KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION (KINFRA)

(A statutory body of Govt of Kerala)
KINFRA HOUSE, TC 31/2312, Sasthamangalam, Thiruvananthapuram -695 010
Tel: 0471-2726585| **Fax**: 0471-2724773 | **Email**: kinfraannexe@gmail.com | **Web**: www.kinfra.org

Notice Inviting Tender (NIT)
(KINFRA - 6)

Tender No	**:**	**KIN/PBR/40/2025-26**
Name of Work	**:**	**Design, Construction and Commissioning of 2 MLD Water Treatment Plant at KINFRA Industrial Park Perumbavoor and Operation and Maintenance for 1 Year**
EMD	**:**	**Rs. 1,00,000/-**
Period of Completion	**:**	**14 Months**
Bid Submission Fee	**:**	**Rs. 8,850/-(Inclusive of 18% GST)**

GENERAL INDEX

KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION (KINFRA)
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Notice Inviting Tender (NIT)

KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION (KINFRA), a statutory body of Govt. of Kerala, now intends to install a water treatment plant at KINFRA Industrial Park, Perumbavoor, Kerala, India and invites sealed tenders on basis from experienced, reputed and competent contractors/firms for installation of the following package-

Tender No	**:**	**KIN/PBR/40/2025-26**
Name of Work	**:**	**Design, Construction and Commissioning of 2 MLD Water Treatment Plant at KINFRA Industrial Park Perumbavoor and Operation and Maintenance for 1 Year**
EMD	**:**	**Rs 1,00,000.00/-**
Period of Completion	**:**	a) Design Finalizing – 2 Months from Effective date of Contract b) Execution - 12 months from Design Finalizing Date c) Defect Liability period including operation and maintenance for all civil, electrical and mechanical works - 60 months from the date of Commissioning
Bid Submission Fee	**:**	Rs. 8,850/- inclusive of GST @ 18%

KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION

(A Statutory Body of Govt. of Kerala)
KINFRA HOUSE, TC NO.31/2312, SASTHAMANGALAM P.O,
THIRUVANANTHAPURAM

Tender No	:	KIN/PBR/40/2025-26
Name of Work	:	Design, Construction and Commissioning of 2 MLD Water Treatment Plant at KINFRA Industrial Park Perumbavoor and Operation and Maintenance for 1 Year
Locality	:	KINFRA Industrial Park, Perumbavoor, Kerala
Last date of online Submission	:	02.02.2026
Name of Bidder	:	……
Address of Bidder	:	……
Validity of Bid	:	120 Days from the date of opening of tenders.
Valid Registration and Class	:	……

GENERAL GUIDELINES

1. The book of "General Conditions of Contract" is applicable to both types of tenders i.e." Percentage rate tenders and Item rate tenders". Accordingly, alternative provisions for conditions Nos. 4, 10 & 12 of the General Rules and Directions are given in this book. The appropriate alternatives will be applicable in specific cases depending on whether this is used for percentage rate tender (KINFRA-7) or item rate tender (KINFRA-8). "General Conditions of Contract" shall be available in downloadable manner from website "www.kinfra.org"

2. KINFRA-6 abridged from KINFRA-7/8, Schedules A to F, special conditions/specifications and drawings will be issued to intending tenderers only. The standard form will not be issued along with the Tender Documents but the same shall form part of the agreement to be drawn and signed by both parties after acceptance of tender. The standard form shall be available in downloadable manner from website "www.kinfra.org"

3. The intending bidders will quote their rates in Schedule A ie. Schedule of Quantities.

4. The proforma for registers and Schedules A to F are only for information and guidance. These are not to be filled in the Standard Form. The Schedules with all blanks, duly filled, shall be separately issued to all intending tenderers. For filling and returning in the manner prescribed. The **Schedule A** can be downloaded from website www.etenders.kerala.gov.in

Information & Instructions to the Bidders for e-tendering (Forming part of Bid Document)

Managing Director, KINFRA online tenders in two cover bid system for the following work in the prescribed form, from competent and eligible contractors/firms with appropriate class of registration in PWD/CPWD/KWA/Irrigation/Indian Railways/MES/ BSNL/State Govt departments/ PSUs, who fulfill the eligibility criteria prescribed.

Tender No.	Name of work & Location	EMD (Rupees)	Period of completion	Last date of submission of Tender document, EMD, Tender fee & Other documents as	Time & Date of opening of Technical bid	Tender Cost	Class of registration
1	2	4	5	6	7	8	9
KIN/PBR/40/2025-26	Design, Construction and Commissioning of 2 MLD Water Treatment Plant at 0KINFRA Industrial Park Perumbavoor and Operation and Maintenance for 1 Year	Rs. 1,00,000.00	14 months	02.02.2026	04.02.2026	Rs. 8,850/- (incl. of GST @ 18%)	A Class and above (or equivalent)

1. **ELIGIBILITY CRITERIA**

Contractors who fulfill the following requirements shall be eligible to apply.

1. "A class" or equivalent contractor registration in Central/state Govt departments/PSUs

2. Should have satisfactorily completed the works as Principal Contractor mentioned below during the last Seven years ending the last date of month previous to the one in which the tender is invited.

   Three *similar works each value not less than Rs. 148 Lakhs

   OR

   Two *similar works each value not less than Rs. 221 Lakhs

   OR

   One *similar work value not less than Rs. 295 Lakhs

   *'Similar work' shall mean works of Design, Construction, Supply, Installation, Testing and Commissioning of Water Treatment Plant. The bidder should have satisfactorily designed, constructed, supplied, installed and commissioned at least one rapid sand filter type Water Treatment Plant of 1 MLD Capacity during the last seven years, ending last day of the month previous to the one in which tenders are invited and which are in operation for atleast 1(one) year period. The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to last date of receipt of applications for bids.

3. Should have a solvency certificate from any bank to an amount equivalent to Rs. 148 Lakhs (Scanned copy of original solvency certificate to be uploaded).

4. The Contractor should either have an in-house capacity having proven experience in design and engineering of at least one water treatment plant of 2MLD Capacity during the last seven years (Client Certificate to be enclosed) The CV of key personnel engaged for design and engineering should be enclosed.

   OR

   Contractor may engage reputed firms who have executed design and engineering of at least one water treatment plant of 2MLD Capacity during the last seven years (Certified credentials to be enclosed)

5. Bidder should have GST registration.

Joint Venture or Consortium constituted for participating in this tender alone is not permitted.

The intending bidder must read the terms and conditions of **KINFRA-**carefully.

He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.

Information and Instructions for bidders posted on website shall form of bid document.
The tender document(s), may be downloaded free of cost from the e-Government Procurement (e-GP) website (www.etenders.kerala.gov.in). No payment is required for downloading the tender documents from the above website however a bid submission fee, as mentioned below in this document, is required to be remitted through online payment mechanism for e-procurement system of Govt. of Kerala. Only those bidders having a valid and active registration, on the date of bid submission, shall submit bids online on the e-GP website.

All bids shall be submitted online on the e-GP website only in the relevant envelope(s)/ cover(s), as per the type of tender. No manual submission of bids shall be entertained for the tenders published through e-GP system under any circumstances.

The e-GP system shall not allow submission of bids online after the stipulated date & time. The bidder is advised to submit the bids well before the stipulated date & time to avoid any kind of network issues, traffic congestion, etc. In this regard, KINFRA shall not be responsible for any kind of such issues faced by bidder.

Ineligible bidders or bidders who do not possess valid & active registration, on the date of bid submission, are strictly advised to refrain themselves from participating in this tender. If such instances are noticed, the same shall be treated as "fake bidding" by the respective bidder and such bidder shall be blacklisted as per KINFRA rules in force. The bidders, who submit their bids for this tender after digitally signing using their Digital Signature Certificate (DSC), accept that they have clearly understood and agreed the terms and conditions including the Form/ Annexures of this tender. Mention of price details at any place other than the designated place, shall disqualify the bid and the bid shall be summarily rejected.

Tender duly signed using bidder's valid Digital Signature Certificate shall be submitted online on e-GP website www.etenders.kerala.gov.in

General Conditions of Contract KINFRA 7/8 shall be available in downloadable manner from www.kinfra.org and shall form part of bid document.
The Technical bid shall be opened first on due date and time as mentioned above. The time and date of opening of financial bid of contractors qualifying the technical bid shall be communicated to them at a later date.

Pre-Bid meeting shall be held at KINFRA Hitech Park, Kalamassery on 19.01.2026 at 11.00 a.m. to clear the doubt of intending bidders, if any. The bidders can also attend the pre- bid meeting in online, the link will be shared with them, if they request through email **kinfrapark@gmail.com**. The queries to be submitted at least two working days prior to the pre-bid meeting. For further clarification, the bidders may contact Mr. Anzar. M .M 7994534463/8086601183

List of Documents to be scanned and uploaded within the period of bid submission:

Cover 1

I. NIT
II. Technical Proposal with necessary drawing/document as specified in tender document.
III. Contractor's proposed preliminary design and layout
IV. Registration certificate of the Contractor.
V. Certificates of Work Experience.
VI. Audited P&L and Balance Sheet
VII. Bank Solvency Certificate.
VIII. Any other Document as specified in the Tender notice.
IX. Certificate of Registration for GST.
X. GCC duly signed & sealed by the bidder.
XI. Tentative time schedule for the work

Cover 2

I. Price Bid

e-Government Procurement (e-GP) – Notice Inviting Tender (KINFRA 6)

Managing Director, KINFRA invites online tenders in two cover bid system for the following work in the prescribed form, from competent and eligible contractors/firms with appropriate class of registration in PWD/CPWD/KWA/Irrigation/Indian Railways/MES/ BSNL/State Govt departments/ PSUs, who fulfill the eligibility criteria prescribed.

Tender No.	Name of work & Location	EMD (Rupees)	Period of completion	Bid Start Date	Last date of submission of Tender document, EMD, Tender fee & Other documents as	Time & Date of opening of Technical bid	Tender Cost	Class of registration
1	2	4	5		6	7	8	9
KIN/PBR/40/2025-26	Design, Construction and Commissioning of 2 MLD Water Treatment Plant at KINFRA Industrial Park Perumbavoor and Operation and Maintenance for 1 Year	Rs. 1,00,000.00	14 months	21.01.2026	02.02.2026	04.02.2026,	Rs. 8,850/- (incl. of GST @ 18%)	A Class and above (or equ[1]ivalent)

1

All the intending bidders should have successfully completed works during the last 7 years with Central Government Department/ State Government Department/ Central/State Autonomous Body/ Central/State Public Sector undertaking, ending last day of the month previous to the one in which tenders are invited.

1. Registration contractors should be valid on the last date submission of bids. In case the last date of submission of bid is extended, the registration of contractor should be valid on the original date of submission of bids.
2. Intending bidders is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude as specified in clause 1 of 'Information and Instructions to bidder for e-tendering' above.
3. The time allowed for carrying out the work will be as follows:

   a) Design Finalizing – 2 Months from Effective date of Contract

   b) Execution - 12 months from Design Finalizing Date

   c) Defect Liability period including operation and maintenance for all civil, electrical and mechanical works - 60 months from the date of Commissioning

4. The site for the work is available.
5. The bid document consisting of specifications, drawings, relevant forms and the set of terms and conditions of the contract to be complied with and other necessary documents**.**
6. The bidder shall submit the Payment Conditions. Format shall be available in clause No. 19 Additional Condition of Tender Document.
7. Agreement shall be drawn with the successful bidders on prescribed Form No. KINFRA 7/8 (or other Standard Form as mentioned) which is available www.kinfra.org. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
8. The time allowed for carrying out the work will be 14 Months from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
9. The bid document consisting of plans, technical specifications, the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen on website www.etenders.kerala.gov.in. General Conditions of Contract (KINFRA-7/8) shall be available in downloadable manner from www.kinfra.org and shall form part of bid document.
10. Tender documents and tender schedule may be downloaded free of cost from the e- GP Web site www.etenders.kerala.gov.in . Tender fee of Rs. 8,850.00/- (Inclusive of GST) shall be remitted through online payment mechanism for e-procurement system of Govt. of Kerala.
11. The bid submitted shall be opened on 04.02.2026,, 11.00AM. The time and date of opening of Price Bid of the tender shall be intimated only to the qualified and technically acceptable bidders at a later date.
12. Earnest Money Deposit (EMD) amounting to Rs. 1,00,000.00/- (Rupees One

Lakhs only) to be remitted online through e-GP site by the bidder.

13. **Performance Security Deposit**: It is the retention amount deducted from the running bill of the contractors in addition to the Performance Guarantee. This will be @2.5% of the gross amount of each running bill so that the amount so retained shall be 2.5% of the value of the work done till then. This can be released against Bank Guarantee on its accumulation to a minimum amount of Rs. 5 lakhs subject to the condition that the amount of Bank Guarantee except last one shall not be less than 5 Lakhs. This amount will be released after passing of final bills as in the case of refund of deposit.

14. The bid submitted is treated as invalid if:
    a) The bidder is found ineligible.
    b) The bidder does not upload all the documents as stipulated in the bid document.

The description of the work is as follows: Need to design, construct and Commission a 2 MLD WTP with rapid sand filter and provide the treated water as per IS specifications for potable water. The pumping arrangement from an existing Intake Well to the WTP need to be considered. After the water treatment, the pumping arrangement of the treated water to an existing Overhead tank need to be considered. All the corresponding civil/ Mechanical/ Electrical works for the WTP including the building for the Lab with toilet facilities, Compound Wall around the WTP with gate, Lightning arresters, 4m wide motorable interlock roads and 1 m pathways including paving them with cement concrete inter locking blocks, Filling with 12 mm broken stones 5 cm thick around in between spaces, Chemical Storage space, Street lighting around the WTP premise, Basic landscaping etc. should be considered. The Operation and Maintenance for 1 Year shall also be in the scope of work. The chemicals and the materials during the first three months of Operation and Maintenance period shall be in the scope of contractor and for the balance 9 months, it shall be in KINFRA's scope. The contractor needs to provide the prior chemical requirements to KINFRA after the initial 3 months of operation. The suitable provision for the backwashing also needs to be considered.

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

1. The competent authority on behalf of Managing Director, KINFRA does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids

in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.

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

3. The competent authority on behalf of Managing Director, KINFRA reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

4. The contractor shall not be permitted to bid for works if he/she is the near relative of an officer of KINFRA posted as Project Officer or Finance.

5. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of Kerala is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of Kerala in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of Kerala as aforesaid before submission of the bid or engagement in the contractor's service.

6. The bid for the works shall remain open for acceptance for a period of One hundred twenty (120) days from the date of opening of technical bid. If any bidders withdraw his bid before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of thebid which are not acceptable to KINFRA, then KINFRA shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the rebidding process of the work.

7. This notice inviting Bid shall form a part of the contract document. The successful bidders/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-

8. The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.

9. Standard KINFRA Form 7/8 or other standard KINFRA Form as applicable

10. Pre-Bid meeting shall be held at KINFRA Industrial Park, Perumbavoor on 19.01.2026 at 11:00 AM to clear the doubt of intending bidders, if any. The bidders can also attend the pre-bid meeting in online, the link will be shared with them, if they request through email kinfraitp@yahoo.in . For those who are not able to attend pre-bid meeting shall send all their queries, if any, in the above mail id on or before 19.01.2026 at 5.00 PM.The queries to be submitted at least two working days prior to the pre-bid meeting. For further clarification, the bidders may contact Mob No:- 7994534463. All clarifications for the queries of bidders, if any, will be uploaded in e- tender website as addendum.

11. For Composite Bids

i. The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the composite bid.

ii. The bidders must associate himself, with agencies of the appropriate class eligible to bid for each of the minor component individually.

iii. The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.

iv. After acceptance of the bid by competent authority, Managing Director, KINFRA shall issue letter of award. After the work is awarded, the main contractor will have to enter into one agreement with KINFRA.

v. Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.

vi. Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.

vii. The main contractor has to associate agency(s) for minor component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in-charge of minor component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in- charge of minor component(s).

viii. In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in- charge of minor component. The new agency/agencies shall also have to satisfy thelaid down eligibility criteria. In case Engineer-in- charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.

ix. The main contractor has to enter into agreement with contractor(s) associated by him for execution of minor component(s). Copy of such agreement shall be submitted to KINFRA. In case of change of associate contractor, the main contractor has to enter into agreement with the new contractor associated by him.

x. Running payment for the major& minor components shall be made by Managing Director, KINFRA

The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer-in-charge of major component after record of completion certificate of all other components

12. **Defect liability period for** all civil, electrical and mechanical works – 60 month However, the defect liability period shall be extended for the duration the works remains down during the 60 months period after commissioning. Any defect developed within 'Defect Liability Period' of Sixty months (60 Months) (to be reckon from the actual date of completion) will have to be rectified by the Contractor at their own cost and in case the Contractor does not rectify the defects, "KINFRA" or their representative shall get the work done at the risk and

cost of the Contractor

13. **Payment Terms for the Supply and Installation.**

The bidder shall submit the Payment Conditions. Format shall be available in clause No. 19. Additional Condition of Tender Document.

a) Supply, Installation and Commission of Electro Mechanical Work

i. 70% of the item value shall be released against satisfactorily supply of items, based on the payment condition. The payment shall be paid on pro-rata basis, depending on the receipt of goods at site in good condition. Payment will be made based on bills certified by KINFRA/PMC.

ii. Balance 20% of the item value shall be released after successful installation of the total item, based on the payment condition. The payment shall be paid on pro-rata basis, depending on the receipt of goods at site in good condition. Payment will be made based on bills certified by KINFRA/PMC.

iii. Balance payment of 10% will be made after completion of work and on satisfactory commissioning and trial run of 2 MLD WATER TREATMENT PLANT. Payment will be made based on bills certified by KINFRA/PMC.

b) Civil Work

(i) The payment for all physical works as per pro-rata basis as approved by KINFRA, based on the payment condition that shall be determined based on mutual agreement.

No Separate payment will be made for the reconnaissance, survey, laboratory tests, design, drawings, factory and performance tests, inspection etc. They shall be included in the rates and prices of the physical work itemize

KINFRA-7/8

KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION

Lumpsum Turnkey Tender & Contract for Works

(A) Tender for the work of :-

Design, Construction and Commissioning of 2 MLD Water Treatment Plant at KINFRA Industrial Park Perumbavoor and Operation and Maintenance for 1 Year

(i) To be submitted/ uploaded by ..... hours on.....

to...../ upload at www.etenders.kerala.gov.in

e-TENDER

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

I/We hereby tender for the execution of the work specified for KINFRA within the time specified in the NIT and in accordance with the specifications, designs, drawing and instructions in writing referred to in the subject tender and with such materials as are provided for, by, and in respect to such conditions so far as applicable.

We agree to keep the tender open for 120 days from the due date of its opening of technical bid.

A sum of Rs. 5 Lakhs has been deposited in prescribed manner as Earnest Money Deposit (EMD). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that KINFRA shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that KINFRA shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in the tender.

Further, I/We agree that in case of forfeiture of Earnest Money or Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been

got executed through another contractor on back to back basis. Further that,

if such a violation comes to the notice of KINFRA, then I/We shall be debarred for tendering in KINFRA in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

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

Date:

Signature of Contractor

Witness:
Postal Address:
Address:

Occupation:

Certificate of near relatives

DECLARATION

(To be submitted by the Contractor regarding near relatives working in KINFRA as per clause 16 of KINFRA-6)

"I…… s/o Shri……Resident of……. ……hereby certify that none of my relative(s) as defined in clause 16 of KINFRA-6 is/are employed in concerned Department of KINFRA.

In case at any stage, it is found that the information gives by me is false/incorrect, KINFRA shall have the absolute right to take any action as deemed fit without any prior information to me."

Signature of Contractor

DECLARATION

I/we hereby declare that I/we have not been Black listed, debarred/suspended by any Central/State Govt Depts/Central/State Govt PSUs, Autonomous and statutory bodies under State/Central.

Signature of Contractor

Proforma Of Schedules

(Separate Performa for Civil, Elect. & Hort. Works in case of Composite Tenders)
(Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE 'A'

Schedule of quantities (as per BOQ)

SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

Nil

SCHEDULE 'C'

Tools and plants to be hired to the contractor.

Nil

SCHEDULE 'D'

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

Nil

SCHEDULE 'E'

Reference to General Conditions of contract: uploaded in www.kinfra.org

Name of work**:** Design, Construction and Commissioning of 2 MLD Water Treatment Plant at KINFRA Industrial Park Perumbavoor and Operation and Maintenance for 1 Year

(i) Earnest money: **1 Lakhs (**to be returned after receiving performance guarantee)

a. **Performance Guarantee**, the amount collected at the time of executing contract agreement, will be 5% of the contract value (agreed PAC) and the deposit will be retained till the expiry of Defect Liability Period. At least 50% of this deposit shall be collected in the form of Treasury Fixed Deposit and the rest in the form of Bank Guarantee. The validity of BG shall be up to defects liability period plus 3 months. ***(As per G.O (P) No.32/2022/Fin dated 15/03/2022, Performance Security/ Security Deposit to be submitted at the time of***

executing the agreement is reduced from the existing rate of 5% to 3% of the contract amount for one year)

b. **Additional Performance Guarantee** will be required in all cases where quoted rate falls below 10% of the estimate cost. The 10% standard exemption will be applicable to all estimates quoted below estimate cost. If the rate quoted by the contractor is x% below estimate cost (x lies above 10% up to quoted rate) the additional performance guarantee for an amount equal to (x-10) % of the estimate amount shall be obtained from the contractor.

(ii) **Performance Security Deposit:** It is the retention amount deducted from the running bill of the contractors in addition to the Performance Guarantee. This will be @2.5% of the gross amount of each running bill so that the amount so retained shall be 2.5% of the value of the work done till then. This can be released against Bank Guarantee on its accumulation to a minimum amount of Rs. 5 lakhs subject to the condition that the amount of Bank Guarantee except last one shall not be less than Rs. 5 Lakhs. This amount will be released after passing of final bills as in the case of refund of deposit.

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS: NIT shall be read in conjunction with General conditions of contract for KINFRA (available in website www.kinfra.org)

	Officer inviting tender	: Managing Director, KINFRA
	Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with clauses 12.2 & 12.3	As per clause 12 of GCC
Definitions:		
2(vi)	Engineer-in-charge	means the Engineer officer of KINFRA who shall supervise and in-charge of work.
2(ix)	Accepting Authority	Managing Director, KINFRA
2(x)	Department	KINFRA
2(xii)	Percentage on cost of materials and labour to cover all overheads and profits	15%
2(xiii)	Standard Schedule of rates	CPWD DSR 2021 & market rate
2(xv)	Date of commencement	10th day from the date of work order or 7th day from the date of receipt of work order whichever is earlier.
Clause 1		
i)	Time allowed for submission of Performance Guarantee from the date of issue of work order	4 weeks
Clause 2		
	Authority for fixing compensation under clause 2.	Managing Director, KINFRA
Clause 2A		
	Whether Clause 2A shall be applicable	NA

Clause 5		
	Number of days from the date of issue of letter of acceptance for reckoning date of start	10 days
Milestone : As per Clause 5 of GCC (KINFRA 7/8)		
Time allowed for execution of work 18 Months from the Effective Date of Contract Authority to decide: a. Extension of time-- : Managing Director, KINFRA b. Rescheduling of milestone : Managing Director, KINFRA c. Shifting of date of start in case of delay in handing over of site--Managing Director, KINFRA		
Clause 6, 6A		
	Clause applicable - (6 or 6A)	Clause 6A
Clause 7		
	Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	Minimum 30 lakhs
Clause 11		
	Specifications to be followed for execution of work	CPWD 2009 Vol-1 & 2 for Civil with latest amendments.
Clause 12		
	Type of work:	Original work
12.2 & 12.3	Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work	As per clause 12 of General Conditions

12.5	(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items)	As per clause 12 of General Conditions
	(ii) Deviation Limit for items mentioned in earth work subhead of DSR and related items	As per clause 12 of General Conditions
Clause 16		
	Competent Authority for deciding reduced rates.	Managing Director, KINFRA
Clause 17		
	Defect Liability period including operation and maintenance for all civil, electrical and mechanical works -60 months from the date of Commissioning However, the Defect Liability Period shall be extended for the duration the Works remains down during the 60 months period after Commissioning.	
Clause 31		
	Contractor shall make his/their own arrangement for water and power required for the work and nothing extra will be paid for the same. Water if available may be supplied to the contractor by KINFRA on chargeable basis	
Clause 36(i)		
	The contractor shall provide and employ technical staffs for site supervision, quality assurance and ensuring safety. Assistant Engineers retired from Govt services who holds Diploma will be treated at par with Graduate Engineers. Diploma holder with minimum 10yr relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of Degree Engineers.	

INFORMATION REGARDING ELIGIBILITY
LETTER OF TRANSMITTAL

From:

…….

…….

…….

…….

To

MANAGING DIRECTOR
Kerala Industrial Infrastructure Development Corporation (KINFRA)
Thiruvananthapuram

Sir,

Subject: Submission of bids for the work of

Having examined the details given in Tender notice and bid document for the above work, I/we hereby submit the relevant information.

1. I/we hereby certify that all the statement made and information supplied in the enclosed forms A to H and accompanying statement are true and correct.

2. I/we have furnished all information and details necessary for eligibility and have no further pertinent information to supply.

3. I/we submit the requisite certified solvency certificate and authorize the Managing Director to approach the Bank issuing the solvency certificate to confirm the correctness thereof. I/we also authorize Managing Director to approach individuals, employers, firms and corporation to verify our competence and general reputation.

4. I/we submit the following certificates in support of our suitability, technical knowledge and capability for having successfully completed the following works:

Name of work:

Enclosures

Date of submission: **Signature(s) of Bidder(s).**

(Seal of bidder)

FORM 'A'

FINANCIAL INFORMATION

I. Financial Analysis – Details to be furnished duly supported by figures in balance sheet/ profit & loss account for the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (Copies to be attached).

Financial Year					
Annual Turnover					

(i) Gross Annual turnover on construction works.
(ii) Profit/Loss.

II. Financial arrangements for carrying out the proposed work.

III. Solvency Certificate from Bankers of the bidder in the prescribed Form "B".

Signature of Chartered Accountant with Seal **Signature of Bidder(s)**

FORM "B"

FORM OF BANKERS' CERTIFICATE FROM A SCHEDULED BANK

This is to certify that to the best of our knowledge and information that M/s./ Shri…….having marginally noted address, a customer of our bank are/is respectable and can be treated as good for any engagement upto a limit of Rs……. (Rupees… ……)

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

(Signature)
For the Bank

NOTE:

1. Bank's certificates should be on letter head of the Bank, sealed in cover addressed to tendering authority.
2. In case of partnership firm, certificate should include names of all partners as recorded with the Bank.

FORM 'C'

DETAILS OF ALL WORKS OF SIMILAR CLASS COMPLETED DURING THE LAST 7 YEARS ENDING LAST DATE OF MONTH PREVIOUS TO THE ONE WHICH THE TENDER IS PUBLISHED

Sl No	Name of work/ Project and Location	Owner of sponsoring organization	Cost of work in crores of rupees	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation/ arbitration cases pending/ in progress with	Name & address/ Tele. number of officer whom reference may be	Remarks
1	2	3	4	5	6	7	8	9	10

* Indicate gross amount claimed and amount awarded by the Arbitrator.

Signature of Bidder(s)

FORM 'D'

PROJECTS UNDER EXECUTION OR AWARDED

Sl No	Name of work/ Project and Location	Owner of sponsoring organization	Cost of work in crores of rupees	Date of commencement as per contract	Stipulated date of completion	Upto date percentage progress of work	Slow Progress if any and reasons thereof	Name & address/ Tele.number of officer whom reference may be	Remarks
1	2	3	4	5	6	7	8	9	10

Certified that the above list of works is complete and no work has been left out and that the information given is correct to my knowledge and belief.

Signature of Bidder(s)

FORM 'E'

PERFORMANCE REPORT OF WORKS REFERRED TO IN FORMS "B" & "C"

1. Name of work/project & location
2. Agreement no.
3. Estimated cost
4. Tendered cost
5. Date of start
6. Date of completion
    a. Stipulated date of completion
    b. Actual date of completion
7. Amount of compensation levied for delayed completion, if any
8. Amount of reduced rate items, if any
9. Performance Report
    a. Quality of work Very Good/Good/Fair/Poor
    b. Financial soundness Very Good/Good/Fair/Poor
    c. Technical Proficiency Very Good/Good/Fair/Poor
    d. Resourcefulness Very Good/Good/Fair/Poor
    e. General Behaviour Very Good/Good/Fair/Poor

Dated:

Executive Engineer or Equivalent

FORM "F"

STRUCTURE & ORGANISATION

1. Name & address of the bidder

2. Telephone no./Fax no.

3. Legal status of the bidder (attach copies of original document defining the legal status)

   a) An Individual

   b) A proprietary firm

   c) A firm in partnership

   d) A limited company or Corporation

4. Particulars of registration with various Government Bodies (attach attested photocopy)

Organisation/Place of registration	**RegistrationNo.**
a)	
b)	
a)	

5. Names and titles of Directors & Officers with designation to be concerned with this work.

6. Designation of individuals authorized to act for the organization

7. Was the bidder ever required to suspend construction for a period of more than six months continuously after he commenced the construction? If so, give the name of the project and reasons of suspension of work.

8. Has the bidder, or any constituent partner in case of partnership firm, ever abandoned the awarded work before its completion? If so, give name of the project and reasons for abandonment.

9. Has the bidder, or any constituent partner in case of partnership firm, ever been debarred/black listed for tendering in any organization at any time? If so, give details.

10. Has the bidder, or any constituent partner in case of partnership firm, ever been convicted by the court of law? If so, give details.

11. In which field of Civil Engineering construction the bidder has specialization and interest?

12. Any other information considered necessary but not included above.

Signature of Bidder(s)

FORM 'G'

DETAILS OF TECHNICAL & ADMINISTRATIVE PERSONNEL TO BE EMPLOYED FOR THE WORK

Sl. No.	Designation	Total Number	Number available for this work	Name	Qualification	Professional experience and details of work carried out	How these would be involved in this work	Remarks
1	2	3	4	5	6	7	8	9
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Signature of Bidder(s)

FORM 'H'

DETAILS OF CONSTRUCTION PLANT AND EQUIPMENT LIKELY TO BE USED IN CARRYING OUT THE WORK

Sl No	Name of Equipment	Nos	Capacity	Age	Conditio	Ownership status			Current Location	Remarks
						Presently owned	leased	To be purchased		
1	2	3	4	5	6	7	8	9	10	11
	Earth moving equipment									
1.	Excavators (various sizes)									
	Equipment for hoisting & lifting									
1	Tower									
2.	Builder's hoist									
	Equipment for concrete work									
1.	Concrete batching plant									
2.	Concrete pump									
3.	Concrete transit mixer									
4.	Concrete mixer (diesel)									
5.	Concrete mixer (electrical)									
6.	Needle vibrator (electrical)									
7.	Needle vibrator (petrol)									
8.	Table vibrator (elect./ petrol)									
	Equipment for building Work									
1.	Block making machine									
2.	Bar bending machine									
3.	Bar cutting machine									
4.	Wood thickness planer									
5.	Drilling machine									
6.	Circular saw machine Welding generators									

Sl No	Name of Equipment	Nos	Capacity	Age	Conditio	Ownership status			Current Location	Remarks
						Presently owned	leased	To be purchased		
1	2	3	4	5	6	7	8	9	10	11
7.	Welding transformer									
8.	Cube testing machines									
9.	M.S. Pipes									
10.	Steel shuttering									
11.	Steel scaffolding									
12.	Grinding/polishing Machines									
	Equipment for road work									
1.	Road rollers									
2.	Bitumen paver									
3.	Hot mix plant									
4.	Spreaders									
5.	Earth rammers									
6.	Vibratory road rollers									
	Equipment for Transportation									
1.	Tippers									
2.	Trucks									
	Pneumatic equipment									
1.	Air compressor (diesel)									
	De-watering equipment									
1.	Pump (diesel)									
2.	Pump (electric)									
	Power equipment									
1.	Diesel generators (Any other plant/equipment)									

Signature of Bidder(s)

FORM 'I'

INFORMATION ABOUT THE TENDERER

1. For individual Tenderers

Constitution or legal status of Tenderer
(Attach Copy)

Place of registration_____

Principal place of business_____

Power of attorney of signatory of Tender

Total value of
Works executed in the last seven years
(in Rs. Lakhs)

2. Name of contact person with designation, address, telephone, telex, fax, e-mail, etc. for correspondence/ communication.

3. Qualification and experience of key personnel proposed for administration and execution of the Contract.

Position	Name	Years of experience (general)	Years of experience in the proposed position

4. Account details of the tenderer (required in order to facilitate payments through e-payment mode):

Signature of the tenderer with date and seal

FORM 'K'

History of current litigation in which the bidder is involved

We hereby confirm that our company or group companies (if claiming fulfilment of PQC on group entity terms) is currently involved in the litigations as listed below in relation to the following:

(i) Arbitration cases pending.
(ii) Disputed incomplete works.
(iii) Pending civil cases against the firm and/or its Proprietor / Partner (s) / Director (s) involving moral turpitude in relation to business dealings.
(iv) Pending criminal cases against the firm and/or its Proprietor / Partner(s)/Director(s) involving moral turpitude in relation to business dealings.
(v) Punishments awarded under civil cases and/or criminal cases involving moral turpitude in relation to business dealings to the firm and/or its Proprietor/ Partner(s)/ Director(s).

We hereby also confirm that our company is not involved in any other litigation other than what is indicated in the table below.

Sl. No.	Date of Litigation	Nature and cause of litigation, matter of dispute	Other party/parties of the Litigation	Disputed amount (value in Rs.)	Award / Present Status

Name of the Work……

Specification No……

Signature: ……..

Name: ……..

Designation: …….

Bidder's seal with date:

Note: (i) If no such Litigations are there, then indicate – NIL
(ii) This shall be submitted separately by all the consortium members.

FORM 'L'

DETAILS OF P.F. REGISTRATION

Bidder to furnish details of Provident Fund Registration:

PF REGISTRATION NO. :

DISTRICT & STATE :

We hereby confirm that the above PF Account is under operation presently and shall be used for all PF related activities for the labour engaged by us in the present work (if awarded to us).

Name of the Work……

Specification No……

Signature: ……..

Name: ……..

Designation: …….

Bidder's seal with date:

Additional Conditions

I. All works shall be carried out at site as per CPWD Specification 2009 vol 1&2, with latest amendments.

PROFORMA FOR PRELIMINARY AGREEMENT

(To be executed on stamp paper of value Rs.200/- and submitted along with tender).

Preliminary agreement entered into on this……./ **day of**…… **Two thousand ……** between **KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION (KINFRA) SASTHAMANGALAM, THIRUVANANTHAPURAM** (Hereinafter called owner on one part and**…… …. …… ……**(name and address of the Contractor) (Hereinafter called the Contractor) on the other part for the execution of the agreement as well as the work of …… dated ……..

And whereas the notice inviting tenders it is stated as follows:

a) **Performance Guarantee**, the amount collected at the time of executing contract agreement, will be 5% of the contract value (agreed PAC) and the deposit will be retained till the expiry of Defect Liability Period. At least 50% of this deposit shall be collected in the form of Treasury Fixed Deposit and the rest in the form of Bank Guarantee. The validity of BG shall be up to defects liability period plus 3 months. ***(As per G.O (P) No.32/2022/Fin dated 15/03/2022, Performance Security/ Security Deposit to be submitted at the time of executing the agreement is reduced from the existing rate of 5% to 3% of the contract amount for one year)***

b) **Additional Performance Guarantee** will be required in all cases where quoted rate falls below 10% of the estimate cost. The 10% standard exemption will be applicable to all estimates quoted below estimate cost. If the rate quoted by the contractor is x% below estimate cost (x lies above 10% up to quoted rate) the additional performance guarantee for an ***amount*** equal to (x-10) % of the estimate amount shall be obtained from the contractor

c) **Performance Security Deposit:** It is the retention amount deducted from the running bill of the contractors in addition to the Performance Guarantee. This will be @2.5% of the gross amount of each running bill so that the amount so retained shall be 2.5% of the value of the work done till then. This can be released against Bank Guarantee on its accumulation to a minimum amount of Rs. 5 lakhs subject to the condition that the amount of Bank Guarantee except last one shall not be less than Rs. 5 Lakhs. This amount will be released after passing of final bills as in the case of refund of deposit.

If the Contractor fails to do this or fails to maintain a specified rate of progress, the EMD shall be forfeited to at Kerala Industrial Infrastructure Development Corporation (KINFRA)and fresh tenders shall be called for or the matter otherwise disposed. If as a result of such measures due to the default of the

tender to pay the requisite deposit sign contracts to take possession of the work any loss to the Kerala Industrial

Infrastructure Development Corporation (KINFRA) results, the same will be recovered from him as arrears of revenue but should it be a saving to Kerala Industrial Infrastructure Development Corporation (KINFRA)the original contractor shall have no claim whatever to the difference. Recoveries to this or any other account will be made from the sum that may be due to contractor on this or any other contracts or under the Revenue Recovery Act or otherwise as the Kerala Industrial Infrastructure Development Corporation (KINFRA)may decide.
Now therefore

these present witnesses and it is mutually agreed as follows:

1. The terms and condition for the said contract having been stipulated in the said tender form to which the contractor has agreed, a copy of which is appended, and which forms part of this agreement, it is agreed that the terms and conditions stipulated there in shall bind the parties to this agreement, except to the extent to which they are abrogated or altered by express terms and conditions herein, agreed to and in which respect the express provisions herein shall supersede those of the said tender form.

2. The Contractor hereby agree and undertake the perform and fulfill all the operation and obligations connected with the execution of the said contract work viz. – …… for Kinfra, Thiruvananthapuram .

3. If the Contractor does not come forward to execute the original agreement after the said work is awarded and letter of acceptance issued in his favour or commits breach of any of the Conditions of the Contract as stipulated in the Notice inviting Tenders as quoted above within the period stipulated, Kerala Industrial Infrastructure Development Corporation (KINFRA)may rearrange the works otherwise or get it done otherwise at the risk and cost of the contractor and the loss so sustained by Kerala Industrial Infrastructure Development Corporation (KINFRA)can be realized from the contractor under the Revenue Recovery Act as if arrears of land revenue as assessed, quantified and fixed by an adjudicating authority consisting of Kerala Industrial Infrastructure Development Corporation (KINFRA)or any other officer or officers authorised by Kerala Industrial Infrastructure Development Corporation (KINFRA)taking into consideration the prevailing rates and after giving due notice to the Contractor. The decision taken by such authorised officer or officers shall be final and conclusive and shall be binding on the contractor.

3. The contractor further agrees that any amount found due to Kerala Industrial Infrastructure Development Corporation (KINFRA) under or by virtue of this agreement shall be recoverable from the Contractor from his E.M.D. and his properties, movable and immovable as arrears of land revenue under the provision of the Revenue Recovery Act for the time being in force or in any other manner as Kerala Industrial

Infrastructure Development Corporation (KINFRA) may deem fit in this regard.

In witness where of ……......., Director, Kerala Industrial Infrastructure Development Corporation (KINFRA) and the Contractor, have set their hands on the day and year first above written, signed by Sri..... Director, Kinfra, Thiruvananthapuram.

In the presence of witness

1. .....
2. .....

Signed and delivered by Sri..... , Contractor,
in the presence of witness.

1.....
2.....

Prospective bidders willing to participate in this tender shall necessarily register themselves with e-procurement portal (www.etenders.kerala.gov.in).The tender timeline is available in the critical date section of this tender published in www.etenders.kerala.gov.in.

A). Online Bidder registration process:

Bidders should have a Class II or above Digital Signature Certificate (DSC) to be procured from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on www.cca.gov.in. Once, the DSC is obtained, bidders have to register on www.etenders.kerala.gov.in website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost.

Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471- 2577088, 2577188, 2577388 or 0484 – 2336006, 2332262 - through email: etendershelp@kerala.gov.in for assistance in this regard.

B). Online Tender Process:

The tender process shall consist of the following stages:

i) **Downloading of tender document**: Tender document will be available for free download on www.etenders.kerala.gov.in. However, tender document fees shall be payable at the time of bid submission as stipulated in this tender document.

ii) **Pre-bid meeting**: mentioned in NIT

iii) **Publishing of Corrigendum**: All corrigenda shall be published on www.etenders.kerala.gov.in and shall not be available elsewhere.

iv) **Bid submission**: Bidders have to submit their bids along with supporting documents to support their eligibility, as required in this tender document on www.etenders.kerala.gov.in.

v) **Opening of Technical Bid and Financial Bid**: The technical bid will be opened at same time mentioned in Information & instruction to the bidders. All documents in support of technical qualifications shall be submitted (online). Failure to submit the documents online will attract disqualification.

Time of opening of financial bids of qualified will be intimate later.

C). Tender Document Fees and Earnest Money Deposit (EMD)

The Bidder shall pay, a tender document fees and Earnest Money Deposit. The Bid security is required to protect the purchaser against risk of Bidder's conduct, which would warrant the forfeiture of security.

Online Payment modes: The tender document fees and EMD can be paid in the following manner through e-Payment facility provided by the e-Procurement system:

i. **State Bank of India (SBI) Internet Banking**: If a bidder has a SBT internet banking account, then, during the online bid submission process, bidder shall select SBT option and then select Internet banking option. The e-Procurement system will re-direct the bidder to SBI's internet banking page where he can enter his internet banking credentials and transfer the tender document and EMD amount.

ii. **National Electronic Fund Transfer (NEFT**)/ **Real Time Gross Settlement (RTGS):**If a bidder holds bank account in a different bank, then, during the online bid submission process, bidder shall select NEFT / RTGS option. An online remittance form would be generated, which the bidder can use for transferring amount through NEFT / RTGS either by using internet banking of his bank or visiting nearest branch of his bank. After obtaining the successful transaction receipt no., the bidder has to update the same in e-Procurement system for completing the process of bid submission. Bidder should only use the details given in the Remittance form for making a NEFT / RTGS payment otherwise payment would result in failure in e-Procurement system.

As NEFT payment status confirmation is not received by e-Procurement system on a real-time basis, bidders are advised to exercise NEFT mode of payment option at least 48 hours prior to the last date and time of bid submission to avoid any payment issues.

For RTGS the timings that the banks follow may vary depending on the customer timings of the bank branches and settlement from RBI. Bidders are advised to exercise RTGS mode of payment at least 24 hours prior to the last date and time of bid submission to avoid any payment issues.

NEFT / RTGS payment should done according to following guidelines:

i. **Single transaction for remitting Tender document fee and EMD**: Bidder should ensure that tender document fees and EMD are remitted as one single transaction.

ii. **Account number as per Remittance Form only:** Account no. entered during NEFT/RTGS remittance at any bank counter or during adding beneficiary account in Internet banking site should be the same as it appears in the remittance form generated for

that particular bid by the e-Procurement system. Bidder should ensure that tender document fees and EMD are remitted only to the account number given in the Remittance form provided by e-Procurement system for that particular tender.

Bidders must ensure that the banker inputs the Account Number (which is case sensitive) as displayed in the Remittance form. No additional information like bidder name, company name, etc. should be entered in the account no. column along with account no. for NEFT / RTGS remittance.

iii. **Only NEFT / RTGS Remittance Allowed:** Account to Account transfers, State Bank Group Transfers (GRPT), Payments from NRE Accounts, SWIFT Transfers, IMPS or Cash payments are not allowed and are treated as invalid mode of payments. Bidder must ensure that the banker does NEFT or RTGS (for above 2 lakhs payments as per RBI guidelines) transaction only and specially instruct the banks not to convert the payment type to GRPT or any other payment mode.

iv. **Amount as per Remittance form**: Bidder should ensure that the amount being remitted is neither less nor higher than the amount shown in remittance form.

v. **UTR Number:** Bidders should ensure that the remittance confirmation (UTR number) received after NEFT / RTGS transfer should be updated as it is, in the e-Procurement system for tracking the payment.

vi. **One Remittance Form per Bidder and per Bid:** The remittance form provided by e-Procurement system shall be valid for that particular bidder and bid and should not be re-used for any other tender or bid or by any other bidder.

Any transaction charges levied while using any of the above modes of online payment has be borne by the bidder. The supplier/contractor's bid will be evaluated only if payment status against bidder is showing "Success" during bid opening.

D). SUBMISSION PROCESS:

For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their Technical bid and Financial bid online on www.etenders.kerala.gov.in along with online payment of tender document fees and EMD.

For page by page instructions on bid submission process, please visit www.etenders.kerala.gov.in and click "Bidders Manual Kit" link on the home page.

It is necessary to click on "Freeze bid" link/ icon to complete the process of bid submission otherwise the bid will not get

submitted online and the same shall not be available for viewing/ opening during bid opening process.

1. All other relevant forms shall be in the format prescribed CPWD Manual.

2. All Statutory approvals both initial & final wherever necessary for the execution of work from the authorities concerned shall be obtained by Contractor at his own expense. However statutory fees will be reimbursed on submission of receipts.

3. All queries regarding the tender shall be sent to us by email kinfrapark@gmail.com within 10 days from the from the date publishing of NIT.

4. Representatives of bidders/firms participating in the pre-bid meeting shall produce authorisation from the firm.

5. Important Dates:

Publishing of NIT	:	15.01.2026
Pre-bid Meeting	:	19.01.2026
Submission of bid	:	02.02.2026
Opening of Technical bid	:	04.02.2026

****

KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION

(A Statutory Body of Govt. of Kerala)

SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract [SCC] shall supplement the General Conditions of Contract [GCC]. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC. The corresponding clause number of the GCC is indicated in parentheses

1. Definitions [GCC Clause 1]

1.1 **Client**

Kerala Industrial Infrastructure Development Corporation (KINFRA)
KINFRA HOUSE, TC 31/2312,
Sasthamangalam, Thiruvananthapuram -695 010, India
Tel: 0471-2726585| **Fax**: 0471-2724773
Email: kinfraannexe@gmail.com

1.2 **Contractor**

M/s._____

_____

(*[Name and address)*

Telephone No._____

e-mail _____

Facsimile No. _____

2. Notices

2.1 **Client**

Kerala Industrial Infrastructure Development Corporation
(KINFRA)
KINFRA HOUSE, TC 31/2312,
Sasthamangalam, Thiruvananthapuram -695 010, India
Tel: 0471-2726585, Fax: 0471-2724773
Email: kinfraannexe@gmail.com

2.2 **Contractor's Address for Notice** purposes

M/s. _____

_____

_____

_____

[*Name and address*]

Telephone No. _____

e-mail _____Facsimile No. _____

3.0 **Transportation by Wagons**

The destination for consignments to be despatched by wagons by the Contractor shall be as under:

KINFRA Industrial Park, Perumbavoor

A. Cement

i. Cement required for the works should be procured by the contractor.

Unless otherwise specified or called for by the owner cement shall be ordinary Portland cement in 50 Kg. bags. Changing brand or type of cement within the same structure will not be permitted.

ii. A certified report attesting to the conformity of the cement to BIS specifications by the cement manufacturer shall be furnished to the Consultants. If demanded.

iii. Contractor will have to make his own arrangements for storage of adequate quantity of cement.

iv. The site engineer shall be regularly notified when supplies of cement are made to the site store. Copies of invoices shall be made available to the site engineer and a common cement register shall be kept at his office showing the supply stock and issue on a daily basis.

B. Steel

i. All the requirement of reinforcing steel bars shall be supplied by the contractor. The reinforcement bars shall conform to BIS 1139 in the case of medium tensile steel deformed bars and to BIS 1786 in the case of cold twisted steel bars.

ii. All steel shall be of Fe 500 grade quality unless specifically permitted by the Consultants. No rerolled material will be accepted.

iii. The reinforcing steel work will be measured and paid by measuring the lengths of reinforcing steel rods actually placed and embedded in concrete and weights calculated at the following unit rates for different diameters.

6mm dia	-	0.22 kg/m.
8mm dia	-	0.39 kg/m.
10mm dia	-	0.60 kg/m.
12mm dia	-	0.89 kg/m.
16mm dia	-	1.60 kg/m.
20mm dia	-	2.46 kg/m.
25mm dia	-	3.85 kg/m.
32mm dia	-	6.31 kg/m.

All wastage and other losses will be on contractors account.

iv. The site engineer shall be regularly notified when supplies of steel are made to the site. Copies of invoices shall be made available to the site engineer and a common stock register of steel materials shall be kept in his office.

C. Pipes, Specials, Valves, etc.

i. All the pipes, specials and valves shall be ISI marked. Latest ISI Certification of the manufacturer should also be provided for verification.

D. Pumps, blower and other mechanical equipments

Contractor shall submit 4 sets of detailed data sheet with specification, literature, drawings, etc. duly signed by the manufacturer and the contractor and got approved from KINFRA/Consultant before the procurement.

E. Other Materials

i. All other materials required for the work is also to be procured by the contractors. All materials that are brought to site for use in the work shall conform to the relevant BIS specification.

ii. All materials to be used in the works shall have the specific approval of the site engineer as to its quality and grade. If any batch of materials are found unacceptable and rejected by the engineer the same shall be removed from the site without demure.

iii. In the event where there are no standard specification for any materials, the Judgement of the site engineer will be final as to it quality for incorporating the same in the works.

6. Scope of Work of the Contractor
In addition to GCC 10A (Materials to be provided by the Contractor) as follows:

6.1 Scope of Supplies and Services

Unless otherwise expressly limited in the Technical Specifications, the Contractor's obligation cover design & engineering; civil engineering work; dismantling, if any, of existing building, structures & equipment; modification / diversion, if any, of utility / services; fabrication & supply of steel structures; manufacture (including associated purchases and / or supply of plant & equipment ; inland transportation; intermediate storage; insurance & handling; erection work; testing; pre-commissioning; start-up & commissioning and demonstration & establishment of performance guarantee parameters of the Works as detailed hereafter and operation & maintenance in accordance with the plans, specifications, drawings, codes and any other documents as specified in the Technical Specifications.

The Contractor shall, unless specifically excluded in the Contract, perform all such work and / or supply all such items and materials not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining

Completion of the works (within the Battery limits as defined in the Technical Specification) as if such work and / or items and materials were expressly mentioned in the Contract without any extra cost to Employer.

6.2 Design, Drawings & Technical Documents

The Contractor shall be responsible for supply of all the detailed design, drawings and technical documents & information in respect of the plant & equipment as per Appendix 2 to Contract Agreement & commissioning spares. The Contractor shall deliver the design, drawing, technical documents & information, to KINFRA.

6.3 Dismantling & Demolition of Existing Building, Structures, Plant & Equipment (As specified in Technical Specifications)

The Contractor shall be responsible for carrying out dismantling / demolition of necessary existing buildings and structures including foundations, covered works and plant & equipment and stacking and expeditious removal of the debris to the dumping ground to be specified by KINFRA within a distance of 10 km from the site.

6.4 Supply of Plant & Equipment, Structures, Commissioning Spares, Operation & Maintenance Spares, Initial Fills, reagents & Lubricants and Special Tools & Tackles

6.4.1 Plant and Equipment

The Contractor shall be responsible for supply of plant & equipment as described in the Technical Specifications and Drawings/documents.

6.4.2 Commissioning Spares

The Contractor shall, within the Contract Price, supply adequate commissioning spares required during Start up and commissioning along with the plant & equipment mentioned in Clause 6.4.1, hereof.

Should the commissioning spares found to be inadequate, the Contractor shall supply without any extra cost to KINFRA, additional required commissioning spares within the time schedule to ensure successful commissioning of the Works.

6.4.3 Initial Fill and Consumables, chemicals etc.

The Contractor shall supply along with the Plant & Equipment the Initial Fill and Consumables, chemicals required for the initial fill including flushing liquor and chemicals, well in advance, for commissioning of the Works.

6.4.4 Special Tools & Tackles

The Contractor shall supply along with the Plant & Equipment special tools & tackles, instruments and appliances which will be required for erection, commissioning, operation and maintenance of the plant and equipment. The Contractor shall provide ordering specification including the names of suppliers giving sufficient details to enable KINFRA to procure such special tools, tackles, instruments and appliances, at a later date when necessary, after completion of the operation and maintenance period.

6.5 Civil Engineering Work (As specified in Technical Specifications)

Unless otherwise expressly limited and/or excluded elsewhere in the Contract from Contractor's scope, the Contractor shall be responsible for the construction of all civil foundation for structures and equipment, construction of super structures, buildings and all other connected civil construction works included in the scope of work as per Technical Specifications.

It is presumed that the Contractor has already inspected the site and satisfied itself about the actual site conditions and has collected any other information which may be required by the Contractor. All necessary soil tests over and above those carried out by KINFRA are to be undertaken by the Contractor and no extra claim on this account shall be admitted.

The Contractor shall be held responsible for proper performance for buildings and structures including all other civil, electrical and mechanical work for a period of 60 months after commissioning of the plant and equipment. Any defect found during this period will be made good by the Contractor at its own cost failing which KINFRA reserves the right to take remedial measures at the Contractor's risk and cost.

6.6 Scope of work for Erection of Structures, Plant & Equipment

The scope of work of the Contractor amongst others, shall be complete erection of the Plant and Equipment, steel structures, etc., as given in the Technical Specifications.

The Contractor shall intimate KINFRA in writing well in advance about the requirement of shut down of any of the existing units / works for inter-connection / incorporation of additional works. The shutdown period shall be mutually discussed and finalised. The work to be undertaken during the shut down period shall be planned meticulously by the Contractor to reduce the shut down period to the minimum.

The Contactor shall use permanent pipe and clamps scaffolding for working at heights.

6.7 Technical Services

Technical Services to be provided by the Contractor shall include the following amongst others:

a) Raw material testing

b) Basic design, layout, engineering & drawings.

c) Detailed design, layout, engineering & drawings.

d) Drawings / data for carrying out Plant Engineering and detailed design/ drawings of civil, structural, mechanical, electrical and other services.

e) Technical services relating to planning, procurement, manufacturing, inspection, expediting, packing, shipping, storage, etc.

f) Supervision of civil & structural engineering work & erection work including specialised erection services.

g) Technical consultation / liaison / guidance relating to detail design and plant engineering by Contractor's, Coordination relating to site work and other engineering work, feedback data and information to KINFRA / Consultant for the Contractor's scope of supply and services.

h) Project Management Services including co-ordination relating to customs clearance, transportation, insurance, claim settlement, inspection of supplies, construction planning and scheduling, erection planning, field construction engineering, trial runs, start up, commissioning and performance guarantee tests.

i) Quality control and adherence to time schedule, control of site work and other Indian works.

j) The Contractor shall assist by providing necessary drawing and documents required by statutory and/or other concerned authorities.

k) Post Commissioning services in accordance with terms and conditions stipulated under the Contract.

6.8 Training of Employer's Personnel

The Contractor shall arrange to impart on-site training to KINFRA's personnel during the defect liability period for operation of the plant

and equipment under the Contractor's scope of supply. KINFRA's operators shall be appointed during the defect liability period, at their own expense so that they may get experience in operation and of the plant of the entire period of one year. The plant and equipment shall be operated by such operators after the defect liability period.

6.9 Commissioning and Demonstration of Performance Guarantee

Commissioning and demonstration of performance guarantee test shall be conducted as per the Technical Specification.

The Contractor guarantees the equipment for its workmanship, materials, design and satisfactory performance in accordance with the relevant specifications & provisions of this Contract. The guarantee for performance includes individual items and systems for the ratings/output as well as for the integrated operation of the Plant. The Contractor's responsibility under this guarantee shall not in any way be reduced, diminished or absolved for any reason whatsoever in respect of supplies, materials and equipment not manufactured by the Contractor. The Contractor, upon successful commissioning of each equipment /system will conduct performance guarantee tests to demonstrate the integrated operation of all equipment / systems.

The details of the performance guarantee tests, test procedures, test schedules, for the demonstration of the performance guarantees shall be submitted to KINFRA which will be mutually agreed upon. Any subsequent deviation / modification in the agreed schedule, if considered necessary, at a later date shall be mutually discussed and agreed upon.

After commencing a test, it shall be completed unless in the opinion of either KINFRA or the Contractor a safety hazard exists which necessitates shutdown.

6.10 Operation and Maintenance services during Defect Liability Period

The Contractor shall provide operation and maintenance services for the plant and equipment during the defect liability period of 60 months from the date of Commissioning.

The Contractor shall maintain the plant on their own cost and no additional cost shall be paid to them for spares.

All necessary and incidental charges for providing operation and maintenance personnel during the defect liability period shall be borne by the Contractor. During this operation and maintenance tenure, KINFRA shall provide power supply and the raw water.

During the defect liability period, the Contractor shall perform the following services and obligations in accordance with the terms of this Agreement;

a) operate and maintain the works and deliver drinking water as per the Technical Specification.

b) deploy the requisite number of trained and experienced personnel as is considered necessary to perform the Operation and Maintenance services;

c) maintain and make necessary repairs to the plant and equipment in accordance with the provisions of this Agreement;

d) contractor shall provide consumable like alum, lime, other chemicals for a period of 3 Months after which the chemicals shall be provided by the client upon prior request to KINFRA . No spares shall be provided by the client during the initial 3 month period. The Electric power for the plant operations shall be the client's scope.

e) keep accurate and complete records of operating data and activity, and make them available to KINFRA, whenever required by KINFRA.

7. Commissioning and demonstration of Performance Guarantee Test

The commissioning and the demonstration of performance guarantee test shall be conducted as per the Technical Specification.

8. Compensation for Non-fulfillment of the Performance Guarantee parameters

Sl. No.	Guarantee parameter	Guaranteed value	Acceptable Tolerance Limit	Compensation within Tolerance Limit *(in absolute figures)*	Note
					Remarks: **Case 1.** **Case 2.**
					(to use as
					applicable)

Note:

Case 1: The plant will be rejected as per stipulations given in the

General Conditions of Contract, if the results of the performance tests are beyond/below the acceptable tolerance limits, as the case may be.

Case 2: The plant will be rejected as per stipulations given in the General Conditions of Contract, if the results of the performance tests are beyond/below the guaranteed value, as the case may be.

The compensation for non-fulfilment of the Performance Guarantee parameters/values within tolerance limits for reasons not attributable to KINFRA is limited to 5% (Five per cent of only) of the Contract Price.

9. Outage of plant and equipment (During defect liability period and maintenance period)

9.1 Scheduled Outage

The Contractor shall be eligible for scheduled outage of the works during defect liability period (as per clause 6.10 above) above for annual maintenance/checkup and repairs of the plant and equipment, allowed by KINFRA in accordance with this Contract. The scheduled outage shall be 10 days per year. Unused portion of the scheduled outage will not be carried over to the next accounting year.

The Contractor shall arrange its scheduled repair as per the mutual agreement with KINFRA.

9.2 Compensation for down time of plant and equipment

During Operation and Maintenance period (as per clause 6.10 above) above, in the event the plant and equipment is not producing the required output as per the stipulated quantity and quality, over and above the permitted scheduled outage, for reasons not attributable to KINFRA, compensation shall be levied on the Contractor as detailed below.

Sl. No.	Down time of Plant and Equipment/Production of drinking water	Compensation
01		
02		
03		
04		
05		

10. CLAUSE 25 (Settlement of Disputes & Arbitration) shall be amended as follows:

Any dispute or difference arising between the parties hereto in respect of any aspect of this Agreement or the interpretation construction or effect of the terms and condition of the Agreement shall be first settled mutually by negotiations between the parties. In case no settlement is reached, such dispute or difference shall be referred to a Sole Arbitrator if both the parties agree upon the same. Should the parties not agree to the appointment of a Sole Arbitrator, each party shall appoint its own Arbitrator and the two Arbitrators so appointed by the parties shall, before entering upon the reference, appoint the third Arbitrator who shall act as the presiding Arbitrator. The arbitration proceedings shall be conducted and governed by the Arbitration and Conciliation Act, 1996 in conjunction with Arbitration and Conciliation Act. [Amendment] 2015 and amendment made thereof. The language of the arbitration shall be English and the place of arbitration shall only be Thiruvananthapuram, Kerala.

The Award made by the Arbitral Tribunal shall become final and binding upon the parties and shall be enforced in accordance with applicable provisions of the Arbitration and Conciliation Act, 1996 in conjunction with Arbitration and Conciliation Act [Amendment] 2015 and any subsequent amendment made thereof.

APPENDIX – 2

TIME SCHEDULE

1.0 Time Schedule for Completion of the Works

The Works will be commissioned within Eighteen (18) months from the effective date of the Contract as per **Article-5** of the Contract Agreement. The overall time schedule for completion of the Works is given below:

Sl. No.	Items of Work	Commencement (No. of Month from Effective Date)	Completion (No. of Month from Effective Date)
1.	Basic Engineering		
2.	Detailed Design Engineering		
3.	Civil Work		
4.	Supply / Delivery of:		
	i) Building Steel Structures & Sheeting		
	ii) Mechanical Plant & Equipment including Technological Structures		
	iii) Electrical Plant & Equipment:		
5.	Erection of Building Steel Structures & Sheeting:		
6.	Erection:		
	i) Mechanical Plant & Equipment		
	ii) Electrical Plant & Equipment		
7.	Startup & Commissioning		
8.	Performance Guarantee Test		

2.0 Time Schedule for Feed back Data, Drawings and Documents

2.1 Within _____weeks from the Effective Date of Contract, the Contractor shall submit to the Engineer/ Consultant preliminary list of all drawings and documents (with 3D model for assembly and sub-assembly drawings) by title using the approved numbering system and indicating the schedule of submission of drawings in conformity with the time schedule given in Clause 2.2 and 2.3 hereof. This list shall be updated and submitted by the Contractor at the end of every quarter of the year.

2.2 **Drawing / Documents for Approval**

2.2.1 The Contractor shall submit the various drawings and documents (with 3D model for assembly and sub-assembly drawings) to the Engineer / Consultant for approval, as per Technical Specification.

2.2.2 After approval by KINFRA / Consultant, the Contractor shall submit approved drawings and documents in 5 copies, to KINFRA.

2.3 **Drawings / Documents for Information / Review**

2.3.1 The Contractor shall submit to the Engineer / Consultant for information / review of the drawings and documents (with 3D model for assembly and sub-assembly drawings) as per Technical Specification.

2.3.2 After "no comment" clearance by the Engineer / Consultant, the Contractor shall submit the final drawings and documents in 5 copies, to KINFRA.

2.4 **As-Built Drawings and Documents**

2.4.1 The Contractor shall submit As-built drawings & documents (with 3D model for assembly and sub-assembly drawings) after Performance Guarantee Test, but before release of payment for PG Test certificate, as per the Schedule given below:

Sl. No.	Description	No. of Copies	Time of Submission in weeks from the Effective Date of Contract
1.	Classified Drawing List as per Technical Specification		
2.	Performance data		
3.	Test charts and inspection certificates in bound volumes		
4.	Operation and safety manuals		
5.	Maintenance manuals		
6.	List of spares (Operation, Maintenance)		
7.	Drawings & bill of materials for Operation & Maintenance Spares		
8.	Ordering Specifications including catalogues & details for Operation & Maintenance Spares		
9.	Drawings / ordering specifications for operating consumables / supplies		

Sl. No.	Description	No. of Copies	Time of Submission in weeks from the Effective Date of Contract
10.	One set of all documents as listed above, in Pen drive		

2.5 Equipment drawings and Erection Instructions drawings for the Plant and Equipment shall be supplied by the Contractor at least one month before the shipment / despatch of the Plant & Equipment.

2.6 Construction Management Manual: The successful Tenderer shall submit for Employer's review and approval a Construction Management Manual indicating the Contractor's organizational set up and responsibilities of various agencies.

APPENDIX - 3

TERMS OF PAYMENT

1. General

1.1 KINFRA shall pay the Contractor for the Scope of Works detailed under Clause 6 of SCC & Technical Specifications.

1.2 The Contractor shall reimburse KINFRA all costs, charges, damages or expenses which KINFRA may have paid or incurred, if and to the extent to which the Contractor is liable under this Contract to pay upon written request of the Engineer, failing which such costs, charges, damages or expenses shall be deducted by KINFRA from any money due or becoming due by KINFRA to the Contractor under this Contract or any other Contract failing which such amounts shall be considered as debt from the Contractor to KINFRA and shall be recoverable accordingly.

2. Terms of Payment-

2.1.1.1 The bidder shall submit the Payment Conditions. Format shall be available in clause No. 19 Additional Condition of Tender Document

2.1.1.2 Supply, Installation and Commission of Mechanical Work

- 70% of the item value shall be released against satisfactorily supply of items, based on the payment condition. The payment shall be paid on pro-rata basis, depending on the receipt of goods at site in good condition. Payment will be made based on bills certified by KINFRA/PMC.
- Balance 20% of the item value shall be released after successful installation of the total item, based on the payment condition. The payment shall be paid on pro-rata basis, depending on the receipt of goods at site in good condition. Payment will be made based on bills certified by KINFRA/PMC.
- Balance payment of 10% will be made after completion of work and on satisfactory commissioning and trial run of PLANT. Payment will be made based on bills certified by KINFRA/PMC.
- Civil Works
- The payment for all physical works as per pro-rata basis as approved by KINFRA, based on the payment condition.
- No Separate payment will be made for the reconnaissance, survey, laboratory tests, design, drawings, factory and performance tests, inspection etc. They shall be included in the rates and prices of the physical work itemized.
- All interim / progress payments shall be regarded as payments by way of advance against the final payment only and not as payment for work completed and shall not preclude defective / imperfect / incomplete Works to be removed. It will not be considered as an admission by KINFRA of the due performance of the Contract or any part thereof by the Contractor nor shall it

preclude, determine or affect in any way the powers of KINFRA under these conditions or in any way vary or affect the Contract.

2.1.2 Balance Twenty Percent (20%) of the contract price of Part A shall be released after successful installations of items. The payment under this clause shall be released on submission of following documents.

a. Contractors's invoice
b. Certificate for Consultant and KINFRA for completion of erection.

2.1.3 Balance Ten Percent (10%) will be made after the completion of work and on satisfactory commissioning of the project

2.2 Civil Works

90% on measured civil works. Balance 10% to be released after completion and commissioning of the Project.

KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION (KINFRA)

(A statutory body of Govt of Kerala)

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TECHNICAL SPECIFICATIONS

LIST OF ANNEXURES

Design, approval, Construction, trail run, commissioning and maintaining of conventional WTP of output capacity 2.0 MLD and allied works at KINFRA industrial Park at Perumbavoor.

1. Introduction

Since Periyar River flowing along the western boundary of the project land, a new water supply scheme is being proposed to the Project area with Periyar River as the water source. It is observed that Raw water from the River cannot be used as such as potable water, due to the merging of nearby ground water or water from any other natural water bodies into the River causing variations in the characteristics of river water, salt intrusion etc made it unfit for drinking purposes. Hence it was proposed to construct a new water treatment plant and the scope of this bid is Design, approval, Construction, trail run, commissioning and maintaining of conventional WTP of output designed capacity.

The treated water shall be conforming to the IS specifications for potable water.

2. Scope of Work:

A. Civil works

a) Preparation of site including leveling to finished yard level (approval by KINFRA).

b) Cascade Aerator

c) Flash Mixer

d) Clariflocculator

e) Chemical House

f) Filter House

g) Wash Water Tank

h) Clearwater reservoir

i) Laboratory

j) Chlorination room

k) All closed or open channels or conduits connecting various units, with pipes, valves, specials, fittings, etc. specifically in the case of under drainage system of the filter unit.

l) All drains and manholes for collection and disposal of sludge from clarifier and wash water from the filters, etc. within the boundaries of the site, for final disposal to the nearest water course.

m) Necessary by-pass arrangement for allowing (i) the raw water direct into the clear water sump, (ii) for allowing raw water after aeration direct into the filter bed and (iii) for allowing clarified water direct into clear water sump; in all cases access to gas chlorination should be provided.

n) Toilet block

o)Compound wall and gate

p) Landscaping as per drawing and forming 4m wide motorable roads and 1 m pathways including paving them with cement concrete inter locking blocks.

q) Filling with 12 mm broken stones 5 cm thick around and in between space.

r) Lightning arresters wherever necessary as per I.S.S. and other relevant rules should be provided.

s) Suitable provision for the backwashing of the WTP.

B. Mechanical Works:

The Mechanical works shall include

a) Supply and erection of all mechanical equipment for the raw water measuring devices, integrators and automatic recording.

b) Supply and erection of necessary mechanical equipment for dosing of the chemicals or their solution in the chemical house.

c) Supply and erection of necessary mechanical equipment for mixing of the chemicals in the mixing chambers.

d) Supply and erection of necessary mechanical equipment for the flash mixers and flocculators.

e) Supply and erection of necessary mechanical equipment for the clarifiers.

f) Supply and erection of necessary mechanical equipment required for the under-drainage system of the filters, washing of filters, rate-setters, filter rate controllers, filter flow gauges, loss of head indicators, wash water controllers and indicators, filter media, all necessary piping and valves, etc.

g) Suitable arrangements for the supply and erection of chlorinators in the chlorinator room and feeding of the solution to the water.

h) Supply and erection of all mechanical equipment for proper washing of filter including blower, motor and pump and accessories for lifting the water to the wash tank.

i) Supply and erection of all mechanical equipment for the wash tank such as inlet, outlet and overflow pipes and control valves, water level gauges, overflow pipes and control valves, ventilators, scour arrangements, ladders for access to tank-top, manholes, and ladders with side railings for access to the inside of the tank, etc. including pumping arrangements.

j) Supply and erection of pipes, specials, valves, etc.

k) Supply and erection of all scientific and mechanical equipment for the proper functioning of the laboratory and also supply of chemicals and other consumable stores for analysis for a period of at least six months.

l) Necessary spares for all electrical/mechanical equipment for two years normal wear and tear.

m) Supply and erection of two numbers pure water pumping system with all accessories.

C. Electrical Works

The electrical works shall include supply and erection including necessary wiring of all electrical equipment like electric motors, etc. accessories like starters, switches, meters, switch boards, etc. and other appurtenances if any, required for the satisfactory functioning of the plant. Electrification of all the buildings for the proper operation of the plant should also be provided, and in conformity with IE rules prevalent. The inside wiring shall be concealed beautifully and easily repairable. Sufficient numbers of weather proof street lights shall be provided for the buildings and yard around.

D Miscellaneous Works

Water supply and sanitary installations to the building shall be provided attached with the filter house, chemical house, etc.

E Laboratory Equipment

Laboratory equipment include PH metre, Turbidity meter, Residual chlorine test kit, analytical balance and jar testing arrangements and shall be supplied with necessary furniture, working platform, 2 numbers SS Sink of minimum 1.2 m x 0.60 m. etc.

F Fire Fighting System and First Aid Kit

fire extinguishers are to be provided as per the specification standards need to be provided wherever necessary and first aid kits to be provided

3. SITE

1. Contractor to satisfy himself about site conditions: The Contractor ensures that before submitting bids for the Work the ContractorhasvisitedtheSiteandsatisfiedhimselfabouttheSiteconditionsforconstructionandforlogisticsandsmoothflowofworkmenandmaterials as well as permission from Authorities for this purpose. The Contractor has examined the Site and taken note of character of the soil and of the excavations, the correct dimensions of the Work, and facilities for obtaining any special articles called for in the Contract Documents.TheContractorhasalsomadeitsownassessmentandobtainedallinformation on the Site constraints and on all matters that will affect the execution, continuation and progress, and completion of the Works. Any extra claims or extension of time made in consequence of any misunderstanding, incorrect information on any of these points or on the grounds of insufficient description or information shall not be entertained or allowed at any stage.

2. It will be the responsibility of the Contractor to obtain necessary land for stacking the materials and establishing plants and equipments for carrying out the work ,if the specified site of work is of less extents.

3. In the case of any delay in shifting the utility services like Telephone posts, Electric posts, Electric overhead line and cables, water lines etc. by the utility Department, the Employer shall not in any way be liable to pay damages on account of this delay, instead a proportionate extension of time for completion of work will be granted in deserving cases on application by the Contractor.

4. Access to site by the contractor: The access to the Site will be shown immediately on award of the Contract to the Contractor as applicable. The Contractor shall upon being given such access commence the Work and diligently proceed with the execution of the Work in accordance with the

Contract Documents. Access to the Site by the Contractor shall be merely a licence for carrying out the construction of the Work under the Contract, and the Contractor shall not by his being allowed such entry on the Site, acquire any right, lienor interest either in the Work carried out by him under the Contract or anything appurtenant or attached thereto or to any part of the Site, and his claim will only be in the nature of money found due and payable to him in accordance with the certificates issued by the Engineer-in-charge under the provisions contained herein. The Work shall be free from allliens ,charges or claims of whatsoever nature from any party other than the Engineer-in-charge. The Engineer-in-charge shall have a lien over all work performed by the Contractor, Sub-Contractors and Vendors and also for the materials and equipment brought on Site by them.

5. Treasures, Antiquities found are property of Employer: All fossils ,antiquities and other objects of interest or value, which may be found on the Site at the commencement or during the progress of the Work, shall be the property of the Employer. The Contractor shall carefully take out and preserve all such fossils, antiquities and objects and shall immediately deliver the same in their discovered state into the possession of the Employer.

6. The Department does not undertake to construct or make available any approach road or other means of approach to the proposed work site and the Contractor shall get acquainted with the available means of approaches to the proposed site and quote for the various items. The Department shall not be liable for any claim raised later on the plea of non-availability or non-access to the site.

4. 2.00 MLD Water Treatment Plant

The scope of the work include the design, construction, testing trial run and commissioning of the newly proposed 2.0 MLD water Treatment Plant treatment units - Aerator, Raw water channel and clear water channel, Flash mixer, Alum and Lime solutions tanks and Building, Clariflocculator, Filter unit, Back Wash water Tank, Chemical House, Chlorine feeding room, Clear water sump, Clear Water Pump House including all connected electrical adhering EI norms and mechanical installation all as per IS specifications and CPHEEO manual for water supply 2023.

Adequate provision shall be made in the civil engineering works for laboratory, office buildings, administration area, sanitary facilities, water supply, etc. The area requirement of these ancillary requirements shall be stipulated. Roadways with adequate lighting shall be provided. Adequate ladders or steps and handrails, where required, shall be provided for easy access to each unit of the treatment plant and wherever necessary, walkways should be provided. Interconnecting facilities shall be provided to enable the operator to move freely for maintenance and operation of the plant.

Hydraulic Design of all components shall be done as per the norms and conditions of CPHEEO Manual of latest version.

All water retaining structures shall be designed in conformity with latest version of IS: 3370 (Part 1,2,3 and 4) while the other structures shall be designed according to IS 456 (2000, reaffirmed 2005/ latest version).

Construction of Compound wall for WTP Site with gate need to be considered.

1. Aerator

Cascade aerator of suitable diameter shall be provided with central inlet with bell mouth opening at top and circumferential outlet constructed in RCC (minimum M30 mix) with good architectural appearance.

From top water is allowed to flow downwards to pass through a series of steps with designed tread and rise for each step. The aerator structure should be designed for 20% overloading. Velocity of flow of water through the aerator is 0.3 m/sec to 1.2 m/sec. The loading rate should be between 0.015-0.045 m2 /m3 /hr. The inflow pipe should be minimum internal diameter. The aerator shall be with collecting lauder and minimum 5 numbers of trays (excluding collection tray) and the maximum rise of tray shall be 25 cm. and the 'tread' to 'rise' ratio of cascades needs to be more than two.

Aerator shall be with necessary scouring arrangements with a control valve and leading pipe to the waste disposal system. The trays and troughs of aerator, where water flows may be covered with 10mm thick acid/Alkali resistant tiles of approved make and colour using acid/Alkali resistant mortar bedding and joint filled with acid /Alkali resisting cement as per IS 4457. The contractor has to provide one number of DI K9 pipe after the bottom CI/DI duck foot bend at intake pipe of aerator. From outlet, the water will flow to flow measurement unit through RCC Channel.

2. Raw water Channel

The raw water from aerator shall be led to flash mixer through an RCC channel of M30 with adequate capacity for carrying raw water. The channels shall have freeboard of minimum 15 cm above the flow. The channels shall have easy walkway over them with precast slab covers or separate walkway of minimum110cm width with GI handrails for inspection and cleaning. Measurement of flow of raw water shall be done by float operated weatherproof pedestal type open channel transmitter with level indicator completes with initial fitting of mercury resistance arrangement. Suitable sized float of suitable materials with non-corrodible float recording counter weight etc. and all necessary accessories shall be provided to measure discharge upto 2.50 MLD. Necessary chart required for a period of 6 months should be supplied free of cost. The meter if power operated shall automatically switch on to battery operation in case of power failures. The meter shall be suitably covered and roofed over to protect it from rain and sun.

A notch of suitable shape and size shall be provided in the raw water channel to measure manually the quantity of inflow to the plant. The raw water channel may have a flume of adequate length to give a steady and uniform flow over the weir. A suitable calibrated scale shall be provided near the notch to measure the quantity of flow manually.

3. Chemical House

Adequate facilities shall be provided for the storage of chemicals required for the treatment of water for period of 3 months, calculating the requirements on the basis of worst conditions of raw water. Facilities for weighing the chemicals before feeding into the solution tanks and convenient means for lifting the chemicals from the stores to the Alum and lime solution tanks shall be provided.

For storing chemicals, the floor area should be a minimum of 20 m2 with separate area ear-marked for each

chemicals. Flooring of the chemical house shall be with 100 mm thick PCC 1:3:6 and over with granite stone tiles of 12mm thick with water absorption less than 0.08%. Size of tile should not be less than 500 X 500 mm Solution feeding shall be adopted for chemical feeds.

There should be at least two tanks for each chemical feed. The capacity of each tank shall be such as to hold 8 hours requirements at the maximum demand of chemical at the design flow. Dissolving trays or boxes and also facilities for draining the solution shall be provided. The solution tank shall be located as near as possible to the chemical storage godown. These tanks shall be located at a suitable elevation to facilitate gravity feed of the chemical solution. A mechanical lifting arrangement for lifting the chemicals to the solution tanks should be provided. Arrangements for continuous mechanical agitation with adequate capacity for the solution in the tank shall be provided. All the pipeline, valves, specials etc.in contact with chemicals should be made with corrosion resistant materials. Necessary solution level indicators shall be provided for the tanks. The solution feeding equipments shall be capable of automatically adjusting the quantity of solution feed according to the quantity and quality of raw water flow. Also the feeding equipment shall be capable of feeding the solution at desired rates continuously and accurately irrespective of the level of solution inside the tanks.

Adequate doors, ventilators and windows shall be provided in the chemical house to admit sufficient natural light. All the windows ventilators and doors shall be of aluminium. Windows of size 1.8m x 1.5 m, ventilators of size 0.9m x 0.6 m and doors of size1.2 mx2.1m shall be provided for chemical house.

The solution tanks, dissolving trays or boxes shall be designed according to Manual of water supply and treatment of CPHEEO. The solution tank shall be located at a suitable elevation to facilitate gravity feed of the chemical solution. The tanks of alum should be given coating with bituminous paint and tanks for lime and bleaching powder should be lined with PVC to avoid corrosion.

Necessary mechanical lifting arrangement for lifting the chemicals from chemical store to the solution tanks shall be provided. Each tank should have a platform of minimum width 75 cm in front of tank. There should be a platform around the opening of lifting arrangements. The height of top of solution tank from the platform should be less than 100cm. The platform should be provided with stainless steel hand railings. Minimum clear head room of 200 cm should be available from the platform to ceiling. Tanks should be provided with local level indicators with graduations visible from a distance of 300 cm Chemical feeding room in the first floor shall be provided with not less than 2 Nos. of exhaust fan of 45 cm sweep.

4. Rapid mixing

For the flash mixer a minimum detention time of 60 seconds shall be provided. Necessary mechanical equipment for rapid mixing should be provided. Isolation of the flash mixers from aerator–flocculator channels shall be made possible by suitable watertight sluicegates.

5. Coagulation and Flocculation

In this plant, treatment units for flocculation and sedimentation processes are to be effectively incorporated in

a single unit as clariflocculator. The unit has concentric circular flocculation zone at the centre and annular or peripheral clarification zone.

The design of the clariflocculator shall be confirming to the norms and conditions in the CPHEEO Manual for water supply (latest version). This unit shall be designed such that the coagulated water enters into flocculation zone through the central shaft at the top. The velocity in the central shaft and that through outlet ports is restricted to 0.60 m/s. The surface loading shall be in the range of 30-40m3/m2/day. The detention time shall be 2 to 2.5 hours.

The flocculator wall is supported on the equidistance columns. The flocculated water passes out from the bottom of the flocculation tank to the clarifying zone through the wide openings in between the supporting columns. The area of the opening being large enough to maintain a very low velocity (not more than 0.3m per minute). Under quiescent conditions in the annular settling zone the floc embedding the suspended particles settle to the bottom and the clear effluent overflows into the peripheral launder. The sludge which settles down to the bottom is continuously swept towards the central sludge pocket by the scrapper arms of rotating bridge. The slope of the tank bottom is in the range of 1:12 to 1:10 towards the center. It is advisable to locate the collection launder on the periphery outside the tank. The clariflocculator should be capable of giving clarified water having turbidity not exceeding 5 NTU. The collection of the launder shall be provided in concrete. The rotating bridge shall be rests at one end on the bearings provided over the central shaft and the other end the carriage drive moves on the outer wall. The tangential speed of scrapper rake tip shall be is 2.5 to 3 m per minute. The side water depth of the clariflocculator shall be in the range of 3.5m to 4.0m. There shall be an appropriate walkway of width not less than 90 cm around the clarification system with suitable handrails. There shall be provision for drain off sludge with sludge pit with necessary valve control.

6. Filter House

There shall be a filter house in the water treatment plant to accommodate the filter media, pipe gallery, wash water tank, air blowers and the wash water pump sets etc. All these units can be accommodated in the filter house or can be accommodated separately as per the design of contractor.

The plant shall have minimum 3 filter beds with sufficient provision for backwashing with total 2.0 MLD output capacity and should be of suitable size. The filters shall be designed based on normal rate of filtration of 4.8 to 6 m3/m2/hr. The inlet and outlet control arrangements and clear water channel shall be designed to permit 100% overload for emergent occasions. Area of filter house shall be minimum of 120 m2.

The scope of work includes supplying and spreading filter media of suitable size and quantity in the filter units inconformity with relevant ISS and as per guidelines and norms prescribed in the Manual of water supply and treatment of CPHEEO. The media material, size and height of filter material shall be designed and got approved by the Client. Each filter bed shall be provided with meters for head loss, rate of flow of filters, flow controller, sluice valves, penstock of adequate size and dimension of approved quality.

Filter beds and filter house shall be constructed of R.C.C. of minimum M 30 grade concrete and the super structure shall be a framed structure with paneling done by brickwork. The filter sand appurtenance shall be roofed over. The height of the roof shall be at a minimum of 3.6 m. All water-containing portion shall be of R.C.C. of adequate thickness that shall not be less than 15 cm and all the concrete structure should be designed to fulfill the uncracked check condition as per IS code of water retaining structure as per IS: 3370. The minimum standing depth of water over media shall be 150 cm. A minimum freeboard of 30 cm shall be provided. Spacing and size of wash water gutters shall be as per standard practices and specification as per CPHEEO manual. Alkali/acid resisting cement shall be provided in the filter chamber also up to 30 cm below top of filter media and also on the inside of wash water gutters and gullet. There shall be 40 mm wide and 25 mm high beat on the edge of filter beds to prevent debris and dust falling into the beds during cleaning of floor. Walkway shall be provided around and in between filter beds with stainless steel hand rails. The floor of the filter operating platform and walls walk ways in between the filters shall all be provided with alkali/acid resisting tiles of approved quality, joints filled with acid/alkali resisting cement as per IS : 4457 and shade.

Adequate doors, ventilators and windows shall be provided in the filter house to admit sufficient natural light. All the windows ventilators and doors shall be of aluminium. Windows of size 1.2m x 1.2 m, ventilators of size 0.9m x 0.6 m and doors of size 1.2m x2.1m shall be provided for Filter house. Electrification of the filter house shall be carried out as per direction of engineer in charge. There shall be minimum number of fluorescent lamps, LED, fans, plug point (20A) in filter house. Minimum number of flood lights shall be provided at the filter bed platform and pipe gallery. Galleries should be well designed to provide adequate space, ventilation drainage and easy accessibility to all pipe-work and other fittings.

The design of underdrain is most critical for efficient backwash operation and functioning of the filters. The under-drainage system shall be central manifold with laterals for which the design shall be as per CPHEEO Manual for water supply(Latest version). Filter manifolds and underdrainage system shall conform to IS: 8419 (Part II).

The laterals of under drainage pipe shall either be flanged cast iron pipes or Class 5 PVC pipe (10 kg/cm2) of minimum outer diameter 90 mm. The laterals may be properly clamped as directed by the engineer in charge. The laterals shall be with orifice or strainer as per standard practices and they shall be erected only after approval of the client.

A suitable type of washing system with air and water which gives very efficient washing of filters shall be provided. The wash water consumption shall not exceed two percent of the quantity of water, filtered in between the washing. The duration of the wash shall not normally exceed 10 minutes. The water retaining on the filter bed at the close of the wash shall be clear with turbidity not exceeding 5 NTU. The filter runs shall normally be not less than 24 hours with a loss of head not exceeding 2m.

The supply of wash water shall be made through an overhead storage tank. R.C.C. (minimumM30 mix) Wash water tank of required capacity and staging height as per standard norms of CPHEEO manual shall be provided

at proper level. The capacity of wash water tank shall be sufficient to supply wash water to two filter units at a time. Flanged bell mouth with puddle collar made of cast iron of required size shall be fixed for inlet, outlet, scour and overflow connections in the tank. While fixing the bell mouths in wall of tank, puddle collar will be properly fixed and grouted in concrete, keeping the bell mouth inside and flange outside the tank. The inlet should be as far away from the outlet as possible and the outlet should be at least 15cm above the finished floor level of the tank. The outlet should preferably be fitted with a strainer, the aggregate area of which should be at least double the area of the pipe.

All mechanical equipment for the wash water tank such as inlet, outlet, overflow pipes and control valves, water level gauges, overflow alarm devices, ventilators, scour arrangements, MS ladders for access to top of tank, manholes with cover (circular - minimum 60cm diameter) and stainless steel ladders for access to the inside of the tank and pipes for pumping arrangements shall be supplied and erected. The inlet, outlet and scour pipes shall be provided with sluice valves. The overflow pipe shall be of the size higher than the inlet pipe. All pipes for tank connection shall be cast iron flanged pipes (Class B). The scour and overflow pipes of wash water tank may be fixed in such a manner that the water from this will reach the common sludge pit either directly or can be drained off to the wash water channel of the filters. A water level indicator shall be provided with the level indicating panel mounted at the appropriate place in the filter house. Water from wash water tank shall also be supplied to chemical houses, chlorine house, pumphouse, laboratory and toilet.

Necessary electrical equipment for proper washing of filter including air blowers, motor and pump accessories for pumping the water to wash water tank shall be supplied and erected. For air wash rotary air type blowers adequate capacity for supplying free air of filter area 0.4 kg per sq.cm at the under drains having 100% stand by including auto transformer, starters, main switches and pipe connection etc. all complete shall be provided. Dial type indicators shall be supplied and shall be erected at easily accessible point in the filter house for indicating quantity of flow of air used for back washing purposes. The piping of the compressor should have very minimum of overhanging weight. Braces should be provided as required to reduce vibration. A non-return valve should be installed in the delivery line.

Wash water pumps of suitable capacity to fill wash water tank in one hour with 100% stand by to be provided as per CPHEEO manual. The clear water before disinfection shall be used to fill the wash water tank. For this a small sump or other provision in clear water channel may be given to pump the filtered water from the clear water channel connecting filter outlet to the sump. This equipment shall be provided very near to filter units and shall be visible from filter units for easy and proper operating of filters. Sufficient space shall be available around each equipment like wash water pumps, air blower and control panels for easy access and for maintenance and repair. The control for wash water pumps and other mechanical devices must be put inside the filter house.

The influent, effluent, wash water pipes together with rate controllers and appurtenances are placed in the pipe gallery. The pipe gallery should be well designed to provide adequate space, ventilation, drainage and

accessibility to all pipes work and other fittings. Pure water channel shall be of adequate size and totally covered from all sides with manhole and heavy glass covered for cleaning arrangement. All precautions shall be taken to avoid contamination and fouling of pure water. Clearwater channel shall be lined on sides and bottom with white glazed tiles. Suitable pit about 1 m deep lined with white glazed tiles on sides and bottom and having thick glass cover shall be constructed at proper and well lighted place to see the clarity of water with naked eyes. This can be used as sump for pumping water to wash water tank. All works to be done as per CPHEEO manual. Acid/alkali resistant tiles shall be provided inside the inspection chambers with lighting arrangement with glass cover.

The clear water channels, inlet and outlet pipes and valves and inspection chambers shall be so arranged as to have easy access for working and for repair in case of need in future. Walk way or platform shall be provided and SS handrails shall be provided wherever protection is required. The floor of pipe gallery may be finished with red oxide. There shall be adequate arrangements for disposal of wash water from the filter beds through C.I. pipes and drains. The channels should collect the wash water of the filters and dispose to the common sludge well. The channel should be of adequate depth and width to carry the wash water when two filters are backwashed simultaneously. Freeboard of 15 cm shall be provided. The channel should have enough slope to carry the above quantity of water without flooding. There shall not be a common wall between the wash water channel and pure water channel. The channels shall be covered with precast slab. The precast slabs should have handles in every fourth slabs for removing while cleaning the channel.

7. Clear water sump and pump house

A clear water reservoir of minimum 700 m3 capacity and pump house of minimum area 195 m2 shall be constructed at the treatment plant site. Pump house shall construct over/near sump as per approved design from the client. Head roof of pump house should be minimum of 4.5m. The capacity of the sump is measured from the lowest point (or floor) of clear water channel to the floor of sump. The floor Level is to be kept as high as possible in consistent with the filter outlet channels, which feed it by gravity. The shape of the sump shall preferably be rectangular. The bearing capacity of the soil at the particular place of sump shall be tested and the design shall be done accordingly.

The whole structure shall be constructed of R.C.C. with mix not leaner than M30 as per Is:3370. The maximum depth of water in the clear water reservoir shall be 3.70 meter. The free board may be minimum 50cm. The sump shall be constructed with at most care so that there will not be any leakage of water. Clear water reservoir shall be connected with filter outlet channel. There shall be provision for draining of the water in case the water level exceeds the maximum storage level. The top roof of the reservoir will have sufficient opening with C.I. vent pipes. Minimum 4 circular man holes (minimum 60mm dia) with CI covers and CI vent cowls shall be provided for getting sufficient light and air while cleaning. 2 nos Stainless steel ladders may be provided for going down to the floor of sump. Since the sump is for storing clear water, the openings in the sump shall be such that when closed reptiles and insects shall not enter the sump. The reservoir bottom floor shall be provided with proper

slope as to allow the entire water to be drained out at the time of its cleaning and washing. The sump shall have scouring arrangement for cleaning and washing and the wash water shall flow to the sludge collection point by gravity.

All mechanical equipment for the sump water tank such as inlet, overflow pipes, water level gauges, overflow alarm devices, ventilators, scour arrangements with pipe linked to common sludge pit, manholes with cover (circular - minimum 60cm dia) and stainless steel ladders for access to the inside of the sump shall be supplied and erected. The overflow pipe shall be of adequate diameter. All pipes for tank connection shall be cast iron/DI flanged pipes (Class B). The overflow pipe shall be provided with net to prevent entry of insects and the over flow &scour water shall flow to the common waste collection sump by gravity and necessary pipe and valve arrangements should be provided in the CW sump. A water level indicator working in Conjunction with a float device shall be provided to show the water level in the sump. The level indicating panel shall be wall mounted at the appropriate place in the clear water pump house.

8. Clear water pumpsets and motors

The work includes Design, Supply, Erection, testing and Commissioning of 2 nos of (1 No as Standby) Centrifugal pump set for clear Water pumping capable to discharge 23 lps against a total head of 28 m for pumping water from newly constructed Water Treatment Plant to the newly constructing OHSR, including maintaining the same for 2 years. The work also include and allied works like panel board starter cable, capacitor for PF above 0.95, NRV, sluice valve earthing pipe connections foundations etc. The pumps and motors supplied should be from the approved list of manufactures. Suitable design for the motor pump set is to be submitted by the Contractor before the commencement of the work and get it approved by the Competent Authority.

9. Chlorinator Room

The chlorinator and chlorinator room shall be designed in the water treatment plant to accommodate the vacuum operator, brand new gas feed chlorinator having a maximum feeding capacity up to 0.5 kg/hr , with auto vacuum regulator consisting of vacuum and vent tube connectors, flow control valve with rings.

Vacuum Operated brand new Gas feed mounted with rings, Chlorine inlet Assembly with Valve and stud, Hastalloy Spring, Teflong seating etc. mounted on brackets with screws, Rotameter tube assembly with teflon float duly calibrated, Injector assembly with water inlet valve, jet and throttle arrangements, gas mixing with water outlet arrangement solutions outlet system vacuum pressure regulator /breaker fitted with neo prinring. Hastalloy spring loaded Teflon diaphragm assembly, Hastalloy Hex nipple connection with nuts ,Teflon connecting tubes ,Glycerin filled diaphram type chlorine pressure gauge, Vacuum pressure gauge ,water pressure gauge with necessary connection, brackets, blocks, chlorine solution outlet should be connected to the sump with pipes and fittings, Required length of best quality Teflon pipe Assembly for gas flow from cylinders to the chlorinator along with Hastalloy& connectors in both ends, shall have adequate capacity gantry girder.

10. Electrical Installations

Electrification of the building for the proper operation of the scheme shall also be provided as per prevailing IE

rules. The wiring shall be easily repairable and weather proof. Sufficient number of lights shall be provided for the buildings for operating the units without any problem. All the items should confirm to IS specifications.

All internal and external areas shall be provided with lighting. Required number of LED lamps shall be provided in the pump house, water tank, plant compound and clear water sump site so that sufficient light is available during night hours for the normal working of all the components and functionaries. Separate lighting panels and lighting distribution boards shall be installed, and they shall not take tapping for power from motor control centers or power distribution boards

The work shall be carried out through a licensed electrical contractor and all the Electrical installation shall be got approved testing and certified from the Electrical Inspector by the Contractor at his own cost wherever necessary. The damages caused to the civil structures etc., during electrical installation shall be made good by bringing such locations to their normal conditions (i.e.) original finish at no extra cost. All the materials used for electrical installations shall be of standard type and of reputed make.

All the materials shall be got approved from the Engineer-in-Charge before it is used in the work. All safety measures shall be adopted for all the installations as per Indian Electrical Rules. The entire electrical installations both internal and external shallbe commissioned to the satisfaction of the Department.

The external electrification will be done by laying underground cables as per the standard practice and as per Indian Electricity Rules. Solar energy arrangements od feasible capacity shall be done as per direction. Solar panels shall be as per standard specifications ANERT/ Central Government and all installations should be approved by KSEB for on Grid system.

Gardening and Landscaping shall be done as per the directions of the site Engineer in charge. Water supply arrangements provided with valves in the yard shall be provided for watering the plants. Proper drainage system shall be provided in the plant site as directed and approved by the Client.

A fully equipped laboratory of area not less than 25 m2 for conducting routine test for turbidity, pH, Residual chlorine, dosing of chemicals etc. shall be provided. Jar test apparatus with a minimum of 4 jar shall be provided. Test reagents required for 6 months use shall also be supplied. The make & specification of the equipment shall be provided in the technical bid.

Lab room with necessary furniture such as Steel almirah, two drawer wooden table ,chairs, Stainless steel sink with SS tap, lab equipments all of approved make and size by the Client shall be provided. The list of equipments shall be attached with the bid.

Supply and installation of all mechanical items and Fire protection arrangements required for the running of WTP including all bypass arrangements for exclusive operation of each unit of WTP including mechanical items - all required pump sets for the function of all the units including lime and alum agitators and their allied electrical components, chemical hoisting facility, crane of suitable capacity at clear water pump house and four wheeler platform for tonner for chlorination arrangements, valves, meters, gauges, indicators, provisions for separating motor and pump at two levels using steel structural work covered with chequered plates, Land Safety

arrangements with all necessary equipments conforming to relevant standards , Breathing Apparatus, Chlorine leak detector and arrestor, Rubber Gloves, Rubber mats, Danger caution boards, Safety instruction Notice board, Safety dress, Boots Etc Fire Fighting equipments: Fire extinguisher as per requirement of area of WTP, Fire Hydrants, Sand filled buckets First Aid and Medical Kit etc complete for the satisfactory operation of the plant will be provided by the contractor as part of this tender.

Supply, installation and commissioning of Electrical items conforming to the relevant standards – All electrical items required for WTP inclusive of Control panels, including laying of UG Cables providing Lights, Fans, Exhaust fans, including with flash lights etc. All electrical safety equipments, all electrification works required for the smooth functioning of the WTP.

Water supply and sanitary installations to the building including water closets, bathrooms and a septic tank are to be provided, preferably attached with the laboratory / office facility and front lobby. Necessary sinks and taps required at the laboratory shall also be provided as part of the work

Power allocation Charges for getting electric connection including security deposit and other charges, taking approval etc is to come under the scope of the tenderer.

All the exposed faces shall be plastered over with CM 1:3 12 mm thick. The inside portions shall be plastered with cement mortar 1:3 12 mm thick with neat flushing coat adding 2% of water proofing compound by weight of cement .All exposed surfaces shall be painted with water proof cement paint two coats over a priming coat of white cement and finished with two or more coats of acrylic emulsion paints of approved brand. Weather boards such as faces of projections shall be painted with good quality weather coat emulsion paint. All metallic surfaces shall be painted with enamel paint two coats after a priming coat of iron primer.All RCC structural components shall be made of M 30/ M 25 Graded concrete except where otherwise specified separately.

The contractor shall be responsible for completing trial running and commissioning of all the structures and works carried out by him within the stipulated time. All the erection works, laying of pipe lines and construction works shall be completed in all respect and successful trial running shall be carried out before the time of completion allowed in the tender. The equipments, pipe lines and structures shall be put into trial run operation processing from no load to full load condition. During the trial run operation of the equipment, checking all mechanical rigidity, alignments, clearance etc. shall be made by the contractor with proper readjustment if necessary. The equipment shall also undergo for continuous operation at normal full load including operation at different working duty points as far as possible for both solo & in parallel operation of the pumps.

For pumps the discharge and head will be checked. For structures the functioning will be tested. For pipeline quantity and head will be checked and will be confirmed that it is leak proof. All the tests shall be carried out to the satisfaction of Engineer in charge and the contractor shall arrange the material, labor and equipment for the test at his own cost. The trial running shall be completed within one month after completion.

Chemical house shall be designed to accommodate the following in addition to the process requirements with

2 floors and minimum plan area of 90m².

1. Chemical storage space : 90 Sq. m.(clear carpet area)

2. Chemical mixing room : 45 Sq.m

3. Lab space : 30 Sq.m

4. Post Chlorination room and chlorine store : 25 Sq.m

5. Prechlorination room :15 Sq.m

One number manually operated hoist of 100 kg capacity should be provided.

The design and drawings of various components of the scheme issued by the Department with tender form / schedule/ NIT are tentative and for estimate purpose only. The contractor shall submit the design and drawings of all components as per site condition after conducting necessary soil investigation etc. so as to obtain the required performance and quality of all components and get approval from competent authority before the commencement of work.

OPERATION & MAINTENANCE FOR THE ENTIRE PROJECT FOR 1 YEAR (12 MONTHS) AFTER SUCCESSFUL COMMISSIONING OF THE PROJECT GENERAL, CONDITIONS

The water from Intake works on river Periyar will be pumped into the Treatment Plant. The raw water should be treated as per the prescribed norms and collected to an underground clear water reservoir.

The power charges shall be borne by the owner.

Necessary chemicals like alum, lime and chlorine gas, other consumables and spares like grease, bearings, etc. and materials like sand, gravel, etc. should be brought and replaced by the contractor at **his own cost for the water treatment plant for 3 Months. After the initial three months, the chemicals shall be provided by KINFRA upon the prior intimation by the contractor**, during one year's O & M.

The maintenance of all flow meter to be done and daily reading records kept by the contractor for periodical check by Client.

The contractor has to maintain daily record of supply of water jointly signed by the representative of contractor and Client.

If the water cannot be supplied due to failure of water treatment plant or any other reason, the contractor has to pay penalty at the rate of Rs. 10/- per 1000 litres of short supply of clear water to the users.

Staff pattern required for O & M to run this water supply scheme is as under (for 1 shifts).

Incase of additional shift requirement, the same quoted amount shall be considered for the additional shifts

A Chemist 1 No

Chemist should be a graduate in analytical chemistry. He is responsible to look after the O & M work of the plant to keep record of scheme to keep record of pumping, metering, testing, sampling, preventive maintenance, inventory, etc. and necessary records provided at site as and when required by client during their course of inspection. He should be properly trained for unit operation of treatment plant including fixing dosage of chemical, chlorine, etc, and to carryout routine tests.

B Operators (for 2 shifts) 3 Nos./day (including reliever)

The operator should have minimum second class wireman certificate. He has to look after the pumping machinery, to keep record of logbook of pumping, watermeter reading, electrical installation and readings, smooth equipment running, etc. as directed under O & M manuals.

C Helper/Sweeper (for 2 shifts) 3 Nos/day (including one reliever)

The responsibility of any level problem accident, etc is of the contractor. The contractor has to arrange for the insurance of the staff period of O&M of the scheme.

The payment to the sub staff and labour engaged for O&M sho by the contractor as por minimum wages fixed by Kerala God

9.0 Power of Attorney

The Supervisor should have proper power of attorney to conduct various transaction on behalf of the contractor

10.0 Work Order Book

A bound half sheet size work order book shall be provided by the contractor. The representative of the contractor shall sign below the orders handed over to Client for maintaining at the work site. This shall be by the Client's Engineer-in-charge in token of having noted them

The contractor shall have to maintain a register at the plant showing quantity of chemicals lubricants and materials used per day for operation, break-down occurred and repairs completed, etc.

11.0 Electrical Installations

All electrical work shall be carried out as per IE Acts Instructors requirements of statutory authorities, ie Electrical Inspector and Kara Electricity Board.

12.0 Governing of Labour Laws

The contractor shall be fully responsible for providing accommodate labourers employed by him under the prevalent rules of Central Govt, State Govt., or Local Body.

13.0 Rate of O&M

The rate of O&M shall be inclusive all taxes and duties, cost of chemicals chlorine gas, consumables, spares for repair and wages and other allowances to the operating staff for 12 months operation including periodic preventive maintenance.

14:0 Handling of Chemicals

Safety and facilities to the staff for handling of chemicals and equipment is an Important consideration . Handling of chemicals needs special attention. Following instructions are for guidance of the contractor and observing them strictly at his cost.

Alum & Lime

For handling Lime & Alum in block/powder form, rubber apron, gloves, boots must be used and provided by the contractor to his staff at his cost

Chlorine

Chlorine vapour is extremely hazardous. To avoid prolonged breathing of chlorine gas, gas masks may be used. Antichlor solution shall be kept ready for quick Special precaution for keeping chlorine storeroom well ventilated be seen before entering and smoke test to be carried out. It is essential that all operators working with chemical are considered to be familiar with the dangers of chlorine. It is imperative to have protection equipment always readily available at site and follow the instructions displayed in chlorine/chemical house for handling chlorine

Transportation

Contractor will have to make his own arrangements for conveyance of his staff at his cost. No facility will be provided by Client

Medical

Contractor has to provide medical facility to his staff at his cost

Contractor's Staff and their conduct, etc.

All employees shall be of Indian Nationality and it will be contractor's responsibility to give temporary and permanent address. Convicted or penalised persons shall not be employed.

Regular salaries should be ensured to the staff. Client will not take any liability in this respect. Contractor should submit monthly certificate for full payment to his staff on or before 10th of every month.

Contractor will have to provide identification badge with title name plate strip to be displayed on shoulder or from pocket to each staff (except labourers) as approved by Engineer-in-charge.

Contractor shall arrange for substitute during any leave granted to the staff at his own cost.

The plant being a typical, visitors are expected to visit the plant. It is expected that all staff and engineers be present and follow the directions of the Engineer-in-charge during the visits without any reservation.

Monitoring

Turbidity of clarified water should be less than 15 NTU

Turbidity of filtered water should be less than 2 NTU

Following tests shall be carried out for raw, settled and treated water.

Schedule of payment

Schedule of payment to the contractor (Percentage against each item shall be limited to the total value

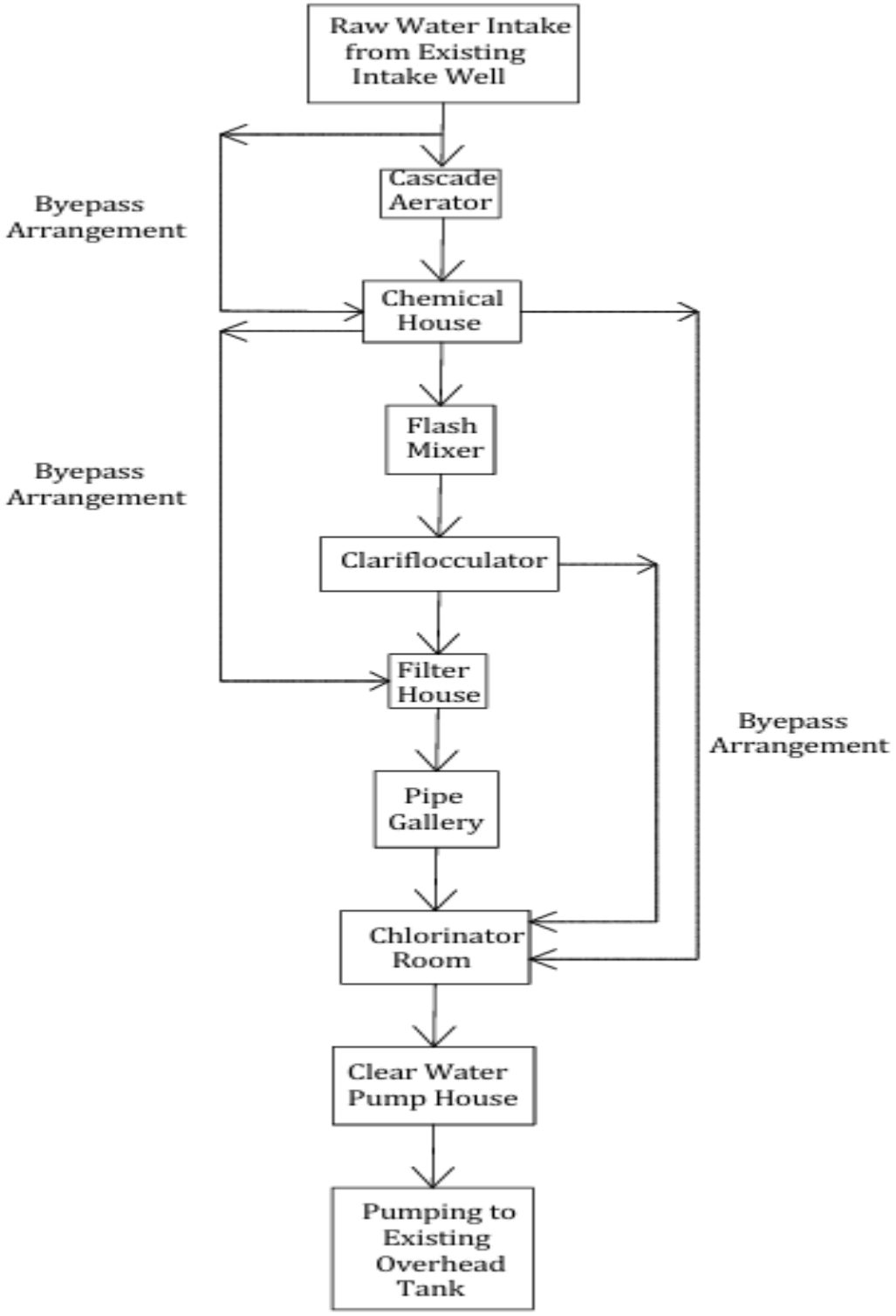
quoted by the contractor).

Sl.No.	Description	Percentage limited to Maximum
1	**Design Services**	**3%**
	Layout HFD Design Calculation	0.400%
	Components- Aerator	0.250%
	Raw water Channel CWC Flash mixer	0.050%
	Clariflocculator	0.500%
	Chemical house	0.350%
	Filter house	0.650%
	Wash water tank	0.250%
	Clear Water Reservoir	0.200%
	Laboratory, Chlorination room cwall gate Road works and other miscellaneos items	0.350%
2	**Site clearance, Mobilisation of plants and equipmets Preparatory works for execution**	**3%**
3	**Civil works**	**55%**
	Components -Aerator	4.500%
	Raw water Channel CWC Flash mixer	1.500%
	Clariflocculator	15.000%
	Chemical house	7.500%
	Filter house	15.000%
	Wash water tank	5.000%
	Clear Water Reservoir	5.000%
	Laboratory, Chlorination room cwall gate road works and other miscellaneos items valve chambers, thrust blocks, drain works etc	1.500%
4	**Mechanical works**	**15%**
	Components -Aerator	0.500%
	Raw water Channel CWC Flash mixer	1.000%
	Clariflocculator	5.000%
	Chemical house	2.400%
	Filter house	3.000%
	Wash water tank	1.000%
	Clear Water Reservoir	1.100%
	Laboratory, Chlorination room cwall gate road works and other miscellaneos items	1.000%
5	**Electrical works**	**10%**
	Components -Aerator	0.5000%
	Raw water Channel CWC Flash mixer	0.4000%
	Clariflocculator	1.9000%
	Chemical house	1.3000%
	Filter house	2.5000%
	Wash water tank	0.9000%
	Clear Water Reservoir	0.7500%

	Laboratory, Chlorination room cwall gate road works and other miscellaneos items (transformer yard lighting	1.750%
6	**Pipeline works**	**2%**
	Components -Aerator	0.100%
	Raw water Channel CWC Flash mixer	0.130%
	Clariflocculator	0.300%
	Chemical house	0.250%
	Filter house	0.600%
	Wash water tank	0.200%
	Clear Water Reservoir	0.150%
	Laboratory, Chlorination room cwall gate road works and other miscellaneos items,surface drain off ,outlets ,inlets valve connections etc	0.270%
7	**Miscellaneous Items Furniture,lab equipments, surface drains coonectivity, sludge maintaining road works marking signborads painting etc**	**1%**
8	**Testing and commissioning**	**1%**
9	**DLP including Operation and Maintenance**	**10%**
		100%

Name : Design, Construction and Commissioning of 2 MLD Water Treatment Plant at KINFRA Industrial Park Perumbavoor and Operation and Maintenance for 1 Year

Process Flow Chart


Raw Water Intake from Existing Intake Well
Cascade Aerator
Byepass Arrangement
Chemical House
Flash Mixer
Byepass Arrangement
Clariflocculator
Filter House
Byepass Arrangement
Pipe Gallery
Chlorinator Room
Clear Water Pump House
Pumping to Existing Overhead Tank

Standards

TC-12191

TEST REPORT

ULR No: TC12191230000000037F		
LRI No.: SEAAL23090569A	Date: 11-09-2023	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	**M/s Antea India Pvt Ltd** First Floor, Kudiyirickal Building, Palarivattom, Kochi, Ernakulam District.
Customer Reference	Test Request Date: 06-09-2023

SAMPLE DETAILS			
Product Category	Water	Sample Code	WT23090092
Sample Name	Surface Water	Sample Received on	06-09-2023
Sample Description by Customer	Periyar River Water	Temperature @ Receipt	25°C
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-09-2023
Sample Quantity & Packing	2 L & 125ml in a Plastic Bottle	Test Completed on	09-09-2023
Information Provided by Customer	Location: KINFRA Industrial Park, Perumbavoor (Erstwhile Travancore Rayons)-68 Acres	Sampled by	Sample submitted by Customer

TEST RESULTS– CHEMICAL DISCIPLINE

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500: 2012
1	pH	IS 3025 (Part 11): 1983	---	6.35	6.50–8.50
2	Total Dissolved Solids	IS 3025 (Part 16): 1984	mg/L	30.2	500 (Max)
3	Total Hardness as $CaCO_3$	IS 3025 (Part 21): 2009	mg/L	6.06	200 (Max)
4	Chloride as Cl	IS 3025 (Part 32): 1988	mg/L	5.96	250 (Max)
5	Sulphate as SO_4	IS 3025 (Part 24): 1986	mg/L	4.61	200 (Max)
6	Fluoride as F	IS 3025 (Part 60): 2008	mg/L	<0.10	1 (Max)
7	Nitrate as NO_3	APHA (23rd Edn)4500 NO_3-B:2017	mg/L	<1.00	45 (Max)

TEST RESULTS – BIOLOGICAL DISCIPLINE

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500: 2012
1	Total Coliform Bacteria	IS 15185: 2016	---	Present/100 ml	Absent/100 ml
2	Fecal Coliform	IS 1622: 1981	MPN/100 ml	20	230

Remarks:

The water sample complies with drinking water Specification as per Acceptable Limit of IS10500:2012 with respect to above parameters tested except pH & Total Coliform Bacteria.

End of Report

Checked by:

Remya B
TM-Biological
Authorized Signatory

Laiju P N
Laboratory Head
Authorized Signatory

Standards Environmental & Analytical Laboratories
Accreditation & Approval: NABL accredited Testing Laboratory as per ISO/IEC 17025:2017
vide Certificate No. TC - 12191 & "A" Grade Laboratory approved by KSPCB.
'Standards' Bldg. No: 338/A,B,C,D,E (Behind BPCL Petrol Pump), Edayar, Muppathadam P.O., Ernakulam Dist. - 683 110
Tel. 0484-2546660, 93872 72402, 90743 41443, Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

SAMPLE NAME : SOIL 02/11/2023
SAMPLE SUBMITTED BY : ANTEA INDIA PVT.LTD.
REFERENCE NUMBER : AARC/2238/10/23
DATE OF SAMPLING : 30/10/2023
SAMPLE RECEIVED ON : 30/10/2023
ANALYSIS COMPLETED ON : 02/11/2023
SAMPLE IDENTIFICATION : BH-3, KINFRA INDUSTRIAL PARK, PERUMBAVOOR.

SL NO.	PARAMETERS	RESULTS	METHOD OF ANALYSIS
1	pH value	5.16	IS.2720(Part-26)
2	Chloride as Cl	0.0214 %	IS.6925
3	Sulphate as SO_4	0.0039 %	IS.2720(Part-27)
4	Nitrate as NO_3	0.0019 %	APHA 4500-B
5	Calcium as Ca	0.0314 %	IS.2720(Part-23)
6	Potassium as K	0.0012 %	APHA 3125-B

ANNEXURE-3

LIST OF APPROVED MAKE OF MATERIALS

Sl. No	Details of Materials / Equipment	Manufacturer's Name/Brand
A	**CIVIL WORK**	
1	Cement (OPC-(43 & 53G) & PPC)	a. Ultratech b. ACC c. Ramco d. India Cements e. Dalmia f. Malabar g. Zuari Cement h. JSW Cement Limited
2	Reinforcement Steel	(a) TATA (b) SAIL (c) JSW (d) VIZAG (e) JSPL (f) BIS approved reinforced steel of appropriate grade, from large and small producers. **(For accepting makes as per (f) above: In order to ensure quality control, BIS mark with IS code No. and License number (CM/L No.) shall be insisted and quality control tests shall be conducted as per relevant standard specifications, IS codes or Quality Control Manual.**
3	Structural Steel	a) TATA b) SAIL c) VIZAG d) APL APPOLLO
4	Aluminium Sections	a) Jindal b) Indal c) Hindalco
5	Ceramic Tiles/Vitrified (Wall & Floor Tiles)	a) Orient Bell b) Johnson c) Kajaria d) Somany e) NITCO f) AGL g) RAK

6	Industrial Tiles (Floor & Wall Tiles)	a) Johnson Endura, b) Somany VC series tiles or Approved Equivalent
7	Water Proofing Compound, Hardener & Construction chemicals	a) FOSROC b) CICO c) Pidilite d) Sika e) BASF f) MYK Arment Private Limited g) CERA-Chem Pvt Ltd
8	Anti-termite chemical & Wood Preservatives	a) Thiodon b) De-nocil c) Bayer d) Vam Organic e) NOCIL f) Hindustan Insecticides g) Roff Construction Chemicals
9	Float Glass & Mirror	a) Saint Gobain b) Asahi India c) Modi Glass d) Gold Plus Glass Industry Limited
10	Glass Film	a) 3M b) Llumar
11	Wall Putty	a) Birla white b) JK White c) Altec (NCL)
12	Paints (OBD, Emulsion paints, Synthetic enamel Paints)	a) ICI b) Asian c) Berger d) Nerolac
13	Water Proof Cement Paints	a) Snowcem India Ltd. b) ICI c) Asian
14	Red Oxide & Pink Primers	a) ICI b) Asian c) Berger d) Nerolac
15	PVC Water Stopper Bars	a) Fixopan b) Syntex c) BASF d) FOSROC
16	Precast Cement Concrete Pavers & Tiles	a) Nitco b) Ultra c) Johnson d) Dura crete e) Basant Beton f) Astana
17	Texture Paint (Internal & External)	a) Oikos b) Spectrum c) Asian d) Berger

		e) ICI
18	Laminates	a) Greenlam b) Century ply c) Merinolam d) Ventura
19	Plywood & Board (Waterproof)	a) Duro b) Green ply c) Century ply d) Merinolam
20	MDF (Exterior Grade)	a) Duro b) Green ply c) Century ply
21	Natural wood Veneer	a) Greenlam b) Century ply c) Archidply d) Ventura
22	Flush door	a) Kitply 'swastik' b) Duro 'Tower' c) Archid d) Green ply
23	Hardware	a) Dorma b) Geze c) Ozone
24	Aluminum hardware	a) Ipsa b) Ebco c) or Approved equivalent
25	Fire Proof Doors	a) Sukri b) Aadhunic c) Promat d) Shaktimet e) TATA Pravesh Doors & Windows
26	Fire proof door Accessories	a) Briton b) Astroflame c) Geze
27	Fasteners	a) Hilti b) Fischer
28	Gypsum Board	a) India Gypsum b) Saint Gobain c) USG d) Lafarge
29	Self taping screws	a) Hilti b) Landmark c) Buildex
30	Welding Rod	a) ESSAB Ferro Speed plus b) D&H Norma

31	Tarfelt	a) MAK b) Bengal Bitumen c) Rishub Petrochemical
32	Adhesive	a) Fevicol SH b) Vamicol c) Araldite of Hindustan d) Laticrete
33	PU Paint	a) MRF or equivalent
34	GRC Panels	a) Unistone b) Terra Firma
B	**ELECTRICAL SYSTEM**	
1	11kV Panel boards	Megawin/System control / Unitech Electrical Industries
2	Transformer	Kirloskar/Voltamp/Wilson power/KEL/TELK / Unitech Electrical Industries
3	Generators and Alternator	Kirloskar/Cummins/Stamford/ KEL
4	LT panel	CPRI certified manufacturer
5	Cast resin current transformer (CT)	AE / Kappa / C&S
6	Control / Potential Transformer (PT)	AE / Kappa / C&S
7	Digital ammeter and Volt meter	L&T / AE / C&S.
8	Protective Relays	L&T / Alstom / ABB / Siemens
9	Energy meters and Trivector Meter	L&T / AE / Secure / Ducati / HPL.
10	Selector switches	L&T / Salzer / Kaycee / Siemens.
11	Push Buttons/ Indicating Lamps LED	L&T / Siemens / Schneider /Teknik.
12	ACB	L&T / Siemens / ABB
13	Moulded Case Circuit breakers	L&T /Siemens / ABB
14	Power auxiliary Contactors/Relays/ Starters	L&T /Siemens / ABB
15	Timers	L&T /Siemens / ABB
16	Switch Fuse Units with HRC fuses	L&T / Siemens / ABB / Merlin Gerin
17	Battery (Maintenance free VPLA Battery)	Exide / Standard / Furakawa.
18	Battery Charger	Voltstat / AE / BCH.

19	Capacitors	L&T / Ducati / EPCOS
20	APFC relays	L&T / Ducati / EPCOS
21	MCB Distribution Boards	L&T / Legrand / Anchor.
22	Miniature Circuit Breakers (MCB)	L&T / Legrand / Anchor.
23	Residual Current Earth Leakage Circuit Breakers	L&T / Legrand / Anchor.
24	Ladder Type MS Cable trays	Custom built
25	1100 V LT XLPE Al. Cables	Polycab / KEI /Finolex
26	1100 V LT Power Cu.Cables	Polycab / KEI /Finolex
27	1100 V LT Control Cu.Cables	Polycab / KEI /Finolex
28	Compression glands and Lugs	Dowells/ Comet.
29	Cu/ Al (Crimping type) Cable Lugs	Dowells/ Comet.
30	Light Fittings with all required accessories	Philips/Wipro/Bajaj/Schrder/K-lite/Jaguar Lighting.
31	PVC conduits	Aero plast / Avanplast/Vijaya
32	MS Conduits	Bharath/ JK Tupe / Precision.
33	PVC Insulated FR Cu. Wires	L&T / KEI / Finolex / Anchor / Q-FLX
34	Modular Switches & Socket Outlets	Legrand/MK/Siemens/Crabtree
35	Metal clad socket outlet with boxes	L&T/ Hager / MDS.
36	UPS System	APC / Emerson / Socomec.
37	Ceiling Fans	Crompton Greaves/ Orient/ Khaitan.
38	Exhaust fans with Louver	Crompton / Khaitan / Bajaj / GEC.
II	LV SYSTEM:	
1	Tele-phone cables	Polycab / Finolex / Orbit
2	Telephone tag block	Custom built
3	Modular type RJ 11 telephone Socket	Legrand/MK/Siemens/Crabtree
4	Modular type RJ 45 LAN Socket Outlet	Legrand/MK/Siemens/Crabtree
5	CAT 6E UTP cable	D link / Finolex / Amp

6	Port switches	Netgear / Digilink
7	Modular type RF CATV Socket	Legrand/MK/Siemens/Crabtree
8	Splitter/ Tap-off BoX	Novatorn
C	**WATER SUPPLY and SANITARY**	
1	SANITARY FIXTURES	HINDWARE / PARRYWARE/CERA
2	CP FITTINGS	JAQUAR/PARRYWARE/CERA/GROHE
3	CPVC FITTINGS	AJAY / ASTRAL / ASHIRWAD
4	CPVC PIPES	AJAY / ASTRAL / ASHIRWAD
5	UPVC FITTINGS	AQUARIS/AQUALITE
6	BUTTERFLY VALVE (50mm to 100mm)	INTERVALVE / AUDCO
7	BALL VALVE (15mm to 40mm)	RB / TBS / CIMBRIO
8	Y STAINER	RB / TBS / CIMBRIO
9	AIR RELEASE VALVE	RB / TBS / CIMBRIO
10	WATER METER	DASMESH/CAPSTON
11	HOT WATER PIPE INSULATION	VIDOFLEX / ARMAFLEX
12	ANCHOR FASTNER / 'U' CLAMPS	HITECH SUPPORTS
13	RCC HUME PIPES	SUDARASHAN HUME PIPE / INDIAN HUME PIPE
14	PVC GULLY TRAPS (ISI)	ASTRAL ULTRA DRAIN / PRINCE / SUPREME
15	PVC PIPES (SWR Quality)	ASTRAL ULTRA DRAIN / PRINCE / SUPREME
16	PVC PIPES (Agricultaural series)	ASTRAL ULTRA DRAIN / PRINCE / SUPREME
17	PPR Pipes (Polypropylene Random Co-Polymer	KPT PIPING SYSTEM PVT LTD/ ASVA CORPORATION / VECTUS

	Pipes)	
18	PVC FITTINGS (Fabricated)	CLARION
19	PVC FITTINGS (Moulded)	ASTRAL ULTRA DRAIN / PRINCE / SUPREME
20	PVC FLOOR TRAPS (Moulded)	ASTRAL ULTRA DRAIN / PRINCE / SUPREME
21	MANHOLE COVER - Cast iron	BIC / NECO
22	MANHOLE COVER - (RCC Precast)	RAJVAIBHAV / SFRC
23	LEVEL CONTROLLERS	AQUA INTECL TECH / VINAYAKA
24	INSULATION FOR GI BURIED PIPES	PIPE KOTE / TAPEX
25	ENAMEL PAINT	ASIAN PAINTS / APCOLITE
26	EWC CONNECTORS	MULTICWIK
27	PRESSURISED BALL FLOAT VALVE	RB / HIGHTAP
28	PRESSURE REDUCING VALVE	RB / HIGHTAP
29	Media	MM Aqua / Cool Deck / Bharat Industries
30	Diffuser	Southern Cogen/ TECPRO Energy Systems
31	Sand filter	Thermax / Ion Exchange
32	Carbon filter	Thermax / Ion Exchange
33	Gate Valve	Leader/Zoloto/ Kejriwal
34	Air Valve	Kejeriwaal/Intervalve/Audco/Leader /Zoloto
35	Non-return valve	Leader/Zoloto/ Kejeriwaal
36	Sluice Valve	Kejeriwaal/Intervalve
37	GI Pipe	Tata/Zenith/Jindal/APL APPOLLO
38	Blower	Kay/Everest/Ush
39	ETP pump	KSB/Johnson/Crompton Greaves/Mather & Platt/Kirloskar

40	Motors	Crompton/Bharath Bijili/ NGEF/Jyothi
41	PP Ball valves	Parixit/Dinesh/Oriental/Parth
42	Dosing pump	Johnson/Milton Roy
43	Gear box	Greaves/Shanti
44	Media	MM Aqua / Cool Deck / Bharat Industries
45	Diffuser	Southern Cogen/ TECPRO Energy Systems
46	Pressure filter	Thermax / Ion Exchange
47	Carbon filter	Thermax / Ion Exchange
48	Ultra filter	Thermax / Ion Exchange
49	Ultra violet disinfection unit	Alfa/ Ion Exchange
50	Filter press	Andritz separation unit/Dinshaw filtration/Hydropress Industries

FIRE FIGHING SYSTEM:

I. FIRE PUMP ROOM EQUIPMENT

FIRE PUMPS : KIRLOSKAR/MATHER & PLATT.
G.I PIPES : JINDAL / TATA
PIPE FITTINGS :VS/UNIK/ SAINT/ EQUIVALENT
BUTTERFLY VALVES : AUDCO / NORMEX / INTER VALVE
SLUICE VALVES : KALPANA /KIRLOSKAR / ZOLOTO
FOOT VALVE : NORMEX / KALPANA /ZOLOTO /H SARKER
NON – RETURN VALVES :KALPANA / ZOLOTO/H SARKER
BALL VALVES : RB /CIM /ITAP/ ZOLOTO
PRESSURE SWITCH : DANFOSS/ INDFOSS/SWITZER
PRESSURE GAUGE : H. GURU / FIEBIG / PRICOL CABLE
: POLYCAB / CCI / ORBIT / VARSHA
PAINT : ASIAN PAINT / BERGER
MCC PANEL : FABRICATED
SWITCH GEAR : L&T / SIEMENS
BATTERY : EXIDE / AMARON

II. HYDRANT SYSTEM

M.S.PIPES : JINDAL / TATA
BUTTERFLY VALVES : AUDCO / NORMEX / INTER VALVE
NON – RETURN VALVES : KALPANA / ZOLOTO/H SARKER
'Y' TYPE STRAINER : KALPANA /ZOLOTO/ H SARKER

HYDRANT VALVES	:	WINCO / NEWAGE / SHAH BHOGILAL
BRANCH PIPE WITH NOZZLE	:	WINCO / NEWAGE / SHAH BHOGILAL
FIRE HOSES	:	CRC / NEWAGE / SHAH BHOGILAL
HOSE COUPLINGS	:	WINCO / NEWAGE / SHAH BHOGILAL
FIRE BRIGADE INLET	:	WINCO / NEWAGE / SHAH BHOGILAL
HOSE REEL	:	EVERSAFE / NEWAGE/ SRI
MS HOSE BOX	:	SHAH BHOGILAL / NEWAGE /
FABRICATED AIR RELEASE VALVES		ZOLOTO /NEWAGE / SHAH
BHOGILAL BALL VALVES	:	RB / CIM / ITAP / ZOLOTO
PAINT	:	ASIAN PAINT / BERGER
WRAPPING & COATING TAPE	:	IWL / RUSTECH

III AUTOMATIC SPRINKLER SYSTEM

SPRINKLER BULB	:	HD/TYCO / VIKING
BUTTERFLY VALVES	:	AUDCO / NORMEX / INTER VALVE
M.S PIPES	:	JINDAL / TATA
PIPE FITTINGS	:	UNIK /SAINT/
EQUIVALENT SPRINKLER ALARM VALVE	:	HD / TYCO /
VIKING		
FLOW SWITCH	:	SYSTEM SENSOR / POTTER / SWITZER
FLEXIBLE HOSE	:	HD / TYCO / VIKING
AIR RELEASE VALVES	:	ZOLOTO /NEWAGE / SHAH BHOGILAL
BALL VALVES	:	RB / CIM / ITAP / ZOLOTO
ROSETTE PLATE	:	FABRICATED
PIPE SUPPORT	:	HI-TECH / HILTI

IV FIRE DETECTION &ALARM SYSTEM

MAIN CONTROL PANEL	:	HONEY WELL / MORLEY / RAVEL/ GST
MANUAL CALL POINT	:	HONEY WELL / MORLEY / RAVEL /GST
HOOTERS	:	HONEY WELL / MORLEY / RAVEL / GST
BATTERY	:	HITACHI / PRESTOLTE / EXIDE / PANASONIC
FRLS CABLE	:	POLYCAB/FINOLEX/VARSHA / ORBIT
M S CONDUITS	:	BHARATH / GB / PRINCE
PVC CONDUITS	:	VIP / PRECISION / NELCO

V FIRE EXTINGUISHERS : Safex / USHA FIRE / supremex

ANNEXURE-4

IS Specifications

IS: 456 Plain and Reinforced concrete
IS: 3370 Code of Practice for concrete structures for storage of liquids
IS: 2502 Code of practice for bending and fixing of bars for concrete reinforcement IS: 269,8112,12269 Ordinary Portland cement
IS 1489 Portland puzzolona cement
IS: 10262 Recommended guidelines for concrete mix design

IS: 1786 Specification for high strength deformed steel bars and wires for concrete reinforcement
IS: 2386 Method of test for (Part I & VIII) aggregate for Concrete IS:
1199 Method of sampling and analysis of concrete
IS: 10790 Methods of sampling of steel for pre-stressed and reinforced concrete IS:
3025 Method for sampling and test (physical and chemical) for water used in construction.
IS: 516 Method of test for strength of concrete IS:
2750 Specification for steel scaffolding
IS: 3558 Code of practice for use of immersion vibrators for consolidating concrete IS:
15622 Pressed ceramic tiles
IS: 13630 Ceramic Tiles - Methods of Test, Sampling and acceptance IS:
1948 Aluminium doors, windows, ventilators
IS: 1949 Aluminium doors for Industrial buildings
IS: 1081 Fixing glass for Aluminium doors and windows IS:
6248 Metal rolling shutters and grills.
IS: 1904 Design and construction of foundation in soil
IS: 1893 Earth quake resistant design of structures IS:
2527 Fixing rain water gutters and down pipes
IS: 2720 Methods of test for soils (Parts I & XLI)
IS: 3696 Safety code of scaffolds (Parts I & II) and ladders IS:
3764 Code of safety for excavation work
IS: 3696 Safety code of scaffolds (Parts I & II) and ladders
IS: 1536 Centrifugally cast (spun) Iron pressure pipes for water, gas and Sewage IS:
1538 (part 1-24) Cast iron fittings for pressure pipes for water, gas and Sewage IS:
3114 Code of practice for laying of Cast Iron Pipes.
IS: 8329 Centrifugally cast (spun) Ductile Iron pressure pipes for water, gas and sewage IS:
9523 Ductile Iron fittings for pressure pipes for Water, Gas & Sewage Specification IS: 12288 Code of practice for use and laying of Ductile Iron Pipes.
IS: 1239 Specification for MS Tubes (GI pipe).
IS: 638 Specification for sheet rubber jointing and rubber insertion jointing.
IS: 5382 Specification for Rubber sealing rings for gas mains, water mains and sewers. IS:
4984 HDPE pipes for potable water supplies
IS: 7634(part 1-3) Code of practice for laying of PE and PVC pipes IS: 8008 HDPE fittings IS:
4985 Un plasticized PVC pipes for potable water supplies
IS: 7834 PVC fittings IS: 12235 Test on PVC pipes.
IS: 800 Code of practice for general construction in steel
IS: 3589 Electrically welded steel pipes for water, gas and sewage -MS Pipes IS:
5822 Code of Practice for laying of welded steel pipes for water supply IS: 4350 Concrete porous pipe for under drainage.
IS: 1520 IS 6595 Centrifugal pump IS:
8034 Submersible pump
IS: 9694 Selection, installation, operation and maintenance of centrifugalpump. IS:
7538 Three phase squirrel cage induction motor
IS: 900 Installation and maintenance of induction motor IS:
4029 Testing of induction motor
IS: 9283 Motors for submersible pump sets. IS:
1180 Outdoor three phase transformer
IS: 10553 (part 1-5) Requirement for chlorination equipment.
IS: 14846 Sluice valves for water works purposes (50 to 1200mm size)
IS: 2685 Selection, installation and maintenance of sluice valves.
IS: 3042 Single faced Sluice gates (200 to 1200mm size) IS:
5312 Non return valve
IS: 4038 Foot valve for water works

IS: 13095 Butterfly valves for general purpose IS:
2373 Water meter (bulk type)
IS: 1180 Outdoor type three phase transformer
IS: 1726 Specification for Cast Iron Manhole Covers and Frames. IS:
2721 Galvanized steel chain link fence
IS: 1700 Drinking water fountains
IS: 5330 Criteria for design of anchor blocks
IS: 3025 Method of sampling and test for water
IS: 2556 Specification for vitreous sanitary appliances
IS: 10005 SI Units and Recommendations for the use of their Multiples and of certain other units
IS: 2190 Selection, installation and maintenance of portable first aid appliances IS: 13983
Stainless steel sinks for domestic purpose
IS: 15622 Pressed ceramic tiles
IS: 6248 Metal rolling shutters and grills
IS: 2527 Fixing rain water gutters and down pipes IS:
2470 Installation of septic tank
SP: 7- National Building code
SP: 35 – Hand book on water supply and drainage
IRC -15 - Standard specification and code of practice for construction of concrete roads IS 4021:
1995 Timber Door, Window and Ventilator Frames-Specification

The GOs issued by Government of Kerala from time to time will be applicable to this tender also. the list is not exhaustive..All the relevant codes with latest revisions should be a