Dell
28	Laptop	HP / Dell / Sony / Toshiba
29	Printer	Samsung, HP, CANNON

Updated list of Firms/Manufacturing units Empanelled up to 31.12.2020 in Madhya Pradesh Jal Nigam, Bhopal

Items for Instrumentation / Automation

S. No.	Item / Component	Recommended makes
30	Multifunction power monitor	MASIBUS, L&T, ENERCON, SOCOMECH, SECURE, DAE
31	Temperature Scanner	SaiTech, Masibus, Nishko, Lectrotek
32	Analog Signal Multiplier	MASIBUS, Sai Tech, MTL INSTS, NISHKO
33	Air conditioning	Voltas, Samsung, Carrier, Hitachi
34	Furniture	Godrej, Ergo, Featherlite

(N.P. Malvia)
Project Director

कार्यालय प्रमुख अभियंता
लोक स्वास्थ्य यांत्रिकी विभाग
जल भवन, बाणगंगा, भोपाल–462 003
दूरभाष क्रमांक (0755) 2779411–12
(An ISO 9001:2015 Certified Office)
Email

2777
क्रमांक /मोनि./प्र.अ./लोस्वायाँवि/2022 भोपाल दिनांक: 06/4/22

प्रति,

1. **मुख्य अभियंता,**
   लोक स्वास्थ्य यांत्रिकी विभाग
   भोपाल/इंदौर/ग्वालियर/जबलपुर
2. **अधीक्षण यंत्री,**
   लोक स्वास्थ्य यांत्रिकी विभाग
   समस्त मण्डल म.प्र.
3. **कार्यपालन यंत्री,**
   लोक स्वास्थ्य यांत्रिकी विभाग
   समस्त खंड म.प्र.

विषय : म.प्र. जल निगम मर्यादित द्वारा सूचीबद्ध सामग्री के मेक/ ब्रांड को विभागीय नलजल योजनाओं में शामिल किये जाने के संबंध में ।

संदर्भ : म.प्र. जल निगम के पत्र क्र. 2054/03/सं.क.प्र./म.प्र.ज.नि./2022 भोपाल दिनांक 08/03/2022

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उपरोक्त विषयान्तर्गत लेख है कि म.प्र. जल निगम मर्यादित द्वारा संदर्भित पत्र से नलजल योजनाओं में लगने वाली सामग्री सबमर्सीबल पम्प/ मोनोब्लॉक /ओपन वेल पम्प सेट के क्रय हेतु निर्माता फर्म के मेक/ब्रांड को सूचीबद्ध किया गया है, जिसे विभागीय एकल ग्राम नलजल योजनाओं की निविदा में पूर्व से सूचीबद्ध मेक/ब्रांड के साथ-साथ इन नवीन मेक/ब्रांड को शामिल किए जाने हेतु निर्देशित किया जाता है ।

संलग्न : उपरोकतानुसार ।

4.4.2022
(के. के. सोनगरिया)
प्रमुख अभियंता

2777
पृष्ठा क्रमांक /प्र.अ. /लोस्वायांवि /2022 भोपाल, दिनांक 06/4/22

प्रतिलिपि :

1 अपर मुख्य सचिव, म. प्र. शासन, लोक स्वास्थ्य यांत्रिकी विभाग, मंत्रालय, वल्लभ भवन भोपाल की ओर सूचनार्थ प्रेषित ।

4.4.2022
प्रमुख अभियंता

मध्यप्रदेश जल निगम मर्यादित
(मध्यप्रदेश शासन का उपक्रम)
"घ" विंग, द्वितीय तल, विन्ध्यांचल भवन, भोपाल–462004
Ph.: 0755-2579034, 2579874 || Fax: 0755-2579873
www.mpjalnigam.mp.gov.in || E-mail: mpjalnigam@mp.gov.in
CIN - U41000MP2012SGC028798

क्रमांक. 2054 /03/सं.क.प्र./म.प्र.ज.नि./2022 भोपाल, दिनांक 08/03/2022

प्रति,

प्रमुख अभियंता
लोक स्वास्थ्य यांत्रिकी विभाग,
भोपाल, मध्यप्रदेश।

विषयः– **Name of firms & their Manufacturing Units empanelled against Expression of Interest (EOI) Notice No. 8649/03/D&M-II Dated 22.09.2021.**

संदर्भः– इस कार्यालय का आदेश क्रमांक 1978/03/डी. एण्ड एम–2/मपप्रजनमर्या/2022 दिनांक 07.03.2022

–0–

उपरोक्त विषयांतर्गत लेख है कि "अभिरूचि की अभिव्यक्ति" EOI Notice No. 8649/03/D&M-II Dated 22.09.2021 के अंतर्गत आयटम सबमर्सीबल/ओपनवैल/मोनोब्लॉक पंप सेट हेतु इम्पेनल की गई निर्माता फर्मों के आदेश की प्रति आपकी ओर अग्रिम कार्यवाही हेतु संलग्न प्रेषित है।

संलग्नः– उपरोदतानुसार।

8/3/22
(सी० एस० संकुले)
परियोजना निदेशक

पृ. क्र. 2055 /03/ सं.क.प्र./म.प्र.ज.नि./2022 भोपाल, दिनांक 08/03/2022

प्रतिलिपिः–

गार्ड फाईल/स्थापना शाखा, मध्यप्रदेश जल निगम, भोपाल।

8/3/22
परियोजना निदेशक

o/c

10.3.22
प्रमुख अभियंता
लोक स्वास्थ्य यांत्रिकी विभाग
भोपाल

MADHYA PRADESH JAL NIGAM MARYADIT

(A Govt. of Madhya Pradesh Undertaking)
"D" Wing, 2nd Floor, Vindhyachal Bhawan, Bhopal - 462004
web-www.mpjalnigam.mp.gov.in, E-mail: mpjalnigam@mp.gov.in
Ph: 0755-2579034-35-36, Fax: 0755-2579873
CIN. No. U41000MP2012SGC028798

No. 1976 /03/D&M-II/MPJNM/2022 Bhopal, Dated 07 /03/2022

Name of the firms & their manufacturing Units empanelled against EOI Notice No. 8649/03/D&M-II Dated 22.09.2021: -

S. No.	Group /Item No.	Name of Item	Name of Firm		Address of Manufacturing Unit	CM/L No. of Manufacturing Unit
(1)	(2)	(3)	(4)		(5)	(6)
1	A/1	(i) Submersible Pump Set.	1	M/S Unnati Pumps Pvt. Ltd. Ahmadabad- 380025	Shed No. 29/64, 30/63, 43, 44 & 81, Amarnath Industrial Estate, Near Forge & Blower Ltd. Naroda Roadm, Ahmadabad- 380025	1862968
			2	M/S C.R.I. Pumps Private Limited Coimbatore- 641 035	Unit: Ransar Industries-I, 7/51-A, Keeranatham Road, Saravanampatty, Coimbatore-641035	2061636
			3	M/S Pluga Pumps and Motors Pvt. Ltd. Manjusar- 391775	21 (A), GIDC Estate, Manjusar, Savli, Manjusar- 391775	2163644
			4	M/S Shakti Pumps (India) Ltd. 454775, Madhya Pradesh	Plot No. 401, 402, 413, Sector 3, Industrial Area, Pithampur, Dhar- 454775, Madhya Pradesh	2081945
			5	M/S Wilo Mather and Platt Pumps Pvt. Ltd. Maharashtra- 416234	E-25, MIDC, Gokul Shirgaun, Distt. Kolhapur, Maharashtra-416234	7500109614
			6	M/S Oswal Pumps Ltd., Karnal (Haryana) INDIA	NH-1, Kutail Road, P.O. Kutail Distt. Karnal (Haryana) INDIA 132001	9333880
			7	M/S KSB Limited (Formerly Known as KSB Pumps (Limited), Nashik-422103	Plot No. F3, MIDC Area, Malegaon, Dist. Nashik-422103 Maharashtra	7134258
			8	M/S Duke Plasto Technique Private Limited, Gujrat	NH. 14 Deesa Highway Opp. Hotel Green Wood, Badarpura, Palanpur, Gujrat	7862089

S. No.	Group/ Item No.	Name of Item		Name of Firm	Address of Manufacturing Unit	CM/L No. of Manufacturing Unit
1	A/1	(i) Submersible Pump Set.	9	M/S Calama Technologies Pvt. Ltd., Indore (MP) - 452 001	"Calama House", Mear Malwa College, Byepass, Nipania, Indore (MP) - 452 001	8200009504
			10	M/S Silver Consumer Electricals Pvt. Ltd., Rajkot, Gujrat- 360002	Unit No.-I, Rajkot Gondal Highway, Behind Vikram Steel Pvt. Ltd., Near Kishan Petrol Pump, Kangashiyali, Taluka: Lodhika, Distt. Rajkot, Gujrat- 360002	7488802
			11	M/S Falcon Pumps Pvt. Ltd., Rajkot, Guj.- 360004	Survey No. 39/4, Vavdi Industrial Area, Behind Krishna Park, At Vavdi, Distt., Rajkot, Guj.- 360004	3637365
			12	M/S Flotech Engineering Pvt. Ltd., Rajkot: 360024	Survey No. 277, Plot No. 20, Rani Industrial Area, Shapar Road, Opp. Kaneriya Oil Mill, Shapar, Taluka Kotda Sangani, Rajkot: 360024	7407873
			13	M/S Unnati Pumps Enterprise, Ahmadabad- 380025	22-27, Nimesh Estate, Near Amar Estate, Opp. Forge and Blower, Naroda Road, Ahmedabad- 380025	7110446
			14	M/S Unnati Industrial Corporation, Ahmedabad: 382330	(Unit-III), 61, Diamond Park, GIDC Estate, Naroda, Ahmedabad: 382330	1729663
			15	M/S Lubi Industries LLP, Ahmadabad PIN- 380025	Near Kalyan Mills Naroda Road, Ahmadabad PIN- 380025	1921453
2	A/1	(ii) Open-Well Pump Set.	1	M/S Unnati Pumps Pvt. Ltd., Ahmedabad- 380025	81-86 Amarnath Industrial Estate, Including shed No. 29/64, 30/63, 43, 44, Plot No. 182, final Plot No. 50&51, shed No. 50/37, 57/36, Naroda Road, Ahemdabad- 380025	7200043391
			2	M/S Falcon Pumps Pvt. Ltd., Rajkot, Guj.- 360004	Survey No. 39/4, Vavdi Industrial Area, Behind Krishna Park, At Vavdi, Distt., Rajkot, Guj.- 360004	3738169

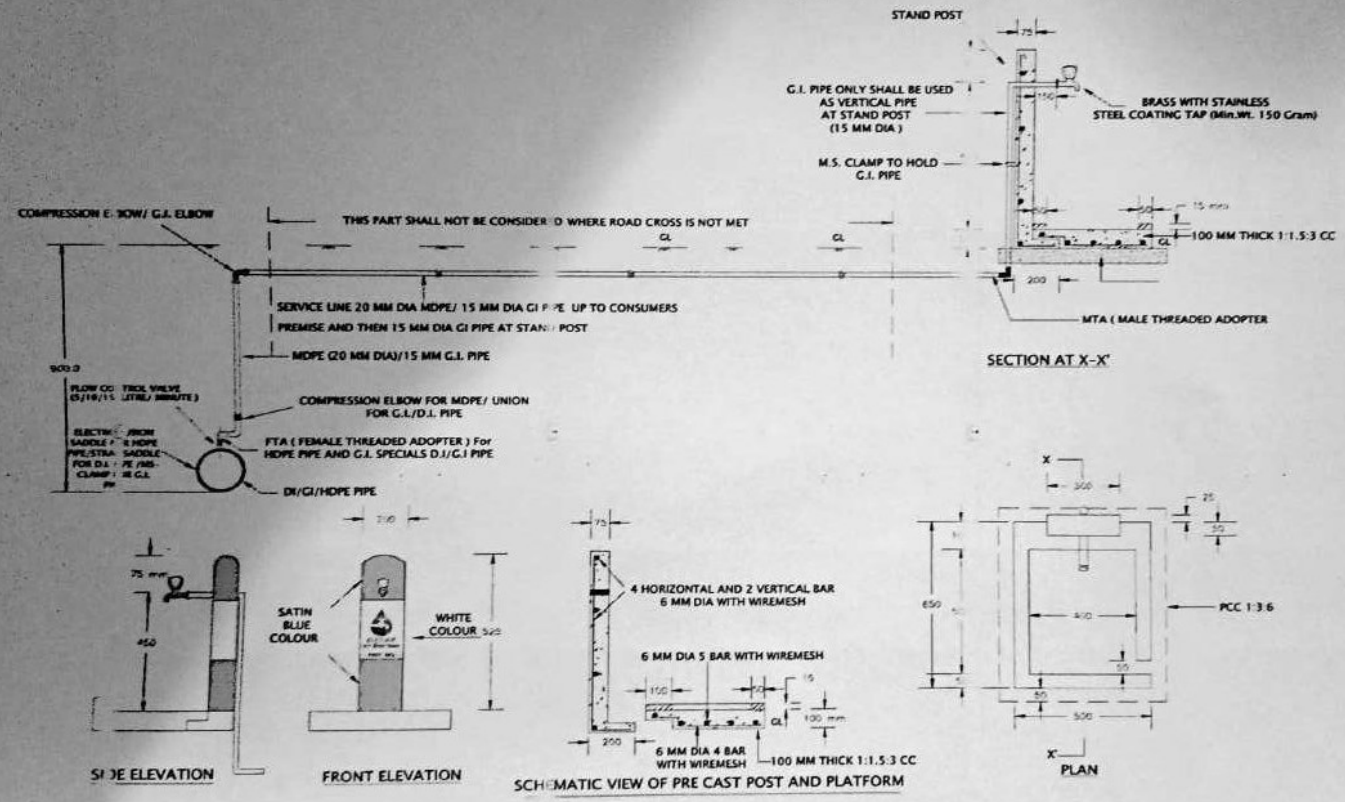
07/03/2022

(C. S. Sankule)
Project Director

Public Health Engineering Department, Madhya Pradesh

General arrangement Drawing and specifications for consumer service connection, Pre-fabricated cement concrete platform and pre-fabricated cement concrete milestone shaped stand post

[Amendment for USOR w.e.f. 03.07.2018, Chapter No XVII, Item no 17.41 to 17.44]



NOTES–

- FLOW CONTROL VALVE SIZE (5/10/15 LITRE / MIN) SHALL BE DECIDED ON THE BASIS OF THE DURATION OF DAILY SUPPLY OF WATER
- FONTS LIM LOGO AND TOP/ BOTTOM STRIP AS SHOWN IN FIGURE SHALL SATIN BLUE SYNTHETIC ENAMEL PAINT (FOR REFERENCE PURPOSE SEE COLOUR CODE 0124 OF ASIAN PAINTS)
- ALL DIMENSION IN MM