

KERALA RURAL WATER SUPPLY AND SANITATION AGENCY

Name of Work: Renovation of existing 10,000 litre capacity RWH units, Renovation of existing open well, Construction of rain water recharge pit (50 nos.) at Govt. Girls High School, Manakkadu and providing recharge facility, Construction of Rain Water Recharge Pit (50 nos.) at Govt. Teachers Training Institute Manakkadu, Thiruvananthapuram.

NOTICE INVITING TENDER**VOLUME – I**

| | | |
|---|---|-----------------------------|
| Tender No | : | 131/RC/KRWSA/2019 |
| Tendered PAC | : | Rs.23,73,200/- |
| Last date of online submission of tenders : | | 22/09/2020, 5.00 PM |
| Date of tender opening | : | 25/09/2020, 11.30 AM |

RAIN CENTRE

**OFFICE OF THE EXECUTIVE DIRECTOR
KERALA WATER SUPPLY AND SANITATION AGENCY
PROJECT MANAGEMENT UNIT
THIRUVANANTHAPURAM**

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OFFICE OF THE EXECUTIVE DIRECTOR
KERALA RURAL WATER SUPPLY AND SANITATION AGENCY
Project Management Unit
Thiruvananthapuram-695001
Tel-0471-2320848, Email-rwhcentre@gmail.com

E-TENDER NOTICE

The Executive Director, Kerala Rural Water Supply and Sanitation Agency, Project Management Unit, Rain Centre , Thiruvananthapuram-1 invites sealed competitive electronic tenders in Two level system for the work detailed below from the contractors having valid and eligible A, B, C and D class registration from KPWD/KWA/CPWD/LSGD and Govt institutions.

This tender is an e-Tender and is being published online for the Project “ Operation Anantha-II- Thiruvananthapuram city (Under State Plan scheme 2019-20) .

The tender is invited in two cover system from the registered and eligible firms through e-procurement portal of Government of Kerala ([https://www .etenders.kerala.gov.in](https://www.etenders.kerala.gov.in)). Prospective bidders willing to participate in this tender shall necessarily register themselves with above mentioned e-procurement portal.

The tender timeline is available in the critical date section of this tender published in www.etenders.kerala.gov.in.The brief details of tender are as follows.

| | |
|---------------------------------------|---|
| Tender No | 131/RC/KRWSA/2019 |
| Name of Project | Operation Anantha-II- Thiruvananthapuram city (Under State Plan scheme 2019-20) . |
| Name of work | Renovation of existing RWH units at the premises of the school, Renovation of existing open well and the Construction of Recharge pit at GHS and GHSS premises , and Renovation of the existing system and Construction of rain water recharge pit at GTTI, Tvm |
| Location | 1.Government Girls High School , Manakkadu , Thiruvananthapuram. 2.Government Teachers Training Institute Manakkadu , Tvm, |
| Probable Amount of Contract: | Rs .23,73,200./- |
| Source of Fund for this work: | State Plan Funds |
| Budget provision for the year | 2019-20 |
| Sale of Tender Documents | Documents are available in the site www.etenders.kerala.gov.in for free download |
| Tender forms received by | Executive Director, KRWSA, Project Management Unit, Thiruvananthapuram. |
| Tender fee: | Rs.2500+ GST |
| EMD: | Rs .50,000/- |
| Mode of payment (Tender fee & EMD) | online payment |
| Pre- bid meeting | 08/09/2020 at 2.00PM |
| Corrigendum | Corrigendum if any will be published in www.etenders.kerala.gov.in |

| | |
|---|---|
| Last date and time of submission of tenders electronically to the tendering Authority | 22/09/2020 at 5.00 PM |
| Date and time of opening of tenders | 25/09/2020 at 11.30 AM |
| Validity of Bid(Firm period) | 90 days from the last date of submission of bid(electronically) |
| Place of execution of agreement | Rain Centre, Project Management Unit, KRWSA, First Floor, PTC Towers, SS Kovil Road, Thampanoor, Thiruvananthapuram-695001. |
| Period of completion of work | 6 Months from date of agreement. |

Interested bidders can get further details regarding the work from the office of the Executive Director, KRWSA, Project Management Unit, Rain Centre, Thiruvananthapuram-695001 Tel 0471-2320848, Email-rwhcentre@gmail.com.

All other relevant rules followed by KRWSA shall be applicable.

Executive Director, KRWSA,
Project Management Unit,
Rain Centre,
Thiruvananthapuram-695001.

KERALA RURAL WATER SUPPLY AND SANITATION AGENCY

2. DETAILED TENDER NOTICE

Sealed competitive electronic tenders are invited for and on behalf of Executive Director, KRWSA by the undersigned from contractors having valid and eligible contract licence A, B, C and D class registration from KPWD/KWA/CPWD/LSGD/Govt of India/Govt institutions.

Name of project: Operation Anantha-II- Thiruvananthapuram city (Under State Plan scheme 2019-20)

Name of Work: Renovation of existing RWH units, Renovation of existing open well and the Construction of Recharge pit in the premises of Govt High school and Higher Secondary School , manakkadu . & the Renovation of existing systems and the construction of rain Water recharge Pit in the premises of Govt Teachers Training Institute , Manakkadu , Thiruvananthapuram . The bidder shall fill up technical bid sheet and price bids in prefixed formats and upload in the website along with NIT Vol. I & II.

2. Intending tenderers may enroll themselves for e-tendering in the website www.etenders.kerala.gov.in. One time registration is valid for all KRWSA tenders. The contractors who are registered for e-tendering and have valid password can only view / download the Tender Documents. The Tender Schedule shall be filled up in the prescribed format provided in tender document. For uploading the tender documents, the tenderer has to remit the amount towards cost of tender documents as well as the prescribed EMD through online payment mechanism for e-procurement system of Govt. of Kerala. Tenderers are advised to visit the "Downloads" section of e-Procurement website (www.etenders.kerala.gov.in) for detailed instructions on making online payment using internet banking facility of SBI or by using NEFT facility. Only those tender schedules which are downloaded from the website and uploaded after filling only will be considered. Bidders can make use of the links "help for Contractors", "FAQ", "Bidders Manual Kit" etc. in the above website for more details on registration and bid submission. For further assistance they can also contact over phone or by mail to the regional offices of Kerala State IT Mission in the addresses available in the website.

The tenders shall be submitted electronically to the Executive Director, KRWSA, Project Management Unit , Rain Centre , Thiruvananthapuram 695001 in the method available at the web site www.etenders.kerala.gov.in. The tenderer has to remit the amount towards cost of tender documents and EMD through online payment in time. The bid submission is allowed up to the last date and time given in this tender notice. Submitting bid documents in no way for a right or / eligibility for pre-qualification of awarding the work. The pre-qualification criteria are described in the bid document.

The price bid shall be submitted electronically only.

The bidder shall fill up the prequalification sheet, technical bid sheet and price bids in prefixed formats along with NIT, Scope of work or any other document uploaded by the Executive Director and upload in the website. Additional documents if any are to be scanned and uploaded in the website. The price bid shall be submitted electronically only. The tenderer shall produce before the originals of the documents uploaded including those scanned and uploaded (except price bid) with the preliminary agreement executed in the prescribed Kerala Stamp paper (Rs.200). In the event of discrepancy between the scanned copy and the original submitted or if the tenderer fails to submit the documents within the prescribed time, the tender submitted by the tenderer will be summarily rejected and the EMD forfeited.

Technical Bid shall be opened in the presence of the Bidder or their authorized representative who chooses to attend the specified tender opening. After the evaluation of Technical Bid, the Executive Director will intimate the bidders who have qualified in Technical bid, the date and time of opening of the Price bid which will be fixed subsequently. The participating bidders can view the bid opening online and view the rates of competitors after tender opening. Bidders are requested to furnish Telephone

No/Fax No/Email ID for speedy transfer of information.

Executive Director will not be responsible for any cost or expenses incurred by bidders in connection with preparation or delivery of bid or loss of any document during transit. Date extension will not be allowed without specific reasons and which is beyond the control of KRWSA. In the event of any of the specified date being declared a holiday, the event will take place at the same time and place on the next working day. All other conditions of invitation of tenders will be as per prevalent rules in KRWSA.

3. Deleted.

4. The pre-bid meeting will be on 08/09/2020 at 2.00PM. The clarifications if any will be published in the web. These clarifications will form part of tender documents and copy of same shall be uploaded and submitted duly signed in hard copy.

5. Period of completion of the work tendered will be 6 **(Six) months** from date of agreement.

6. The tenders shall be submitted electronically before 5.00 PM on 22/09/2020. The bidder shall fill up the prequalification sheet, technical bid sheet and price bids in prefixed formats along with NIT, Scope of work or any other document uploaded by the Executive Director and upload in the website. Additional documents if any are to be scanned and uploaded in the website. The price bids in prescribed format should be submitted electronically only.

7. The tenders shall be opened at 11.30 AM on 25/09/2020. The bidders are advised to be present for the opening of tender or they can view the opening through the web site. The electronically submitted price bid of those contractors whose technical bids are at par with the N.I.T only will be opened by the Executive Director, KRWSA after giving due information about the time and date to all the selected bidders in advance and in the presence of the bidders present at the time of opening. The decision of the Executive Director, KRWSA regarding the eligibility to be selected for the opening of the financial bids will be final and it shall not be appealable. Tenders without requisite EMD and other particulars shall not be considered further but will be retained with KRWSA.

8. The cost of tender form, for this tender is not refundable even though the tender is cancelled or rejected at any stage.

9. Deleted

10. The contractors who are either blacklisted or failed to complete the works or refrain from executing the agreement and completing the work shall not eligible to participate in this tender.

3. LETTER SUBMITTING THE TENDER

(shall be submitted in this format after filling the details along with hard copies)

Ref. No.

Place

Date

From

To

The Executive Director,

KRWSA, PMU

Rain Centre

Tvm-1.

Sir,

Sub: Operation Anantha-II- Thiruvananthapuram city (Under State Plan scheme 2019-20)

Ref:Your e- tender Notification No.131/RC/KRWSA/2019/, Dated 26/08/2020

1. I/We.... as the duly authorized person (s) in my/our official capacity as..... of the aforesaid firm, hereby submit this tender for your consideration. I / we have read and understood all conditions of this document in full spirit and meaning. I/We hereby agree to accept all the conditions put forth in the tender document without any deviations or with the exceptions, which may be expressly admitted and accepted by the tender accepting authority before the award of work. Preliminary agreement duly executed and signed in Rs.200/- worth stamp paper is also enclosed. Copy of the specifications duly signed is also enclosed.

2. EMD for Rs./- has been remitted through Credit Card / Net Banking.

3. I / We further agree to complete the whole work in all respects within **6(Six) months** from date of agreement.

4. I/We agree to keep the tender open for acceptance for a period of **90 days** from the last date prescribed for submission of tender.

5. I / We agree that Agency shall without prejudice to any other right or remedy be at liberty to forfeit the said earnest money absolutely if

(a) In case we fail to keep the tender open as aforesaid or make any modifications in the terms and conditions of the tender.

(b) After the Tender is accepted, I/We fail to execute the agreement as provided in the tender conditions or to commence the execution of work as provided in the condition.

6. The tender submitted is fully in accordance with NIT and I / we agree to all NIT conditions and any other conditions prevailing in KRWSA in **toto**.

7. I have not included any conditions in quoting for this tender.

Yours faithfully

(Office Seal)

SIGNATURE with name and address of contractor

4. PARTICULARS SHOWING STATUS OF TENDERER

(Shall be submitted in this format after filling the details along with hard copies)

4.1.1 Name of tenderer :

4.1.2 Address

(a) Permanent :

(b) Present for communication :

(c) E-mail ID

Fax

Telephone (land/mobile) :

4.1.3 Status of the tenderer/individual or public Ltd. Co. or Private Ltd Co. or registered partnership concern or proprietary concern or Registered Ngo :

4.1.4 Name and address of Chairman of Board of Directors and Managing Director/Managing Partner (in case of partnership concern) or Proprietor (in case of proprietary concern)

[Memorandum of Articles and Authorization/ Partnership deed] :

4.1.5 Whether the tenderer is a registered contractor of KWA/ any State /Central Government Department. (CPWD, MES, Railway etc) or local bodies (ie. Port Trust, District Board, Municipality or a statutory body) with Reg. No. and year and issuing authority :

4.1.6 Name and address of two responsible persons (Preferably Senior Engineers/ Officers of a Government Department, Quasi Government organization or a local body/Regional Project Directors or Director Technical of KRWSA), to whom reference can be made regarding experience and performance :

4.1.7 Whether Authorization to act on behalf of the firm presented or not :

SIGNATURE WITH NAME & DESIGNATION

(OFFICE SEAL)

5. FORMS OF AGREEMENT

(A) FORM OF PRELIMINARY AGREEMENT

“Preliminary Agreement entered on this day of..... Two Thousandbetween Executive Director ,PMU, KRWSA, Thiruvananthapuram For and on behalf of KRWSA of the one part and Sri, .. (full name and address of the tenderer) hereinafter called the contractor of the other part for the execution of the agreement as well as for the execution of the work Operation Anantha-II- Thiruvananthapuram city (Under State Plan scheme 2019-20) invited tenders for the work by Notification No 131/RC/KRWSA/2019 , Dated 26/08/2020 in-----the-----AND WHERE ...

..... of the notice inviting tenders stated as follows:

Within **fifteen days** after the date when the acceptance of the tender has been intimated to him, the tenderer shall deposit a sum sufficient to make to the balance which together with the amount of earnest money deposited shall be created as security for the proper fulfilment of the same and shall execute an agreement for the work in the stipulated manner. If he fails to do this or in the case of the contract to maintain a specified rate of progress (to be specified in each case in the tender schedule) the earnest money and security deposit shall be forfeited to KRWSA and fresh tenders shall be called for or the matter otherwise disposed off. If as a result of such measures due to the default of the tenderer to pay the required deposit to KRWSA results in any loss to KRWSA, the same will be recovered from him as arrears of revenue. The original contractor shall have no claim whatever to the sum that may be due to the contractor on this or any other subsisting contracts or under the Revenue Recovery Act or otherwise the KRWSA may decide.

..... of the notice inviting tenders stated as follows:

Within **fifteen days** after the date when the acceptance of the tender has been intimated to him, the tenderer shall deposit a sum sufficient to make to the balance which together with the amount of earnest money deposited shall be created as security for the proper fulfilment of the same and shall execute an agreement for the work in the stipulated manner. If he fails to do this or in the case of the contract to maintain a specified rate of progress (to be specified in each case in the tender schedule) the earnest money and security deposit shall be forfeited to KRWSA and fresh tenders shall be called for or the matter otherwise disposed off. If as a result of such measures due to the default of the tenderer to pay the required deposit to KRWSA results in any loss to KRWSA, the same will be recovered from him as arrears of revenue. The original contractor shall have no claim whatever to the sum that may be due to the contractor on this or any other subsisting contracts or under the Revenue Recovery Act or otherwise the KRWSA may decide.

NOW THESE PRESENT WITNESS AND it is mutually agreed as follows:

The terms and conditions for the said contract having been stipulated in the said tender form to which the contractor has agreed, a copy of which forms part of this agreement, it is agreed that the terms and conditions stipulated therein shall bind the part to this agreement extend to which they are abrogated or altered by express terms and conditions herein agreed to and in which accept the express provisions herein all supersede those of the same tender form.

1. The contractor hereby agrees and undertakes to perform fulfill all the operations and obligations with the execution of the said work Renovation of existing RWH units, Renovation of existing open well and the Construction of Recharge pit in the premises of Govt High school and Higher Secondary School , Manakkadu . & the Renovation of existing systems and the construction of rain Water recharge Pit in the premises of Govt Teachers Training Institute , Manakkadu , Thiruvananthapuram ..The bidder shall fill up technical bid sheet and price bids in prefixed formats and upload in the website along with NIT Vol.I & II.
2. If the tenderer does not come forward to execute the original agreement after the said work is awarded and selection notice issued in his favour commits breach of any of the conditions of the contract as stipulated in the NIT as quoted above within the period stipulated therein may rearrange the work otherwise or loss so sustained by the KRWSA can be realized from the tenderer under Revenue Recovery Act as if arrears of land revenue as assessed, taking into consideration the prevailing PWD rate and after giving due notice to contractor. The acquisition taken by such authority officer or officers shall be final and conclusive and shall be binding on the contractor.

Tenderer

Tendering Officer

3. The tenderer further agrees that any amount found due to KRWSA under or by virtue of this agreement shall be recoverable from the contractor from his EMD and his properties movable and immovable as arrears of Land Revenue under the provisions of the Revenue Recovery Act for the time being or in any other manner as the KRWSA may deem fit in this regard.

4. The tenderer further assures it is clearly understood that the settlement of claims either by part bills or by final bills will be made only according to the availability budget provision and allotment of funds to the work under respective heads of account in which the work is sanctioned and arranged and also subject to seniority of such bills. No claim for interest or for damages whatsoever shall be made for the belated settlement of claims of bills.

IN WITNESS WHERE OF Sri. -----(here the name of the officers of the KRWSA) for on behalf of the KRWSA and Sri -----
 ----the tenderer have set their hands on the day and year firm above written signed by Sri -----
 -----officer / officers of KRWSA.

In the presence of witness

EXECUTIVE DIRECTOR

1.

2.

Signed and delivered by

Sri , the contractor

1.

2.

Note:- The form should be presented in Rs. 200/- valid stamp paper of Govt. of Kerala.

Tenderer

Tendering Officer

(B) FORM OF FINAL AGREEMENT TO BE EXECUTED ON AWARD OF WORK

AGREEMENT No --...WORKS CONTRACT.

AGREEMENT entered into day of the.Two Thousand and
....seventeen.....between.....
.....

.....of the one part and the Executive Director, ,PMU, KRWSA,
Trivandrum for and on behalf of KRWSA of the other part for the work by the former for the use
of the KRWSA as per accompanying, plan, specification and conditions of contract approved
by the Executive Director, PMU, KRWSA, Trivandrum Signed and delivered by the above mentioned.

Sri... .. the contractor

In presence

1.

2.

Signed and delivered by the Executive Director, KRWSA ,PMU Rain Centre Trivandrum and on
behalf of the KRWSA.

EXECUTIVE DIRECTOR

In the presence of witness

1.

2.

Tenderer

Tendering Officer

6.DEFINITIONSAND INTERPRETATIONS

1. 'Government' means Government of Kerala.
2. 'Agency/KRWSA' means the Kerala Rural Water Supply and Sanitation Agency.
3. 'Executive Director' means the Executive Director, Kerala Rural Water Supply and Sanitation Agency., Thiruvananthapuram.
4. 'Director Technical' means Director Technical at the office of the Executive Director, Kerala Rural Water Supply and Sanitation Agency, Thiruvananthapuram.
5. 'Deputy Director Technical' means Deputy Director Technical at the office of the Executive Director, Kerala Rural Water Supply and Sanitation Agency Thiruvananthapuram
6. 'Engineer' means the authorised Engineer at the office of the Executive Director, Kerala Rural Water Supply and Sanitation Agency, Thiruvananthapuram.
7. 'Technical Supervisor' mean Technical Supervisor of the Kerala Rural Water Supply and Sanitation Agency, who is in charge of the work.
8. 'Departmental officers' means officers of Kerala Rural Water Supply and Sanitation Agency, not below the rank of Technical Supervisor who is in charge of the work.
9. 'Work' means the work / project to be done as per the description in the tender document.
10. 'Tenderer' means person or persons, firm or partnership or company or consortium of companies submitting a tender for the work as defined under item 8 supra, either directly or through duly authorized representatives.
11. 'Contractor' means person or persons, firm or partnership or company or consortium of companies who have entered into contract for the execution of the work.
12. 'Drawing' means the drawing referred to in the tender documents or such other drawings as may from time to time be furnished or approved in writing by the Executive Director or Director Technical .
13. 'Site' means lands and other places, on, under, in or through which the work is to be executed or carried out or any other place provided by the Agency for the purpose of fulfilment of the Contract.
14. 'Departmental rate' means rate worked out by the Agency based on departmental data and Schedule of Rates plus conveyance plus 10% towards contractor's profit except on the cost of materials issued departmentally.
15. 'Specification' means the instructions, provisions, conditions and detailed requirements contained in the tender documents.
16. 'M.D.S.S' means Madras Detailed Standard Specifications (Latest Edition).
17. 'I.S.S' means Indian Standard Specification, ISO means International standard Organisation and BIS means Bureau of Indian Standards.
18. 'B.S.S' means British Standard Specifications.
19. 'Approved / Approval' means approval in writing.
20. 'Day' means a day from midnight to midnight. 'Week' means seven consecutive days
21. 'Month' means from the beginning of a given date of calendar month to the end of the proceeding date of the next month.

Tenderer

Tendering Officer

22. 'Time tested' means the performance of an item is in such a manner that it has successfully withstood the service conditions intended originally for a continuous period of not less than 7 years in the past without having shown any unpredicted and unpleasant effect and thus has proved the worthiness beyond doubt.
23. 'Lead Partner/partner in charge' means the partner who is authorized by an agreement executed by all partners to receive any instructions / communications / payments from KRWSA and to attend any discussions or other activities in respect of this contract on behalf of all partners.
24. 'Testing' When a structure / component / equipment is tested to ascertain its strength / durability /material comparison with respect to design / service loads or performance to the satisfaction of the Technical Supervisor in charge or as stipulated in the scope of work or as per ISS / BSS, or any such standards / specifications, it is defined as testing.
25. 'Trial Running' means putting all components together with the service / design conditions so as to ascertain the individual and combined performance of all works under the scope together, with respect to the design performance for a period specified in the scope of works.
26. 'Commissioning': means having ensured satisfaction in performance with respect to design / Service conditions in testing and trial running putting the works under the scope of work into desired real service conditions from a particular moment of time continuously or otherwise as envisaged.
27. 'Training' means imparting of training to Agency staff with sufficient practical and theoretical knowledge for the operation and maintenance of the service system/scheme and the knowledge for attending to emergency repairs or acting appropriately on emergency situations that may arise during the life time of the system, as included in the 'work'.
28. 'Manual means Manual on Water Supply and treatment third edition Revised and up dated May 1999 (or the latest) of Central Public Health and Environmental Engineering Organization.
29. 'MLD / mld' means Million liters per day.
30. 'LPS / lps' means Litres per second
31. "EPCM" means Engineering Procurement, Construction and Management.
32. "Maintenance" means Maintenance for specified period during the guarantee period mentioned after full commissioning of project.
33. "ETS" Electronic tendering system and "E-tender" means electronic tender.
35. "Tender" refers to all documents submitted by the bidder through electronic media and attachments in hard copy.

Tenderer

Tendering Officer

KRWSA

7. TENDER CONDITIONS: PART-I PRE-QUALIFICATION OF TENDERERS

7.1 **The Executive Director, KRWSA PMU, Thiruvananthapuram** for, and on behalf of the KRWSA propose to arrange the following work:- : Renovation of existing RWH units, Renovation of existing open well and the Construction of Recharge pit in the premises of Govt High school and Higher Secondary School , Manakkadu . & the Renovation of existing systems and the construction of rain Water recharge Pit in the premises of Govt Teachers Training Institute , Manakkadu , Thiruvananthapuram .

7.2 The successful tenderer shall be entrusted with the work for the completion of the project as described in the "Scope of Works" in Volume II.

7.3 Deleted

Engaging a consultant:- In case the tenderers intend to engage a consultant for the purpose of design or any such specialized function for the contract, the name and address of such consultant together with an undertaking from the consultant shall be included in the technical bid package specifying the specialized function.

7.4 The tenderers who have submitted the bids, shall be considered as pre- qualified for consideration of their bids further only if:

Contractors having valid and eligible contract licence A, B, C and D class registration from KPWD/KWA/CPWD/LSGD/Govt of India/Govt institutions.

7.4.1. In case the tender is submitted as a joint venture:

(i) There shall not be more than four partners in a joint venture and one partner shall be designated as lead partner.

(ii) The lead partner submitting the tender on behalf of the joint venture shall (a) submit complete information pertaining to each such partner and (b) state in the covering letter attached to the tender the name of the lead partner in charge duly authorized for submitting the tender which shall be evidenced by proper power of attorney signed by legally authorized signatories of all the partners.

(iii) Original or notary attested copy of the agreement confirming the intent of all parties to form a joint venture shall be attached with the tender. It shall also distinctly show:

a) The financial participation of each member of the joint venture and the responsibility of each member as regards the planning and execution of the work.

b) Name of the lead partner in charge who is authorized to incur liabilities and receive instructions for and on behalf of all/any of the partners of the joint venture during the entire period of the contract including any extended period, as well as for receiving payments due.

c) An undertaking to the effect that all the partners of the joint venture shall be jointly

Tenderer

Tendering Officer

& severally responsible for the execution of the contract, in accordance with the terms and conditions of the contract.

- d) A partner or a design consultant who has joined with the lead partner to compete in this bid shall not compete singly or in association with any other tenderer for this work. The tenderer while submitting his bid shall obtain an undertaking in this regard from his design consultant / partner and produce it along with the technical bid.
- e) The aggregate of the qualification criteria of all partners together shall be sufficient to meet the requirements as if a single tender only on financial criteria.
- f) A lead partner of the joint venture shall meet at least 40% of the qualification criteria in terms of annual turnover and net worth and any other partner shall meet at least 25% of the qualification criteria.
- g) The extent of participation of each partner shall be specified as also experience of all such partners in the relevant field. However, a partner only for design and consultancy shall not be reckoned for the purpose of clause (f) above.
- h) Where the tender submitted is as per clause (g) above for the purpose of attaining pre-qualification as a design and management consultant of the prime contractor, then full information shall be given on the consultancy firm's proposed participation. An undertaking from the consultant for providing professional assistance to the contractor shall accompany the tender together with the complete details regarding the technical man power and experience of such consultant.
- i) Status of persons signing the tender on behalf of the firm in the event of the tender being submitted by a firm, the person signing the tender on behalf of the firm shall state his position in the firm as to whether he is the proprietor, partner or Manager etc. He shall also furnish with the tender, the letter or other documents (in original) authorizing him to act on behalf of the firm.

7.4.2. CHANGE IN THE FIRM'S CONSTITUTION

7.4.2.1 In the case of contract entered into by partnership firm, any change in the constitution of the firm shall forthwith be notified by the contractor to the Director Technical and to the officer with whom the agreement has been executed.

7.4.2.2 The tenderer, shall not without the previous sanction in writing of the agency accepting the tender, execute any power of attorney in respect of any matter implying this contract and any such power of attorney executed without such sanctions shall not be recognized by or be binding up on the Agency either to grant such sanction or to refuse it or revoke a sanction once given.

7.4.2.3 In the case of partners who are in joint venture for executing the agreement, no change in the individuals of the firm shall affect the liability of the person who may sign the agreement. Any such change shall be forthwith notified by the contractor to the Agreement Agency and the Director Technical for information.

7.5 TENDERS TO BE IN PRESCRIBED FORM

Tenders, which are not submitted in the prescribed form, shall be summarily rejected.

7.6 HOW TO SUBMIT THE BID.

The tenders shall be submitted electronically to the Executive Director, KRWSA, Project Management Unit, Rain Centre, Thiruvananthapuram 695001 in the method available at the web site www.etenders.kerala.gov.in. The tenderer has to remit the amount towards cost of tender documents and EMD.

Tenderer

Tendering Officer

through online payment in time. The bid submission is allowed up to the last date and time given in this tender notice. Submitting bid documents in no way for a right or / eligibility for pre-qualification of awarding the work. The pre-qualification criteria are described in the bid document.

The price bid shall be submitted electronically only.

The bidder shall fill up the prequalification sheet, technical bid sheet and price bids in prefixed formats along with NIT, Scope of work or any other document uploaded by the Executive Director and upload in the website. Additional documents if any are to be scanned and uploaded in the website. The price bid shall be submitted electronically only. The tenderer shall produce before the originals of the documents uploaded including those scanned and uploaded (except price bid) with the preliminary agreement executed in the prescribed Kerala Stamp paper (Rs.200). In the event of discrepancy between the scanned copy and the original submitted or if the tenderer fails to submit the documents within the prescribed time, the tender submitted by the tenderer will be summarily rejected and the EMD forfeited.

Volume I - This part should contain NIT and relevant details as per the NIT conditions. This should also contain all information required for the pre-qualification of the tenderer, such as copies of details of works done previously, work in hand etc. and such information should be furnished in specified formats Q.1

Volume II- Scope of work and bill of quantities.

7.7 HOW TO SUBMIT PRE-QUALIFICATION BID

7.7.1 It is mandatory that pre-qualification application shall contain the following.

- a. Contractors attending the bidding shall attach the copy of Contract license through electronic Medias.
- b. Deleted

7.7.2 Deleted

7.7.3 All details furnished should be complete and as applicable six months prior to the last date of submission of tender.

7.7.4 Applicants are particularly advised to fill the details strictly as per the para 7.7.1. Applications will be rejected if required details are not furnished and if it do not meet the minimum qualifications/ requirements mentioned anywhere in this document. **Any formats furnished in lieu of prescribed formats will not be accepted.** The applicants may furnish any additional information, which in his opinion will highlight his capacity to perform, along with the attachments.

7.7.5 While, applications are under consideration, applicants and their representatives or other interested parties are advised to refrain from contacting by any means KRWSA officers on matters related to the applications under scrutiny. Applicants will not be permitted to change the substance of their applications after they have been opened. Noncompliance with these provisions shall be a cause for disqualification.

7.7.6 No firms/ partner of any firm, consultant including design consultant or individual be who have submitted the tender for a work shall associate with any other bidder in the particular tender. EMD in such cases shall be forfeited both the tenders will be treated as rejected

Tenderer

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7.8 HOW TO SUBMIT THE TECHNICAL BID (Cover – B Part II)

7.8.1 There shall be a brief description of the systems offered as a prelude to the bid under the title "Brief description of the systems offered" and numbering each of the paragraphs. This shall be followed by details of the civil structures under the title "Particulars of civil works." This shall contain the particulars regarding length, breadth, total height, water depth and sizes of the different Components and the specifications of the materials proposed for construction of the various parts of these components and the method of execution.

The tenderer is bound to execute all the works described in NIT even though if it is not expressed in brief description of systems offered by the contractor.

7.8.2 The details shall, wherever possible, be furnished in the form of rows and columns (Tables) for enabling a quick evaluation of the offer,

7.8.3 A preliminary design substantiating the above shall be enclosed.

7.8.4 Drawing required for explaining the scope of work is appended in annexure 1.

7.8.5 Deleted

7.8.6 Deleted

7.8.7 The documents of the Technical bid as per Clause: 7.8.1 to 7.8.4 shall be arranged in the same order.

7.8.8 The itemized schedule of works explained under the scope of works is furnished in the Part 2.

The cost or rate shall not be disclosed anywhere in this sheet, as it shall render the tender invalid.

7.8.11 ALTERNATE OFFERS AND DEVIATIONS

Any alternative offer deviating from the scope of work and specifications provided in the NIT will not be entertained and shall render the tender invalid.

7.9 HOW TO SUBMIT THE PRICE BID

7.9.1 The price bid in format BOQ should be submitted electronically only. **The cost or rate shall not be disclosed anywhere in this sheet, as it shall render the tender invalid.** The price Bid shall be submitted only in the format specified for that purpose (Form BOQ).

7.9.2 The price bid shall not be used for expressing or putting forth any techno- commercial conditions of the tender. Violation of this stipulation shall result in rejection of the tender after the opening of the price bid even if it may happen to be the lowest.

7.9.3 VARIATION OF PRICE BID

The tenderer is bound to carry out the work as per the specification at the quoted rate. Nothing inferior to specification as per the scope of work included as part of this NIT shall be acceptable. Price variation on any account shall not be permitted if not explicitly specified otherwise in this NIT and the tenderer is expected to follow sound engineering practices in his designs and cost

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calculations. Changes in statutory taxes/levies, if any, shall be applied on cost of pipe in case of pipeline works, involving pipe supply. In all such cases the duties, levies, and taxes in percentage that he has considered in the quoted amount and the cost of pipes shall be declared by the tenderer while submitting his price bid. Any escalation/ reduction in statutory duties and levies will be applied only on the basic price of pipes and specials. No escalation in statutory taxes, duties and levies etc. shall be allowed beyond the original approved period as per the procurement schedule, accepted and included in the agreement.

7.10 ATTESTATION OF CORRECTIONS AND ADDITIONS

Care shall be taken to prepare the tenders without corrections/over writings / erasing etc. However, if any corrections, additions or pasted slips shall become necessary, the same shall be signed by the tenderer.

7.11 LANGUAGE AND CORRESPONDANCE OF THE TENDER

Tenders shall be submitted in English and all information in the tender shall be in English. Information in any other language shall be accompanied by its translation in English. However, the details as read in the English text will be governing. Failing to comply with this direction may be considered as a sufficient reason for disqualifying a tender. Any communication should be in writing. Tenderers can make correspondence with the tendering authority through E mail, by fax, or by post.

7.12 CERTIFICATE OF NON-RELATIONSHIP

1. Persons related to any officer of the KRWSA, who is in charge of or having control over the work, are strictly prohibited from tendering for the work. Relationship in this respect is restricted to father, mother, husband, wife, son, daughter, brother, sister, nephew, father-in-law, brother in-law, mother-in-law, sister-in-law and first cousin of the officer concerned. The tenderers shall declare that they are not related to any officer of the KRWSA who is in charge or having control over the work.

2. If at any stage, the above condition is found to have been contravened, the earnest money /security deposit of the tendered shall be forfeited and contract entered into shall be cancelled and the work arranged at his risk and cost.

7.13 FIRM PERIOD OF TENDER

Tenders shall be firm for acceptance for a period of **90 days** from the last date prescribed for submission of tender. No tender can be withdrawn or altered before the firm period is over. Any tenderer who withdraws or alters the tender before the expiry of the firm period shall do so at the risk of the tenderer and the earnest money will be forfeited to KRWSA.

7.14 PERIOD OF COMPLETION, SCHEDULE BAR CHART, AND CPM CHART

The work shall be completed in all respects within **6 (Six) months** from date of agreement. This period of execution is inclusive of the monsoon season. C.P.M. chart along with the detailed schedule bar chart shall also be furnished with the tender. The schedule bar chart shall indicate the weightage of each element/activity with respect to the total quoted amount for the project.

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7.15 AGENCY ACCEPTING THE TENDER

The final acceptance of the tender vests with the KRWSA/ State Government which is not bound to accept the lowest tender or assign any reason for rejecting any tender. The Agency reserves to itself the right of re- advertising the tender for the work for carrying out the work in any manner that may be deemed fit, subsequent to this invitation of tender.

7.16 EVALUATION OF TENDER

The tender submitted by a tenderer/firm shall be evaluated in two phases.

First stage : Pre-qualification of tenderers.

Second stage : Evaluation of price bid of the pre-qualified tenderers.

7.17 EVALUATION OF PREQUALIFICATION APPLICATION

Evaluation as per documents 7.7.1

7.17.1 MINIMUM ELIGIBILITY CRITERIA FOR PREQUALIFICATION.

The applicant must be a well-established Registered contractor with experience capabilities in executing works similar to the work tendered. The applicant can either be a single or a joint venture as per clause 7.4.1 of this NIT. The minimum qualification expected for eligibility for pre-qualification will be based on the following.

Contractors having valid and eligible contract licence A, B, C and D class registration from KPWD/KWA /LSGD/PWD other State of India/ CPWD/Central or State PSUs.

7.17.1.1. Deleted

7.17.1.2. Deleted

1. Deleted.
2. Deleted.
3. Deleted.
4. Deleted

5.(a) Deleted

5.(b) Deleted

6. (a) Deleted

6 (b) Deleted

7. A tenderer who has lagged two or more works of KRWSA shall not be considered as pre-qualified.

8. Certificates of experience issued by the agreement-executing authority will be considered for evaluation. The date of award of such works, date of agreement, period of completion as per agreement and actual date of completion should be mentioned. The certificates furnished will be verified. In case of any poor/false performance reported on the works undertaken by the tenderer, on verification, the offer will not be further considered / processed.

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7.17.1.3. ORGANISATIONAL CAPACITY

Copy of contract licence

7.17.1.4 TECHNICAL CAPABILITY

Deleted

(A) TECHNICAL PARTICULARS AND DESIGN

Deleted

B) PROJECT MANAGEMENT STRATEGY

The project implementation programme of the tenderer shall be submitted as a schedule bar chart properly weighed in percentage and loaded with proposed manpower deployment at site. The tenderer along with technical and design proposals shall submit the procurement plan.

7.17.1.5 Deleted.

7.17.1.6 In case of joint venture partnership, The experience of the partners may be added together for explaining the capacity for pre-qualification. It should be ensured by the tenderer that all the documents furnished are duly verified and authenticated by him. No additional documents will be accepted after the submission of the tender.

7.18 Offers are liable to be rejected if

- 1) **The information given in the documents found incomplete / misleading or false (such application will be considered as non-responsive)**
- 2) **The facts are misrepresented. (in this case the EMD is liable to be forfeited).**
- 3) **The records of poor performance are found out at any time after submission of bid.**
- 4) **The contractors who are blacklisted or failed to complete the works, or refrained from executing the agreement and completing the work which they had agreed in the tender.**

7.18.1 Tenders will be rejected if

- 1) **EMD is not proper and sufficient**
- 2) **NIT is not accepted in toto**
- 3) **If the tender is conditional**

7.19 The successful bidders who are qualified in the pre-qualification evaluation will alone be invited for attending the opening of the price bid.

7.19.1 WITNESSING OF TENDER OPENING

Only one authorized representative will be permitted to witness the bid opening at both the occasions as in clause 7 of Detailed Tender Notice in Chapter 2.

7.20 FINAL DECISION MAKING AUTHORITY

The Agency reserves the right to accept or reject any of the applications for pre-qualification without assigning any reasons thereof and Agency's decision shall be final.

7.21 PERFORMANCE GUARANTEE

- (I) Performance Guarantee, the amount collected at 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 fifty percent (50%) of this deposit shall be collected in the form of
- Tenderer Tendering Officer

Treasury Fixed Deposit and the rest in the form of Bank Guarantee or any other forms prescribed in the revised PWD Manual.

(II) Additional Performance Guarantee.

Additional Performance Guarantee will be required if works quoted between 10% to 25% below estimate rate.

Additional performance Guarantee will be required to be deposited either in the form of Treasury Fixed Deposit in the name of Agreement Authority for a period not less than 28 (twenty-eight) days after the completion of works or in the form of unconditional bank guarantee from any Nationalised Bank/Scheduled Bank valid till 28(twenty-eight) days after the completion of the Work, in an approved format. The Bank Guarantee on instalment basis with lesser period validity shall not be accepted. This will be released only after satisfactory completion of the work without any interest.

7.22 EXECUTION OF AGREEMENTS

7.22.1 Preliminary agreement in Rs. 200/- Kerala Govt. Stamp Paper duly filled up and signed is to be enclosed in Cover A.

7.22.2. The successful tenderer shall before commencing the work, execute an agreement within 15 days from the date of award of the work in Kerala State Government stamp paper of the required value for the due fulfilment of the contract. He shall pay for stamps, forms and legal expenses incidental thereto. Before executing the agreement, the contractor shall finalize his procurement and project implementation schedule, which shall form part of the agreement.

The contractor shall also produce an MOU signed between him and the suppliers/ manufacturers of the equipment/pipes in order to prove and ensure the availability of the materials required for the work and approved by the tendering authority shall also form part of the agreement. In case the tenderer fails to execute the agreement within 15 days, he shall be fined for such lapses as per prevailing rules subject to a minimum of Rs. 500/- and maximum of Rs. 15,000/-. Tenders will be rejected and selection notice issued shall be cancelled if agreement is not executed within 30 days and work will be awarded to the next lowest tenderer (as per G.O(P)No.84/97/PW&T Dated: 19/8/1997 read). Any work recorded as done during the period between the award of work and the end of period allowed

to execute agreement will be treated as an asset to KRWSA and no claim will be allowed for the selected tenderer. If the successful tenderer fails to deposit the security amount and execute the agreement as specified above, the EMD of the tenderer shall be forfeited to Agency and the work shall be arranged otherwise. If as a result of such measures due to the default of the tenderer to pay the requisite security deposit, sign contracts and take possession of the worksite, the Agency incurs any loss, the same shall be recovered from him, but should it be a savings to the Agency, the original contractor shall have no claims to the difference. Recoveries on this or any other account shall be made from the sums due to the contractor on this account or otherwise as the Agency may decide, including Revenue Recovery Proceedings, as if the loss is arrears of land revenue.

7.23 COMMUNICATIONS TO BE IN WRITING

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All notices, communications, references and complaints issued or made by the Agency, the Executive Director or by any such officers of the Agency and by the contractor with regard to this work shall be in writing and no notice, communications, reference of complaint not in writing shall be valid. All complaint notices, communications and references shall be deemed to have been duly made, given or sent to the Contractor, if delivered to the Contractor or his authorized agents in person with acknowledgement or posted to the address given by the Contractor or his authorized agent and such communication, if sent in service by post shall deemed to have been received by the addressee on the date on which the same should have reached such address in the ordinary course of transmission by post and in other cases, on the day on which the same were delivered or left.

7.24 ORAL AGREEMENTS NOT BINDING

The terms of contract cannot be added to varied or reduced by any oral agreements previous or subsequent to its signature. The Agency will repudiate any such oral agreement.

Executive Director

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KRWSA**8. TENDER CONDITIONS: PART-II****8.1 TENDERS ARE TO BE IN PRESCRIBED FORM**

All the submittals under this tender shall be in the prescribed form. Tenders that are not submitted in the prescribed form shall be summarily rejected.

8.2 PURPOSE OF THE CONTRACT

All the works executed/ facilities installed under this contract shall perform the services they are intended to do to the utmost satisfaction of KRWSA, without any defects whatsoever for a minimum period of **12 months** from the date of completion and commissioning of the total works covered under this contract.

8.3 ALTERATION IN DRAWINGS SPECIFICATIONS ETC

8.3.1 The preliminary drawings and connected details enclosed are only for the reference of the tenderer. The tenderers shall conduct their own specific studies and detailed investigations based on the scope of works before offering the bid amount.

8.3.2 The Agency shall be at liberty to shift the location of structure or component of work within the periphery of the site shown in the site plan at any stage before the commencement of the actual execution of the work and the tenderer shall have no claims for any extra or enhanced rate on this account.

8.4 EXAMINATION OF THE SITE CONDITIONS, DRAWING ETC

8.4.1 The Agency does not accept any responsibility for the correctness of the description of the preliminary drawing and specifications. These are liable to alterations by omissions, deductions or addition as set forth in the conditions of contract.

8.4.2 The attached preliminary sketches, drawings, specifications, contours etc. may become liable to changes at the present situation. The tenderer should verify and ascertain the correctness of these. The submission of the tender shall be deemed to be prima-facie proof that the tenderer has made such an examination and that this tender is based on the actual situations.

8.4.3 The tenderer shall examine carefully the proposal, drawings and specifications. They shall satisfy themselves as to the character, quality and quantities of the work to be performed, the materials to be supplied and the requirements of the contract with reference to the site and soil conditions. If the tenderer finds any discrepancies or omissions in the drawings, specifications or the tender documents or he should be in doubt as to the true meaning of any part thereof he shall make a written request to the Tendering Agency at least 15 days prior to the last date fixed for the receipt of tenders. Clarifications, corrections or modifications considered necessary in the tender documents shall be issued by the Tendering Agency to all intending tenderers who had purchased the tender

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form. The last date for issuing such clarifications, corrections or modifications shall be 10 days prior to the last date for receipt of tender. The scope of works provide the requirement of Agency in this work

8.4.4 The tenderer shall specifically note that the bearing capacity and other details of soil and sub soil indicated in Appendices is only approximate and that the Agency does not give any guarantee regarding their present accuracy. The tenderers shall carry out their own tests visual and field to ascertain the bearing pressure and other details of soil and sub soil at various points before submitting the tender, if they so desire. The Agency shall in no way be liable for payments of any extra amount on account of any variation in the actual bearing capacity or other details of soil and sub soil resulting in any changes in design of foundation of structures etc.

8.4.5 Deleted

8.5 Deleted

8.6 PRE BID MEETING

The pre bid meeting will be on 08/09.2020 at 2.00 PM. Any queries/doubts, which the tenderers may have on the scope of work or tender conditions, shall also be cleared by e-mails / correspondence up to 4.00 PM on 18/09/2020. Any decision regarding changes in NIT conditions / scope of work can be taken and the same will surpass the original conditions.

8.7 SELECTION OF LOCATIONS IN THE SITE

- (a) In respect of structures/works other than pipeline works the proposed structures at the site shall be located in such a manner that the different structures form a compact unit leaving maximum possible area at the site to facilitate future expansion. However, there shall be adequate passage facilities in between, as the circumstances or surrounding areas may demand. Notwithstanding the above condition the tenderer is liable to make essential alterations in the layout during the time of actual execution as may be deemed fit by the Technical Supervisor in Charge at no extra cost.

(b)

8.8 MOBILISATION ADVANCE

No mobilization advance shall be paid to the contractor.

8.9. INCENTIVE Deleted

8.10 PENALTY

The contractor for the work shall be liable to pay penalty for the delay in executing the agreement, commencing work etc. as per the provisions of G.O. (P) No.84/97/PW&T dated 19.8.97. The Technical Supervisor in charge shall also have power to measure up the work of the contractor and later such part as shall be unexecuted out of his hands, and to give it to another contractor to

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complete, in which case, any expense which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him (of the amount by which it exceeds, a certificate in writing of the Director Technical, shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by Agency under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or a sufficient part thereof. Imposition of penalty shall be, however, without prejudice to the rights of KRWSA to terminate the contract as per the provisions of the agreement. All other conditions are as per G.O.(P) No.84/97/PW&T dated 19.8.97

8.10.1 LIQUIDATED DAMAGES

- 8.10.1(a) If the Contractor fails to maintain the required progress in terms of the agreed time and progress chart or to complete the work and clear the site on or before the date of completion of Contract or extended date of completion, he shall without prejudice to any other right or remedy available under the law to the Employer on account of such breach, pay as compensation, Liquidated damages @ 1(one) percent of the contract price per week of delay or part thereof. The aggregate of such compensation / compensations shall not exceed 10 (ten) percent of the contract value. This will also apply to items or group of items for which separate period of completion has been specified. The amount of compensation may be adjusted or set off against any sum payable to the contractor under this or any other contract with the Employer.
- 8.10.1(b) The Agreement Authority, if satisfied, that the work can be completed by the Contractor within a reasonable time after the specified time of completion, may allow further extension of time at its discretion as per clause-19. In the event of extension granted being with Liquidated Damages, the Employer will be entitled without prejudice to any other right or remedy available in that behalf, to recover from the Contractor as agreed damages equivalent to @ 1(one) percent of the contract price per week of delay or part thereof.
- 8.10.1(c) If the contractor achieves balance milestones, even though he has failed to achieve initial milestones, and the work has been completed in the specified/original time of completion, the Employer may release the already levied liquidated damages at his sole discretion.
- 8.10.1(d) The Agreement Authority, if not satisfied that the works can be completed by the Contractor and in the event of failure on the part of the Contractor to complete work within further extension of time allowed as aforesaid, shall be entitled, without prejudice to any other right, or remedy available in that behalf, to terminate the contract.
- 8.10.1(e) The Agreement Authority, if not satisfied with the progress of the contract and in the event of failure of the Contractor to recoup the delays in the mutually agreed time frame, shall be entitled to terminate the contract.
- 8.10.1(f) In the event of such termination of the contract as described in clauses 15.4 and 15.5 or both, the Employer, shall be entitled to recover Liquidated Damages up to ten percent (10%) of the contract value and forfeit the Performance Guarantee and Security Deposit made by the Contractor besides getting the work completed by other means at the risk and cost of the Contractor.

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8.10.1(g). The Employer may waive the payment of compensation in the case of contracts where milestones are fixed, depending upon merit of the case, on request received from the Contractor if the entire work is completed within the date as specified in the Contract or as validly extended without stipulating any penalty.

8.11 EARNEST MONEY DEPOSIT (EMD)

(A) No exemption shall be allowed for Govt/ Quasi govt. Undertakings/ Small Scale Industries unless there is specific order from government / KRWSA to that effect for this particular work. Any such order received from KRWSA, if exists, shall be submitted in cover –A EMD Up to and including 2 crore – 2.5% of the estimate PAC subject to a maximum of Rs. 50,000/- above 2 crore up to 5 crore –Rs. 1 lakhs.

(B) FOREFEITING OF EMD

Agency shall without prejudice to any other right or remedy be at liberty to forfeit the said earnest money absolutely if:

- (1) In case the tenderer fail to keep the tender open as aforesaid or make any modifications in the terms and conditions of the tender which are not acceptable to the Agency.
- (2) After the Tender is accepted, if the tenderer fail to execute the agreement as provided in the tender conditions.

(C) REFUND OF THE EARNEST MONEY DEPOSIT TO UNSUCCESSFUL TENDERER

The earnest money deposit of the unsuccessful tenderers shall be refunded after the tenders are disposed of.

(D) CONVERSION OF EMD INTO SECURITY

The EMD submitted by the tenderer cannot be converted to form part of the security deposit required to be presented by the tenderer for executing agreement on award of work.

8.12 INITIAL SECURITY DEPOSIT AND RETENTION AMOUNTS (Amended)

The successful bidder shall within fifteen days of receipt of Order of Award of Work (Selection Notice), deposit an amount equivalent to 5% of the accepted contract value at least 50% of the deposit shall be submitted in the form of Treasury Fixed Deposit and the rest in the form of Bank Guarantee in favour of the Executive Director, PMU ,KRWSA, Tvm as stated in clause 7.21 (I), Performance Guarantee.

8.12.1 The EMD deposited by the tenderer shall be released as soon as the security amount as above is deposited. Security Deposit shall be accepted towards security as per clause 7.21. The initial

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Security Deposit shall be subsequently increased to 8% of the total contract value by way of retention of 10% from each of the running bills, starting from the first bill, till the Security Deposit reaches the prescribed 8% limit.

8.12.2 No exemption shall be allowed for initial security deposit and retention amounts for Govt./ Quasi Govt. undertakings unless there is specific order from government to that effect for this particular work and approved by the authority.

8.13 INTEREST ON SECURITY AND RETENTION (Amended)

8.13.1 No interest shall be payable upon the security deposit, or amounts payable to the contractor under the contract.

8.13.2 The Agency shall have the exclusive right to collect interest on all Govt. Securities or National Savings Certificates endorsed as aforesaid and all interest collected shall be credited to the accounts of the contractors and the contractor shall not be entitled to claim any sum by way of interest or profit on the said securities or National Savings Certificate, save the amount actually collected by the Agency. The interest so collected may either be refunded or adjusted against the contractor's security at the end of each financial year.

8.13.3 The Agency shall not be liable for any depreciation in the value of securities while at its charge nor for any loss of interest thereon.

8.14 REPAYMENT OF SECURITY DEPOSIT (Amended)

8.14.1. On the grant of completion certificate to the contractor by the by the Agreement executed authority and within one month of the commencement of the maintenance period, 5% of contract value out of the total 8% of the security deposit shall be refunded to the contractor. Balance 3% of the security deposit will be released on completion of full guarantee period of 12 months.

The completion certificate will be issued by the Agreement executing authority of the work within one month. Security deposit will be released as per the modified NIT conditions on the grant of completion certificate as specified above.

8.14.2. If there is any reduction in the value of the security deposit by reason of any depreciation in the value of Government Securities, the contractor shall within thirty days of such reduction, make good, in cash or in pledge able securities of National Savings Certificate which shall be suitably endorsed as aforesaid any sum of sums which may be have been deducted from or realised from the Sale of his security deposit held in Government securities or any part thereof or from the security deposit held in cash, or any such by which the value of Government Securities has depreciated.

8.14.3 The refund of the security deposit as stated above shall however be, subject to the condition that if such time, where shall remain to be executed by the contractor any work

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as per the agreement or for the proper functioning of the system ordered during such period, the Agency shall be entitled to withhold payment until the completion of such work, so much of the security deposit as shall in the opinion of the Agreement executing authority, represent the cost of the work so remaining to be executed.

8.14.4. Even when various deductions is made against the bank guarantee it shall be the responsibility of the contractor to attend at his cost, works which are essential to make the scheme functional.

8.15 AMOUNT TO BE QUOTED FOR THE WORK

Tenderers shall quote the amount for the work in the prescribed form BOQ provided in the tender documents and the same shall be furnished electronically. In the tender document the rates quoted by the contractor should be exclusive of GST; but inclusive of all taxes, duties, welfare fund, contributions etc. The contractor should indicate separately applicable GST in his tender document.

ED exemptions. - **deleted**

8.16 PAYMENTS TO THE CONTRACTOR

8.16.1 The contractor shall prepare and submit the bills for payment with details of measurements for the quantum of work done. The measurements will be recorded by the Technical Supervisor/Engineer in charge of the work in the measurement book issued by authority for this purpose and submitted to the Director Technical in charge of the work. No work will be paid for unless thoroughly good and fully in accordance with the specifications. Should through inadvertence bad works be passed and paid for, it will nevertheless be perfectly competent, for the Director Technical to strike the same out of the account at any future time and recover the value at any date previous to or at the time of granting the final certificate. The Agency, however, reserves the right to decide and allow/pass the bill submitted by the contractor for payment based on the overall priorities and the delay/non- payments of part bill by the Agency within 30 days of its submission by the contractor shall not entitle him for any compensation against the delayed payments nor shall it be taken as a reason for not maintaining the progress of the work.

8.16.2 Bills of value less than 10% of the total amount of the contract shall not be presented unless they are of categories . There shall be a minimum period of 30 days between two consecutive bills raised by the contractor. The maximum number of on account bills including the 90% bill shall be 10 nos.

8.16.3 Deleted

8.16.4 Bill may be submitted by the contractor as soon as the stage of the work as per the break up for interim payment is completed and Director Technical shall take the requisite measures for having the same evaluated and the admissible claim as far shall be allowed.

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8.16.5 From the "on account" payment full deduction shall be made for materials if any, issued by the Agency and any other dues from the contractor. The contractor shall furnish along with such bill detailed measurements and specifications of all items involving the use of cement and M S rods or steel to enable the departmental officers to check and admit the issue of the departmental materials.

8.16.6 "On account payments made to the contractor shall be without prejudice to the final making up of the accounts (Except where measurements are specifically noted in the measurement books as final measurement and as such have been signed by the contractor) and shall neither be considered nor used as evidence of any fact stated in or to be inferred from such accounts nor of any particular quantity of work having been executed nor of the manner of its execution being satisfactory.

8.16.7. From the "On account" payments, deductions shall, be made by the Agency at the rate of 1 % of the amount of bill, excluding cost of departmental material if any supplied, towards contribution to the Kerala Construction Workers Welfare Fund Board.

8.16.8 In case of any dispute arising out of the supply of ISI marked pipes before the supply and acceptance by KRWSA, the KRWSA shall be indemnified by the contractor, to the effect that all liabilities shall be borne by the selected contractor and the KRWSA's responsibility shall end with the payment for the measured quantities in accordance with the agreement for the work

8.16.9 Interest for delayed payments: The tenderer/contractor must clearly understand that the settlement of claim either by part bill will be made only according to the availability of budget provision and allotment of funds made with the Director Technical in charge of the work under the respective head of account in which the work is sanctioned and arranged and also subject to the seniority of such bills. No claim for interest or for damages whatsoever shall be made for the belated settlement of claims of bills. No such claims shall be admitted by the Agency.

8.16.10 Any unit is found defective during inspection or filling water, such units shall be rejected and payment shall not be released to the contractor.

8.16.11. Checklist before making payment which would ensure quality of pipes and quality of work and workmanship should be adopted and its tracking should be done

8.17. FINAL BILL

8.17.1 The final bill shall be submitted by the contractor within one month of the completion of the work as otherwise the Director Technical measurement shall be accepted as final and binding.

8.17.2 Deleted

8.17.3 If any amount which by virtue of this contract, may become due to the contractor be not claimed for payment within three months from the date on which it falls due, the same shall be placed in deposit account and if the amount as placed remains for three years thereafter, the contractor or others to whom it may be legally due shall forfeit the same and it shall be finally credited to Agency.

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8.17.4 Deleted

8.17.5 The release of amounts shall not be made if there is litigation with the contractor.

8.18 Deleted

8.19 (A) PAYMENTS WHEN ALTERATIONS ARE INVOLVED

No authorized variation shall vitiate the contract. The Agency shall have the right to make any alteration in the original project proposal/designs during the progress of the work and the contractor shall be bound to carry them out. The amount agreed to for the work shall be varied by adding to or deducting there from as the case may be, the value of all authorized alterations, additions, or omissions, the valuation being made on the same basis as for the extra items.

8.19 (B) Variation in quantity: When there is variation in tender quantity, the rate quoted in form BOQ shall be for the specific quantity as per the NIT and scope of work. However, this quantity may increase or decrease by a maximum extent of 15%. In case of the quantity increase, the contractor will be paid at the rate as given in the BOQ schedule

8.20. PRICE VARIATION

This contract does not have provision for price escalation under any circumstances except in case of variation in statutory taxes and levies as noted in clause 7.9.3. Even if extension of time of completion has been granted under this contract, under any relevant provision, no escalation in price shall be admissible.

8.21. NO CLAIMS ON ACCOUNT OF FLUCTUATION OF RATES, IDLING OF LABOUR ETC.

8.21.1 No claim shall be entertained on account of fluctuation of rates of labour and materials, railway freight, income tax etc. at any stage.

8.21.2 No claim for idle labour, due to non-supply of materials by the Agency or for any other reason shall be entertained.

8.22.

TESTING OF COMPLETED WORK

All tests necessary to ensure that the structure, equipment, pipe lines and fittings which form part of the work, comply with the specifications, shall be carried out at the site at the contractor's cost.

If the completed work or any portion thereof is found to be defective before the works

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executed by the contractor are taken over by the Agency, the Director Technical will give the contractor a notice in writing setting forth the particulars of such defects, and the contractor shall forthwith make the defective part, good or replace the same for satisfying the requirements of the contract. Should he fail to do so within the time specified by the Director Technical, the Director Technical may make good the defective part or replace the same at the cost of the Contractor and such replacement shall be carried out by the Director Technical to the same specifications as in the contract. In the event of contractor refusing to comply with the instructions of the Director Technical within the specified period, the contractor is liable to be penalized as per clause 8.10 above.

8.23 GUARANTY PERIOD

8.23.1 The guarantee period shall be 12 months after successful completion of the work.

8.23.2 If it becomes necessary for the contractor to replace or renew any defective portion of the work, the provision of this clause shall apply to the portion of the work so replaced or renewed, the guaranty period for such work will commence only from the date of completion of such replacement or renewal. If the defects are not remedied within the notified time, the Director Technical may proceed to do the work at the contractor's risk and expense, but without prejudice to any other right, which the Director Technical may have against the contractor in respect of such defects. Until the final certificate of having completed the warranty period successfully has been issued, the contractor shall have the right of entry at his own risk and expenses by himself or duly authorized representatives whose names shall have previously been communicated in writing to the Director Technical, at all reasonable working hours for the purpose of inspecting the work and taking notes there from and if he desires, at his own risk and expense, making any tests, subject to the approval of the Director Technical.

8.23.3 Any defects noticed during the warranty period shall be properly rectified to the satisfaction of the Agency by the contractor at his own risk and cost.

8.24 Deleted

8.25 EXTENSION OF TIME OF CONTRACT

Time is considered as the essence of this contract. Any delay due to exceptionally adverse climate conditions or other special circumstances of any kind other than default on the part of the contractor shall fairly entitle the contractor for consideration of extension of time of completion for the work without any extra claim. However, such extension shall be at the sole discretion of the employer and without prejudice to the rights of the Agency to terminate the contract treating time as the essence of the contract. The Agency is not bound to take into account any extra ordinary circumstances unless the contractor has submitted full and detailed particulars within 15 days of the incident, which affected the progress of the work. Further, any such extension granted shall not relieve the contractor from the interest on the advance, if any, drawn by him.

8.26. HANDING OVER OF WORK AND CLEARANCE OF SITE

8.26.1 The contractor shall hand over all works executed under the contract to the Beneficiary

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complete in all respects, and to the satisfaction of the Director Technical at the end of satisfactory completion.

8.26.2 The Director Technical shall determine the date on which the work shall be regarded as having been completed as contemplated in sub clause above and shall, in support of his determination, grant a certificate to the contractor on an application being so made to him, that the work was duly executed and completed in all respects, on a date to be specified in the certificate and such certificate shall for all purposes be deemed to be the conclusive proof of the date on which the work was so completed. The Director Technical shall also from time to time determine the date on which any particular stage of the work shall have been completed and shall, on application, grant a similar certificate to the contractor who shall be bound to follow all such determination in all subsequent dealings with the Agency on the subject matter of the contract in regard to the work.

8.26.3 On completion of the contract, the contractor shall clear away and remove from the site all construction plant, surplus material, rubbish, debris and all temporary works of every kind and leave whole of this' site and work in a neat and clean condition to the satisfaction of the Director Technical. No final payment in settlement of the account of the work shall be made to the contractor until, in addition to any other condition necessary for such final payment, the site clearance shall have been effected by him, and in the event of the failure of the contractor to comply with the provision of this Sub Clause within 7 days after receipt by' him of a notice to that effect, such clearance may be made by the Director Technical at the expense of the contractor and in all such cases the Agency shall not, in any way be liable for any loss or damage to any property of the contractor left at the site caused by such removal, there from and such removal may without prejudice to any other mode of removal be effected by means of public sale of such materials and property or by such other means as may be deemed fit and convenient to the Director Technical.

8.26.4 The contractor shall also furnish the following on instructions from the Director Technical.

- (1) Photographs of different stages of all components and special type of works taken during the course of execution

8.27 SETTLEMENT, ARBITRATION OF DISPUTES AND NON- APPLICABILITY OF ARBITRATION

8.27.1 Settlement of disputes by Arbitration shall not be applicable to this contract.

8.27.2 In the case of any disputes arising between the parties to this contract on any of .the matters covered under this contract, the same shall be settled solely by a competent court having jurisdiction within the State of Kerala, and by no other Court.

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KERALA WATER SUPPLY AND SANITATION AGENCY**9. TENDER CONDITIONS: PART-III****CONTRACT CONDITIONS****9.1 LAW GOVERNING THE CONTRACT**

9.1.1 All contracts or terms thereof entered into between the Agency and the contractor under these conditions of contract shall be governed and regulated in general by the relevant laws in force in the territory of India relating to contracts.

9.1.2 The contractor shall strictly conform to the provisions, for the time being in force, of any laws relating to works or any regulations and bye-laws made by any local authority or any water and lighting companies or any undertakings within the limits of the jurisdiction of which it is proposed to execute the work or to obtain connection with their systems or undertakings for the purpose of such work, and where the contractor considers that variations in the drawings or specifications of such work are necessary to enable him to comply with the provisions of the law or regulations or bye-laws, as aforesaid, he shall give to the Agreement Executing Agency and the Director Technical a notice in writing specifying the variations, and no action in this behalf shall be taken by the contractor until he receives instruction in writing from the Director Technical in respect thereof. The Contractor shall be bound to give to the authorities concerned such notices as may be provided in the law, regulations or bye-laws as aforesaid, and to apply all fees and taxes payable to such authorities in respect thereof.

9.2 COMMENCEMENT OF WORK

9.2.1 The contractor shall commence the work within 20 days after the receipt, by him, of an order in writing to this effect from the tendering agency and shall proceed with the same with due expedition and without delay, except as may be expressly sanctioned or ordered by the tendering authority or be wholly beyond the contractors' control. If the contractor fails to start work within the time specified by KRWSA after signing the agreement or fails to maintain the specified rate of progress, the security deposit shall be forfeited to KRWSA and the matter will be disposed of suitably by the Agency. If such measure results in any loss to Agency, such loss shall be recovered from the contractor as arrears or revenue but should it be a savings to the Agency, the original contractor shall have no claim whatsoever to the difference. Recoveries on this or any other amount will be made from the sum that is already due or may become due to the contractor on this or any other existing contracts or under the Revenue Recovery Act, or otherwise as the Agency may decide.

9.2.2 It shall be the joint responsibility of KRWSA and the contractor to get appropriate sanction from the related authority.

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9.3 OCCUPATION OF LAND

No land belonging to or in possession of the Agency shall be occupied by the contractor without the permission of the Agency. The contractor shall not use or permit to use such land occupied by him for the purpose other than the execution of the works.

9.4 WATER, POWER AND APPROACH ROAD

The contractor shall, at his own cost, make arrangements for obtaining supply of water and power necessary for the work.

9.4.1 The Agency may supply to the contractor part/or whole of the quantity of water required for the execution of the work, from the existing water supply system, if any, near the site of the work if feasible on such, terms and conditions and on such charges as shall be determined by the Agency observing the relevant rules prevailing in KRWSA for such connection and payable by the contractor, provided that the contractor shall at his own expense, arrange to effect the connection and lay additional pipelines to the site.

9.4.2 Notwithstanding the provision contained in Clause 9.4.1, the Agency shall not guarantee the supply of water and no claim for compensation for any failure or short supply of water by the Agency shall be entertained.

9.4.3 The Agency shall render necessary assistance to the contractor for obtaining the power connection, but the expenses for such connections and Electrical Energy charges shall be borne by the contractor.

9.4.4 For testing of pipelines and water retaining structures during the progress of work, the contractor must arrange his own supply of water.

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

9.5 TEMPORARY SHEDS AT WORKSITE

9.5.1 Deleted

9.5.2 Deleted

9.5.3 Deleted

9.6 SETTING OUT

9.6.1 The contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions and alignments of all parts of the work and for the provision of all necessary instruments, appliances and labour in connection therewith. If at any time during the progress of the work, any error shall appear or arise in the position, levels, dimensions or alignments of any part of the work, the contractor on being required to do so by
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the Director Technical shall at his own expense rectify such error to the satisfaction of the Director Technical. The checking up of any setting out or any line or level by the Director Technical or his assistant shall not in any way relieve the contractor of his responsibility for the correctness thereof and the contractor shall carefully protect and preserve all bench marks, site and rails, pegs etc. used in setting out the work.

9.6.2 The contractor shall keep at his own cost all portions of work free from water or dampness due to spring, seepage or inclement weather and in a neat and sanitary condition.

9.7. EXECUTION OF WORK

9.7.1 The decision of the Director Technical shall be final, conclusive and binding on all questions relating to the meaning of drawings and specifications and to the quality, workmanship and materials used on the work.

9.7.2 The whole of the work shall be executed in perfect conformity with the specifications and drawings of the work approved by the Agency. If the contractor performs work in a manner contrary, to the specifications and drawings or any of them, he shall bear all costs arising or ensuing there from and shall also be liable to the Agency for any loss.

9.7.3 The whole of the work specified and provided for in the contract or that may be necessary to be done in order to form and complete any part thereof shall be executed in the best and most substantial workman like manner with materials of the best and approved quality of their respective kinds, according to the particulars contained in or implied by the specifications and as referred to in any additional particular instructions and drawings as may be found requisite to be given during the execution of the work and to the entire satisfaction of the Director Technical.

9.8. WORK DURING NIGHT AND SUNDAYS AND HOLIDAYS

9.8.1 The contractor shall not carry out any work between the hours of sunset and sunrise without the previous permission of the Director Technical or his assistant in writing.

9.8.2 No work shall be done on Sundays and holidays without the written permission of the Director Technical or his assistant.

9.8.3 However, when work is unavoidable or necessary for the safety of life, property or works, the contractor shall take necessary action forthwith and report to the Director Technical immediately.

9.9 FACILITIES OF INSPECTION

9.9.1 The contractor shall afford the Officers of KRWSA every facility for entering in and upon any portion of the work at all hours for inspection or for any other purpose and shall provide all labour, materials, planks, ladders, pumps, appliances and things of every kind required for the purposes aforesaid and the Director Technical or his assistant shall at all the times have access, free of cost, to every part of the work and to all places at which materials for the work are stored or being prepared.

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9.9.2 The contractor shall give at least seven days' notice in writing to the Director Technical and his Assistant whenever any work or materials are intended to be covered up in the earth in bodies or walls or otherwise to be placed beyond the reach of measurements so that the work may be inspected or the correct dimensions thereof may be taken before the work is so covered or placed beyond the reach of measurement and where the contractor defaults to give such notice the same shall at the opinion of the Director Technical or his assistant be uncovered and measured at the expenses of the contractor or in the alternative, no payments shall be made for such work or materials.

9.9.3 Should the Director Technical or any other Engineer / Technical Supervisor authorized in writing by him to supervise the work, at times, consider it necessary for the purpose of enabling him to make any inspection or tests or analysis or to verify or ascertain the quality or strength of any part of the work or of any materials the contractor shall if and when so required to do by the Director Technical or the person authorized as aforesaid, open up the work or the materials for inspection or testing or analysis, or pull down, or pull out the work into any number of parts and make such openings into, under or through any part of the work, as may be directed and provide all things which in the opinion of the Director Technical or the person authorized as aforesaid, may find necessary to enable the inspection or tests or analysis of the work or any part thereof or of the materials or workmanship to be made and the contractor shall close up, cover, re-build, and make good the whole at his own cost, as and when directed by, and to the satisfaction of the Director Technical, provided always that the work, in the opinion of the Director Technical is found to be satisfactory and in accordance with the contract, the expenses incurred by the contractor for such examination, inspection or test shall, upon a certificate in this behalf by the Director Technical, be borne by the Agency.

9.10 SUSPENSION OF WORK

9.10.1 The contractor shall not suspend any work without the prior written permission of the Director Technical in charge of the work under any circumstances. Any such suspended work shall be treated as incomplete and abandoned by the contractor and the Agency shall have the right to get such works completed through any other manner at the risk and cost of the contractor.

9.10.2 The contractor shall, on an order issued by the Director Technical that for any reason the work shall not be commenced or shall be suspended or stopped before completion, the contractor shall be paid for the work actually done and materials actually supplied up to the date of stoppage but the Agency shall be held in no way responsible for any further liability.

9.11 ALTERATION IN THE WORK TO BE AUTHORISED

9.11.1 No alteration in, or additions to, or omissions from or abandonment of any part of the work shall be deemed to be duly authorized except under written instructions from the Director Technical and it shall be the duty of the contractor to obtain in time such written instructions in every case.

9.11.2 If any work over and above that in the contract is required to be executed at the site the contractor shall have no right to be entrusted with the execution of the work and the same may be carried out through another contractor or contractors or by other means at the discretion of the Agency.

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9.11.3 The Director Technical shall have full powers to send persons upon the premises to execute fittings, other works etc., not included in the contract for whose operations the contractor shall afford every reasonable facility during ordinary working hours, provided that such operations shall be carried out in such a manner as not to impede the progress of the work, included in the contract, but the contractor shall not be responsible for any damage which may happen to or be occasioned by any such fittings or other works, provided that he complies with the Director Technical instructions in connection there with and provided that the damage is not caused by himself or his employees. The contractor shall, at all times, co-operate, assist, attend on, and afford facilities for such specialists, as may be employed by the Director Technical or other works, in connection with the work. The contractor shall also cause such special work or protect it as instructed to avoid injury during progress of the work. For failure, so to protect, the contractor must make good any damage caused. If any part of his work depends for proper execution upon or results from the work of the other contractor, the former shall inspect and promptly report to the Director Technical any defect in the work of the latter likely to render it unsuitable for proper execution and results. The failure of the contractor entrusted with the work so to inspect and report shall, for all purposes be deemed to constitute an affirmative approval of the work of the other contractors as being fit and proper for the receipt of his work, except as to defects which may develop in the work of the latter contracts after the execution of his work.

9.12 PRECAUTIONS DURING PROGRESS OF WORK

9.12.1 The contractor shall be responsible to see that the levels, profiles, bench marks, masonry pillars or other marks set up by the Agency for guidance in the execution of the work are not disturbed, removed or destroyed and if any such marks as in the opinion of the Director Technical or his assistant, found disturbed, removed or destroyed, they will be replaced by the Agency at the cost of the contractor.

9.12.2 During the execution of the work, the contractor shall at his own cost provide adequate materials for all works relating to shoring, timbering, strutting, scaffolding etc. and execute the same in such a way as to ensure, in abundant measure, the stability and safety of all structures, excavations and works and further ensure that no physical injury or harm is likely to be caused to any person or no damage or loss is caused to any property. When two or more contractors are engaged on work in the same vicinity, they shall work together in a spirit of co-operation and accommodation. The contractor shall not take or cause to be taken any steps or action that may cause, disruptions, discontent or disturbance to the works, labour and arrangement of other contractors in the neighbouring or other project localities. In case of any difficulties amongst the contractors, the Director Technical shall conduct his work so far as it affects the others.

9.12.3 Existing roads or water courses shall not be blocked, cut through, altered, save to the extent permitted by the Director Technical. All compensation claimed by the authorities concerned for any unauthorized closure, cutting through, alteration, diversion or obstruction to such roads or water courses by the contractor be deducted from any sums which is due to or may become due to him in terms of the contract, or otherwise according to law.

9.12.4 The contractor shall be responsible for taking all precautions to ensure the safety of the public, whether on the property belonging to the Agency or others and shall post such look-out men, as may in the opinion of the Director Technical, be required to comply with the regulations pertaining to the work.

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9.12.5 The contractor shall be responsible for safety arrangement of all equipment used for construction and shall employ trained workmen conversant with the safety regulations. The contractor shall employ only tested equipment and tools for safety and shall periodically repair them to the satisfaction of the Director Technical. All test certificates shall be made available to the Director Technical at the site of the work. If at any time, in the opinion of the Director Technical or his assistant, this provision is not complied with the contractor shall forthwith replace equipment and tools.

9.12.6 The contractor shall display notices and arrange for proper fencing at such places where hazardous work is being carried out. The contractor shall provide at his own expense on the work to the satisfaction of the Director Technical proper and sufficient firefighting equipment, first aid appliances etc. which shall at all times be available for use.

9.12.7 The contractor shall at all times comply with all rules and regulations made by the Government, local bodies and such directions as may be issued by the Agency from time to time in regard to safety, first aid and health measures. The contractor shall be legally and financially liable for any lapse in taking precaution during execution of works.

9.13. PROCEDURE TO RECTIFY DEFECTIVE WORKS

9.13.1 If it shall appear to the Director Technical or his assistant, at any time during the progress of the work or at any time prior to the expiration of the guarantee period of the work, that any work has been executed with unsound, imperfect or unskilled workmanship or with materials of inferior description, or that any materials or articles provided by the contractor for the execution of the work are unsound or of a quality inferior to that contracted for, or otherwise not in accordance with the contract, the contractor shall, on demanding in writing by the Director Technical or his assistant to specify the work, materials or articles, complained of and within the period of time mentioned in the demand, pull down, take up, or take out the work so complained of or objected to, remove from the site or separate from other materials or sort out the materials or articles or part thereof shall have been included any (on account) payment to the contractor, the same shall be taken in to account and deducted from any subsequent payment due to the contractor. The contractor shall also remove from the work and site any equipment fixed or otherwise objected to by the Director Technical or his assistant or any other persons authorized in writing by him.

9.13.2 The contractor shall forthwith rectify or remove and reconstruct the works so specified either in whole or in part, as the case may require, or as the case may be, and provide proper and suitable materials or articles for material or articles complained of or objected to. If the contractor fail to remedy any defect within the period specified in demand mentioned in sub clause above and in the manner required, or if he shall fail to remove from the site any materials or articles condemned as unsound or otherwise not in accordance with the specifications or to substitute suitable articles for the materials complained of or objected to, the Director Technical or his assistant may cause such work to be carried out and such materials or other articles to be replaced by such means as he think fit, and all expenses consequent thereon, or incidental thereto, auxiliary thereof, shall be met by the contractor and borne by him and shall be recoverable from him by the Agency or may be deducted by the Director Technical from any moneys due or that may thereafter become due to the contractor.

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9.13.3 Should the Director Technical consider that the work, although not executed in strict accordance with the specifications may be allowed to stand, payment for the same shall be made at such reduced rate as may be fixed but this procedure is quite optional on his part and shall have the concurrence of the Director Technical.

9.13.4 In case of quality of work done is found to be poor, contractor will be liable to compensate for cost of rectification/replacement, and shall be blacklisted from participating in future tenders.

9.14 SUPPLY & TESTING OF MATERIALS

9.14.1 The Contractor shall supply all the materials including pump sets, compressors, electrical panel boards, electrical and wiring materials, pipes and specials covered under the contract at his own cost. The pipes, specials, pumps etc. should be tested at the factory by one of the Third party inspection agencies acceptable to KRWSA and witnessed or by the technically qualified officers of KRWSA if the contract value exceeds Rs. 100 lakhs and by departmental officer deputed by KRWSA if the contract value is less than Rs. 100 lakhs. Inspection certificates should be produced along with the materials. This third party inspection is mandatory for all pipes, specials and pumping and electromechanical equipment supplied by the contractor. Also ISI/ISO marked materials should alone be accepted, wherever ISI/ISO specifications are available for such item. In respect of ISO marked pipes the contractor shall furnish third party inspection certificates from internationally recognized inspection agencies at no extra cost to the KRWSA. Any disputes between the contractor and the supply in fixing

the inspection agencies shall be a matter for settlement among themselves and the KRWSA shall not be a party to such disputes. The amount quoted shall be inclusive of the cost of all materials and inspection as specified herein.

9.14.2 Deleted

9.14.3 The contractor shall test or obtain the approved analysis of or weigh all materials required by the specification to be tested or analyzed or weighed where so required by the Director Technical shall, if any when so required to do, test the whole or each part of the work or the materials in such manner at such times and such place or places, whether before or by the specifications or as may be directed by any of the persons aforesaid.

9.14.4 The contractor shall, if and when so required by the Director Technical to do, prepare and / or submit samples of works and materials for the approval of the Director Technical such samples shall be retained by the Director Technical and no materials which are required to be so tested or analyzed or weighed or of which samples have to be submitted, shall be used in the work, until tests, analysis, weights or samples as the case may be shall have been approved in writing by the Director Technical.

9.14.5 All materials for the work must comply with the requirements or specifications laid down in the tender form and must satisfy the tests and / or analysis laid down in the specifications of the Bureau of Indian Standards/International Standards Organization or such other recognized

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specifications as the Director Technical may direct as being equivalent thereto, and in either case, with such additional tests and / or analysis as the Director Technical may order or in the absence of such standards or specifications, with such requirements, tests and analysis as in the opinion of the Director Technical, are fair and suitable.

9.15 TOOLS AND PLANT SUPPLIED BY AUTHORITY

9.15.1 It shall be the duty of the contractor to provide adequate tools and equipment needed to do the work efficiently and expeditiously. In case any required item of equipment or machinery is available with the Agency the same may be supplied to the contractor on hire at the discretion of the Director Technical at the rate fixed by the Director Technical and on conditions current in the Agency. The contractor shall bear the running expenses excluding the pay of the Agency staff attached but including cost of restoring the same in good condition at the time of return, due allowance being made for fair wear and tear.

9.15.2 In the event of any departmental material including plant and equipment being made available, the contractor shall arrange for transportation and safe up-keep of the same.

9.15.3 No extension of time will be granted for delay in the procurement of construction equipment and / or spare parts by the contractor.

9.15.4 The contractor shall take responsible care of all tools and plant belonging to the Agency and issue to the contractor for the purpose of the work and shall be liable for any damage or loss caused to the same by him, his agents or his workmen or others whilst the same were in his charge. The contractor shall sign valid receipts for the tools and plant issued to him by the Director Technical from time to time and on completion of the work, shall be bound to carry out repairs and shall be liable for any damage done thereto.

9.16 SUBLETTING OF CONTRACT

The contractor shall not at any time assign, sublet his contract or any part thereof to any person or allow such person to become in any way interested therein in any manner what so ever without the prior permission in writing of the Director Technical in charge of the work. Any contravention of this condition shall entitle the Agency to rescind the contract and shall also tender the contractor liable for payment to the Agency in respect of any loss or damage arising out of or ensuing from such recession of the contract. Provided further that where the subletting of the work by the

contractor, in any case, is permitted' by the Agency, the contractor shall not, at any time, be absolved of any obligation or responsibility under the contract or any part thereof and shall continue to be responsible for all acts or omission and commissions of the sub contract, his agents, servants or workmen as fully and effectually as if the same were acts of omissions and commissions of the contractor, his agents, servants or workmen, as the case may be.

9.17 CONTRACTOR'S AGENT:

9.17.1 The contractor shall, when he is not personally present at the site of the work invariably place and keep at such site a properly qualified agent, duly authorized and empowered to act on his behalf and to receive on his behalf the orders and instructions required or permitted under the

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contract to be given to the contractor by the Director Technical or his subordinates to supervise the work. All such orders and instructions given to, and all acts done by agents shall be binding on the contractor as if such orders and instructions were given to him or, such acts had been done by him.

9.17.2 Before absenting himself, the contractor shall furnish the name, the designation and the address of the Agent.

9.17.3 Prior to the appointment of such agent, the contractor shall submit to the Director Technical the name and other relevant details of the person intended to be appointed as his agent and no appointment shall be made until the Director Technical has approved the same and notified his approval in writing to the contractor and whenever the contractor desires to change his agent the same procedure as for the appointment of a new or fresh agent shall be followed.

9.17.4 From the moment the agent so approved and appointed takes charge of the work, he shall be held to be fully authorized and empowered to present and act for and on behalf of the contractor for all or any of the purpose of the contract, and notwithstanding the absence of any formal authority or definite' instructions from the Contractor to the said agent or any defects therein, or the imposition of any restrictions or limitations on the power or authority of such agent by the contractor, nothing whatsoever shall in any way affect, qualify or limit the full authority or power of such agent, or absolve the contractor of his liabilities or obligations under the contract.

9.17.5 The contractor shall forthwith remove from the site and works and not to re-employ without the written permission of the Director Technical, obtained in his behalf, any agent whose removal the Director Technical have asked for in writing, or any assistant whom he may consider incompetent or is sufficiently qualified or to have been guilty of misconduct or negligence and whose removal the Director Technical may have asked for in writing.

9.18 SUPERVISORY STAFF OF THE CONTRACTOR

9.18.1 The contractor shall not employ any person who was in the service of the Agency or the Government without definite written sanction of the Agency. The staff employed at the site by the contractor shall be the same as he has agreed for in the relevant format included in this tender document. Any change from the same shall have proper written acceptance of the Director Technical.

9.18.2 The contractor shall at all times place and keep on the work an adequate number of efficient and competent staff to give necessary directions to his workmen in the execution of the work and to see that the workmen execute the work in a sound and proper manner and shall employ only such supervisors, workmen and labourers in or about the execution of the work, as are careful and skilled in their various trades and callings.

9.18.3 The contractor shall forthwith remove from the work any supervisor, workmen or labourer objected to by the Director Technical, and if and whenever so required by the Director Technical the contractor shall submit the correct return showing the name of all staff and workmen employed by him or about the work.

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9.18.4 If, in the opinion of the Director Technical, the contractor is not employing on the work such number of staff and workmen as is reasonably necessary for the, proper completion of the work within the time prescribed he shall forthwith communicate his opinion in writing to the contractor, and the contractor shall within seven days of the receipt of the said communication, employ such additional staff and labour as may be required by the Director Technical and any failure on the part of the contractor to comply with such instructions shall entitle the Agency to rescind the contract.

9.18.5 The contractor shall engage not less than one Engineering Graduate and one Engineering Diploma holder at the work site at his cost and any failure in this regard will be treated as breach of contract and shall entitle the Authority to penalize the contractor/rescind the contract.

9.19 DAMAGES PAYABLE BY THE CONTRACTOR

9.19.1 DAMAGE TO PROPERTY AND PERSON

1. The contractor shall, at his own expenses and to the satisfaction of the Director Technical, reinstate and make good or be liable for any compensation for any injury, loss or damage occasioned to any property or right whatsoever, including the property and right of the Agency, servants or employees of the Agency, being injury, loss or damage arising out of or in any way connected with, the execution or purported execution of the contract, and further the contractor shall indemnify the Agency, private person, in respect of any such injury including, any injury resulting in death or disability to person or property, including all claims which may arise under the Workmen's Compensation Act, or under any other law for the time being in force or otherwise.

2. The contractor shall (except if and so far as the specifications otherwise provide) indemnify and keep indemnified the Director Technical for all losses and claims for injuries or damages to any person or property whatsoever including surface or other damage to land being or crops being on the site suffered by tenants and occupiers which may arise out of or in consequence of the construction and maintenance of the works and against all claim, demands, proceedings, damages, costs charges and expense whatsoever in respect thereof or in relation thereto, provided always that nothing therein contained shall be deemed to render the contractor liable for or in respect of or to indemnify the Agency against any compensation or damages for or with respect to

- a. The permanent use or occupation of the land by the work or any part thereof (save in respect of damage to crop as aforesaid).
- b. The right of the Agency to construct the work or any part thereof on, over, under in or throughout the land.
- c. Interference whether temporary or permanent with any right of light, airway or water or other easement or quasi-easement which is the unavoidable result of the construction of the work in accordance with the contract.
- d. Injuries or damages to person or property resulting from any act or neglect done or committed during the currency of contract by the Agency /Departmental officers, servants or other contractors (not being employed by the contractor) or in respect of any claim demand, proceedings, damage, cost, charges and expenses in respect thereof or in relation thereto.

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3. If compensation has to be paid to court attachment or judgment etc. due to damage of person or property, such amount will be recovered from the contractor / tenderer.

4. The contractor shall insure all the employees employed in the work site as per rules against any accidents and further claim. KRWSA will not be responsible for any such accidents/claims of employees of the contractor.

9.19.2 METHOD OF RECOVERY

1. Damages payable by the contractor under the terms of the contract may be deducted by the Director Technical from part of his security deposit or from any other sums due, or which may become due to him from the Agency or through revenue recovery proceedings.

2. In every case in which under any clause or clauses of this contract, the contractor shall have rendered himself liable to damages amounting to the whole of his security deposit, the Director Technical shall have powers to rescind the contract altogether and to have the work completed without further notice, at the contractor's risk or expense as the Agreement Agency/ Director Technical may deem best suited to the interest of the Agency and the contractor shall have no claim to compensation for any loss that may accrue from any material he may have collected or engagements he may have entered into, on account of the work and the Director Technical shall have powers to deduct whatever amount may be expended on the completion of the work, from any sums that may be due or become due from the Agency the contractor on account of this or any other work or recover such sums from him and his assets, movable and immovable under the provision of the Revenue Recovery Act for the time being in force, as if they were arrears of land Revenue or otherwise as the Agency may choose. And in case the contract shall be rescinded under the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum of any work actually performed under this contract unless and until the Director Technical shall have certified the performance of such work and the value thereof and he shall only be entitled to be paid the value so certified.

3. In the event of the Director Technical putting in force the powers vested on him under the preceding clause, he may, if he so requires it, take possession of all tools, plant, materials and stores or any portion thereof, on the place where the works were to be performed or on other land of the Agency adjoining thereto, paying or allowing for the same in account, at the contract rates, or if not specially provided for therein at current market rates, otherwise the contractor may be required to remove such tools, plant and materials or stores from the premises, and in the event of his failing to do so, the Director Technical may remove them at the contractor's expense or sell them by auction on account of the contractor. The Director Technical may devote all, or such portion as may be requisite, any guarantee or reserve fund or any moneys due to or become due to the contractor for this or any other work to make good, bad or indifferent work, on the part of the contractor in such manner as he may think desirable.

4. If it shall appear to the Director Technical or his subordinate in charge of the work, that any work has been executed with unsound imperfect or unskilled workmanship, or with materials of an inferior description, the contractor shall on demand in writing forthwith rectify, relay, remove or reconstruct the same in whole or in part, as the case may require, at his own cost, and in the event of his refusing to do so within a period to be specified by the Director Technical or his subordinate or if he shall fail to remove, from the site of the work within a specified period any material or article which is

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considered by the same officers as unsound or of bad quality or not agreeable to the terms of the contract and to provide immediately suitable materials or articles in lieu of these condemned, then the contractor shall be liable to pay damages at the rate of one percent on the amount of the estimate for every day not exceeding ten days that he fails to comply with the written demand of the Director Technical or his subordinates. And in the event of non-compliance of the written demand even after the lapse of ten days the contract is liable to be terminated at the risk and cost of the contractor without further notice.

5. All compensations or other sums of money payable by the contractor to the Agency under the terms of this contract with the Agency or under any other contract with the Agency, shall without prejudice to any other mode of recovery, be recoverable from the contractor by way of deduction or payment, out of the sale proceed of a sufficient part of the security deposit held in Government Securities or in National Savings Certificate or out of the interest accrued thereon or out of the said security deposit held in cash or out of any sums which may be due or may subsequently become due, to the contractor from the Agency, on any account what so ever and in the event of the value of his security deposit being reduced by reason of any such deductions the shortage shall be made up by effecting extra recovery from subsequent bills or sales.

9.20 RELICS AND EXCAVATED MATERIALS

9.20.1 All gold, silver and other materials of any description and all precious stones, coins, treasures, relics, antiquities and other similar things which shall be found in or upon the site shall be the property of the Government and the contractor shall duly preserve the same to the satisfaction of the Agency and shall, from time to time, deliver the same to such person or persons as the Agency may appoint to receive the same.

9.20.2 The contractor shall not sell, or otherwise dispose of or remove, any sand, stone, clay, ballast, earth, rock or other substances or materials which may be obtained from any excavation made in or upon the site, or any building or produce standing upon the site at the time of obtaining the delivery or possession thereof and all such substances, materials, buildings and produce shall be and shall continue to be the property of the Agency provided that the contractor may, with the permission of the Director Technical use the same for the work at such cost as may be determined by the Director Technical.

9.21 REPORTING OF ACCIDENT

The contractor shall be responsible for the safety of all employees or workmen employed or engaged by him on and in connection with the work and shall forthwith report to the Director Technical or his assistant all cases of serious accidents/injuries to any of them, however caused and whatever occurring on the work and shall make adequate arrangements for rendering all possible aids to the victims of the accidents.

9.22 WORKMEN'S COMPENSATION ACT

In every case in which, by virtue of the provisions of Sub Section (1) of Section 12 of the Workmen's Compensation Act 1923, if the Agency is obliged to pay any compensation to a workman employed by the contractor in the execution of the work, Agency shall recover from the contractor the amount of the compensation so paid and, without prejudice to the rights of the employer

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under Sub Section(2) of Section12 of the said Act, the Agency shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due from the Agency to the contractor, whether under these conditions or otherwise. The Agency shall not be bound to contest any claim made against him under Sub Section (1) of Section 12 of the said Act except on the written request of the contractor and upon his giving to the Agency full security for all the costs for which the Agency may become liable in consequence of contesting such claim.

9.23 WAGES TO LABOUR

9.23.1 The contractor shall comply with the provisions of the Minimum Wages Act and the rules made there under in respect of all employees or workmen employed or engaged by him on road construction or in building operations or in stone breaking or stone crushing for the purpose of carrying out the contract.

9.23.2 If, in compliance with the terms of the contract, the contractor supplies any labour to be used wholly or partly under the direct orders and control of the Agency whether in connection with the work being executed by the contractor or otherwise for purposes of Agency such labour for the purpose of this clause, be deemed to be persons employed by the contract.

9.23.3 If any money shall, as a result of any claims or applications made under the said Act, be directed to be paid by the Agency, such moneys shall be deemed to be moneys payable to the Agency by the contractor, and on failure of contractor to repay the Agency any moneys as aforesaid within 7 days after the same shall have been demanded, the Agency shall be entitled to recover the same from any money due to the contractor under the contract or any other contract with the Agency.

9.23.4 The Authority shall also be entitled to deduct from any money due to the contractor (whether under the contract or any other contract with the Agency) money paid or payable by the Agency by way of any compensation under the said Act or on account of costs or expenses in connection with any claims thereto and the decision of the Director Technical on any question arising out of the application of this clause shall be final and binding upon the contractor.

9.23.5 In respect of all labour directly or indirectly employed, in works for the performance of the contract as part of this agreement, the contractor shall comply with or caused to be complied with all rules framed by the Agency from time to time for the protection of health and sanitary arrangements for the workers employed by the KRWSA and its contractor.

9.24 LABOUR RETURNS

Monthly labour returns shall be submitted by the contractor to Director Technical in the proper forms so as to reach him not later than the first of every month. In addition to the above, the contractor shall also maintain daily and weekly returns of labour employed by him and these shall be made available for verification by the officers of KRWSA as and when called for.

9.25 CONTRACT DOCUMENTS AND MATTERS TO BE TREATED AS CONFIDENTIAL

All documents correspondences, decisions and orders concerning the contract shall be considered as confidential and / or restricted in nature by the contractors and he shall not divulge or allow access to them by any unauthorized person.

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9.26 MATERIALS TO BE SUPPLIED BY THE AGENCY

It shall be the responsibility of the contractor to arrange for materials and the Agency shall not issue any material to the contractor.

9.27 CONTRACTOR'S RESPONSIBILITY FOR STORES

The materials such as Cement, MS Rods, tor steel and other materials including pipes and specials required for the work shall be procured by the contractor and the lump sum amount quoted should be inclusive of the cost of cement, steel and all other materials. The cement supplied for use shall be as per ISS 269/1976 and steel as per ISS 1786/1985 with latest amendments, if any. The materials should bear the relevant ISI/ISO certification marks. Before using any material for the work, the contractor, at his own cost, shall submit to the Director Technical for his approval such samples of material as are proposed to be used. The materials shall strictly conform to the specifications approved by the Agency. Notwithstanding anything contained in this clause, the contractor shall be held fully responsible for the quality and soundness of all the materials and machinery that are supplied by him for the execution of the work and completion of the project and the Director Technical's approval shall not in any way absolve him of his responsibility in this matter. The standard tests as per ISS to ensure the quality of cement, steel and other construction materials shall be got done by the contractor at their cost as per the direction of the officers of KRWSA to ascertain the quality. The Agency reserves the right to super check the results. If the materials supplied are found to be not passing the tests, the same shall be rejected by the Director Technical and the contractor shall be bound to dismantle and remove such constructions already made using such substandard quality materials if found during the erection of the work and the contractor shall be fully responsible and liable for such losses to the KRWSA.

9.28 MATERIALS AND PLANT AT WORKSITE

All materials and plants brought by the contractor in or upon the site or on the land occupied by the contractor in connection with the work and intended to be used for the execution thereof shall not be removed from the site of work without the permission of the Director Technical.

9.29 GENERAL

All other conditions shall be as in force in the KRWSA, If it is found relevant to explain any clause of this N.I.T. Otherwise the conditions are strictly independent.

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10. GENERAL TECHNICAL SPECIFICATIONS

10.1 GENERAL

10.1.1 Generally, the specifications of all materials and work pertaining to this contract shall be governed by the relevant Indian Standards and by MDSS. In the absence of Indian Standards, the British Standard Specifications shall be followed. The specifications furnished hereunder are only to enlighten the tenderer on the requirements of KRWSA and are not intended to be against any other specifications stipulated by BIS or other standards and common practices widely adopted in the country at present. In case of a doubt regarding the specifications, the Technical Supervisor in charge will clear the doubts and give final decision based on the written request of the contractor. The decisions intimated in writing shall be binding on the contract work.

10.1.2 The successful completion of this contract calls for site surveys, investigation, planning, hydraulic and structural design of the components, assessment of capacity/standard of mechanical, electromechanical and electrical items to be procured, preparation of procurement schedule, preparation of implementation schedule etc. The tenderer shall see that he always sticks on to conservative designs based on time tested and well accepted practices as per the guidelines and norms prescribed by BIS, CPHEEO or such other institutions.

10.1.3. REPORTS, DESIGNS AND DRAWINGS

Deleted

10.1.4 ECO-FRIENDLY SYSTEM OFFER

The system offered and as completed shall be environment friendly and shall not affect / alter the environment beyond any permissible limits stipulated by concerned institutions.

10.1.5 MAN MADE STRUCTURES, OTHER UTILITIES - AFFECTING THE WORK

1 When the works under this contract are executed situations may arise when the works are affected by other man-made structures either in service or abandoned. It is also likely that other utility services installed by various Government bodies are affected by the works under this contract. It shall be the duty of the contractor to ensure whether adequate sanction has been obtained from the agency concerned for the work with the help of KRWSA before the works of such affected portions are undertaken. Any damage caused to any of the manmade structure or any of the utility services will have to be made good by the contractor at his cost. The contractor has to restore the original position if he has to demolish any structure like culverts, compound walls etc during the course of work at his own cost.

10.2 EARTHWORK EXCAVATION

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1 Earthwork excavation means earthwork in all classes of soils / rocks whenever removal shall be not by blasting. Earthwork excavation shall be done with adequate care so that underground service lines or adjacent structures are not damaged and appropriate protective measures such as shoring / strutting / sheet piling etc. are adopted for such items as required and approved by the Technical Supervisor in charge of the work. The width of trench should be as per the requirement and as per standard data book and a minimum cover above crown of pipe should be maintained as per clause

10.13. If the width of trench exceeds the minimum requirement as noted above, due to faulty

workmanship/ protection/ shoring etc. the additional payment for the extra damaged road width payable to PWD/NH local bodies etc. shall be recovered from the contractor's bill. Excavation by blasting shall be got done only through persons holding valid license for use of explosive material and for blasting purpose. Further all rules prescribed by the Inspectorate of Explosives shall be strictly adhered to whenever blasting is resorted to. Blasted material like the excavated rock shall be the property of KRWSA. Disposal of the materials up to a distance of 10 km from the site as well as cartage of excavated material during excavation and back filling up to a maximum distance of 5.0 km will have to be done whenever essential by the contractor at no extra cost.

10.3 FILLING / BACK FILLING

Filling / back filling shall be done only with approved materials. It shall be compacted to get the following results. The density of the filled materials at different depths shall not be less than 95% of the natural field density in case of back fill and shall not be less than 95% of maximum dry density obtained in proctor compaction test or such other approved tests whenever filling is done to get the desired formation ground level. It shall be ensured that the density thus obtained under compaction is uniform at all depths of the fill. The contractor is bound to bear the cost of any test conducted to ascertain the above condition in case of doubt. The filling/backfilling done along PWD roads or such properties owned by other department/institutions, the same shall be further governed by specifications of such owner.

10.4 SHORING

Shoring shall be essential in excavation in all classes of soils whenever depth of excavation exceeds

1.50m and labourers have to work in trenches or close to edges of trenches as per the direction of Technical Supervisor in Charge. In ordinary soils and loose soils, shoring shall be done for trenches of shallower depths also considering the chances of collapse of sides. Shoring shall be done as approved/directed by the Technical Supervisor in charge of work.

10.5 FENCING

Fencing shall be done in the approved manner along the side of pipeline trenches on roads or other places for preventing accidents on both sides, if required in the opinion of the Technical Supervisor in charge.

10.6 FORMATION OF ROADS

Formation of roads shall be done as per IRC rules and regulations for the use of desired class of vehicles mentioned in the scope of the work. Whenever road formation comes in the scope of the work, it shall be understood that all cross drainage work, side drain works, radius of curvature and super-elevation etc. are included in the scope.

10.7 RUBBLE MASONRY

Rubble masonry works using approved quality blasted rubble either as random rubble masonry or coursed rubble masonry shall be permitted. Minimum width of the random rubble masonry shall not be less than 450mm in any case. Only cement mortar 1:6 or richer shall be used for such works. Mixing by weight at the above ratio for mortar shall be permitted only when the fine aggregate is in dry condition. Exposed surfaces of rubble masonry shall be pointed using 1:3 cement mortar to have a pleasing appearance provided it is left un-plastered with cement mortar.

10.8 BRICK WORK

Brick masonry using wire cut bricks / first class country burned bricks having a minimum crushing strength of 35 Kg / cm^2 satisfying other tests specified by BIS and least dimensions not less than 70mm along shall be permitted. Brick masonry works shall be of minimum 200 mm width, constructed in English bond with cement mortar 1: 6 or richer and plastered with cement mortar 1: 4 or richer in all cases. However, in each case of parapets or other dwarf walls of height less than 700 mm,

thickness of masonry can be reduced from 200mm provided pilasters of minimum 200 x 200 mm are constructed monolithic with such walls at a center to center spacing of maximum 3000mm.

10.9 PLAIN AND REINFORCED CONCRETE

10.9.1 DESIGN ASSUMPTIONS

IS 3370 Code of Practice for concrete structure for storage of liquids

Part I: (latest edition) General requirements

Part II: (latest edition) Reinforced

concrete structures. Part IV: (latest

edition) Design tables

IS 2502 (latest edition) Code of practice for bending and fixing of bars for concrete reinforcement.

All RCC/Steel structures shall be based on the relevant IS Codes. Strict adherence must be established to accepted codes of Practice relating to design. Minimum cover to reinforcement for RCC work shall be provided as per IS 456-2000(or latest edition). The effect of seismic forces shall be taken into account in the design as per the relevant code of practice.

10.9.2 CEMENT

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The contractor will have to procure the cement for the work. The cement used in the work of plant or water front structures should be sulphate resistant - Portland cement of reputed companies having ISI mark. The KRWSA will have the option of rejecting the cement procured by the contractor and ask for replacements, in case of any doubt on quality and age of cement supplied at site. Random/ grab sampling and test of the cement will be got done by KRWSA.

10.9.3 REINFORCING STEEL

Only Corrosion Resistant Steel (CRS) is to be used for the steel structures. The contractor has to procure all the steel required for the work. The steel so procured should be from reputed companies like SAIL, TISCO etc. and the KRWSA will have the option to select the brand and to ask for replacement, if the material is found not having adequate quality. The MS/TOR rods supplied for the work shall be cleaned and scrapped to be free of scales rust etc., before placing in forms for R.C.C work.

10.9.4 AGGREGATES

The coarse and fine aggregates shall comply with IS 388-1980 or latest edition and may be used after sufficient tests have been carried out and approved by the Director technical. All aggregates shall be stored on hard impervious surface to ensure exclusion of all foreign materials.

10.9.5 WATER

The water for mix shall be clean and free from harmful matter as per IS standards and taken from a source approved by the Executive Engineer.

10.9.6 ADMIXTURES

Only where a beneficial effect is produced shall any admixture to be used and that too after tests have been carried out to convince the Director technical that no harmful effect will be produced by the use of such admixture and after approved by the Director technical. Time tested admixtures shall be permitted to be used for concrete based on testimonial of performance to improve the quality of concrete with respect to its strength, water tightness or for other specified purposes as required for the work.

10.9.7 MIXING

The grade of concrete shall be as per IS 456 or its latest revision. All water retaining or water front structures and machine foundations shall be made using RCC mixes as per relevant codes. The mixing time shall be between 2 to 4 minutes. The contractor should produce mix design for all grades of concrete to be used for the work and get approval from the Director technical before commencement of concreting.

10.9.8 CONCRETING

The concrete mix shall be in specified proportions satisfying the maximum aggregate size/water cement ratio and required cube strength and workability. Such concrete must be adequately vibrated to

form solid mass without voids. External vibration by the use of pneumatic hammers shall

be deemed adequate except for thin sections.

10.9.9 TRANSPORTATION AND PLACING

Transportation and deposition of concrete mix shall be done rapidly and accurately with minimum re- handling. The mix must not be dropped from such a height as may cause segregation and air entrapment. When the mix is placed in position, no further water shall be added to provide easier workability. No concrete mix shall be used for the work if it has been left for a period exceeding its initial setting time before deposited and vibrated into its final position in the member. Sufficient number of cubes must be made for testing as per the relevant BIS code specifications. It shall be tested as per the specification and a complete register of entries shall be maintained by the contractor. It shall be brought to the notice of the Technical Supervisor in charge as and when directed by the departmental officer. The cost of all such testing shall be borne by the contractor.

10.9.10 CONSTRUCTION JOINTS

Construction joints shall be avoided wherever possible, and if found necessary, should be of such form to encounter direct compression. A stepped joint being preferred in such a case.

10.9.11 CURING

Curing shall be done as per relevant provisions in the IS code to allow the concrete attain strength through normal hydration and to avoid excessive shrinkage or harmful effect to the member. The method adopted shall be effective and any special method used must be approved by the Director technical.

10.9.12 REMOVAL OF FORM WORK

Removal of form work shall be done as per the provisions in the BIS and as per direction of the Director technical and in such a manner that no damage is caused to the deflection to minimum deflection, when unsupported and as per the direction of the Director technical.

10.10 DOORS, WINDOWS AND VENTILATORS

10.10.1 Wooden doors and windows and ventilators shall be made with teak wood only and the size of doors, frames, shutters etc shall be not less than the sizes specified in MDSS, PWD standard data book etc. All parts of the door shutter or frame shall contain only hard wood seasoned. Wooden doors and shutters shall be provided for interior doors of office rooms/ private rooms etc.

10.10.2 Steel doors, windows and ventilators shall strictly conform to the specifications of BIS. Steel doors, windows and ventilators shall be permitted only for locations where aggressive conditions damaging the doors do not exist and when appearance of the same do not adversely affect the pleasing appearance of the main view and aesthetic condition of the structure. Steel windows and ventilators shall have crossbars for preventing through passage of solid materials of least dimension of 120mm in open position provided in aesthetically pleasing manner.

10.10.3 For areas directly facing the main views of the structure, aluminium doors,

windows and ventilators shall be provided for improving the front view of the structure so far as there are no aggressive surroundings damaging the life or the pleasing appearance. All aluminium sections shall be anodized as per ISS.

- 10.10.4 PVC doors of specifications conforming to those of BIS or of better quality may be used for water closets, bathrooms or other locations where splashing of water may affect the life of other type of doors.

10.11 PLASTERING OF EXPOSED SURFACES

All exposed concrete surfaces shall be plastered with cement mortar 1:4 or richer mixes. Exposed surface means exposed to air or water or any other gaseous or liquid medium. Surfaces of concrete structures other than water retaining structures can be permitted to be left unplastered under the following conditions:

- (i) The surface left unplastered is perfectly even without markings of formwork or undulations or unevenness greater than 0.5 mm.
- (ii) The surface texture is perfectly uniform and the appearance is pleasing.

10.12 TESTING OF WATER RETAINING STRUCTURES.

All Ferro cement tanks shall be filled with water and tested for water tightness before finishing.

10.13 PIPES AND PIPE LAYING deleted

10.14 NON DESTRUCTIVE TEST FOR STRENGTH:

Any constructed structure or erected equipment shall be subject to a non-destructive test to ensure or certify about its capacity to yield the desired service if required by the Technical Supervisor in charge. Such tests shall be the ones specified by the ISS / BSS / CPHEEO Manuals or a more severe test. An equipment / component shall be deemed to have satisfactorily passed such a test only if the Technical Supervisor in Charge of the works is satisfied on the performance under test conditions.

10.14 Deleted

- 10.15 The G.P. approved list of beneficiaries (Residential buildings) shall be made available by Rain Centre KRWSA, and the location/Position of the RWH unit in the premises shall be fixed jointly by House Owner, Engineer in Charge and the Contractor.

- 10.16 The construction should be in accordance with the attached drawing and in conformity with IS 13356 (1992) roof top rainwater harvesting guide lines & IS 15797(2008) Precast Ferro cement water tanks up to 10000 litres capacity and its amendments.

10.17 TRAINING TO AGENCY STAFF

The Technical Supervisor in charge will furnish a list containing the names and designations of the various staff to whom the training in the operation, maintenance and attending to emergent situations are to be given. When the contractor is satisfied that sufficient training both in theoretical and practical aspects have been imparted to the staff thus deputed, shall issue a certificate in that respect which shall be forwarded to the Technical Supervisor in Charge. The training shall preferably be in the place of the project work. However, if requested, the contractor shall be permitted to give part of the training to the Agency staff at his place of choice after due consideration of all aspects.

- 10.18 If any of the conditions above are in contradiction to any of the clauses in the scope of Work, the clause/conditions of the Scope of Work shall prevail .
- 10.19 Contractors/Firms shall not appoint/employ directly/indirectly the retired employees of KRWSA within 3 years of their retirement/Voluntary retirement.

11. SPECIAL CONDITIONS

- 11.1 In the tender document the rates quoted by the contractor should be exclusive of GST; but inclusive of all taxes, duties, welfare fund, contributions etc. The contractor should indicate separately applicable GST in percentage in tender document (BoQ).

Executive Director

KERALA RURAL WATER SUPPLY AND SANITATION AGENCY

Name of Work: Renovation of existing 10,000 litre capacity RWH units, Renovation of existing Open Well, Construction of Rain Water Recharge Pit (50 nos.) at Govt. Girls High School, Manakkadu and providing recharge facility, Construction of (50 nos.) at Govt. Teachers Training Institute Manakkadu, Thiruvananthapuram.

NOTICE INVITING TENDER

(SCOPE OF WORK & BILL OF QUANTITIES)

VOLUME – 2

| | | |
|---|---|-----------------------------|
| Tender No | : | 131/RC/KRWSA/2019 |
| Tendered PAC | : | Rs .23,73,200/- |
| Last date of online submission of tenders | : | 22/09/2020, 5.00 PM |
| Date of tender opening | : | 25/09/2020, 11.30 AM |

**OFFICE OF THE EXECUTIVE DIRECTOR
KRWSA.
THIRUVANANTHAPURAM**

KERALA RURAL WATER SUPPLY AND SANITATION AGENCY

A. SCOPE OF WORK

Name of Work: - Renovation of existing RWH unit, renovation of existing open well and construction of recharge pits in the campus of Govt. Girls High School and Govt. Girls Higher Secondary School at Manacadu. The programmes proposed in the campus of Govt. teachers Training Institute, Manacadu are renovation of existing water conservation systems and construction of recharge pits. Rain water from the roof top of buildings in the campus will be harvested and directed to the open well and recharge pits for improving the ground water table and controls the run off in the rainy season. These measures shall help in minimizing the water scarcity issues faced by the institutions and will be a measure for moderation of flood.

1. GENERAL INFORMATION

These project activities are implemented in the premises of GGHS, GGHSS and GTTI, Manacadu as part of minimizing the water scarcity issues and as a measure for controlling flood. The existing well in the campus will be renovated for increasing the storage capacity and for harvesting the rain water from the roof top of buildings in the campus. The demand for water in the campus is very high as they have considerable number of students in both the sections. Large quantity of rain water from the roof top of various buildings in the campus can be harvested in the open well proposed for renovation. The run off can be controlled and this will help as a measure for mitigation of flood. The construction of recharge pits in the campus will help in conserving the rain water for ground water recharge and help as a measure for flood mitigation.

The above said activities have been discussed and planned with the officials of institutions. They have expressed their willingness for implementing the activities as per the approved plan and estimate. The activities shall be implemented in the space available within the campus. This will help in minimizing the water scarcity issues now they are facing. The work shall be tendered and supervised by the staff of Rain Centre KRWSA.

2. CONCISE SCOPE OF WORK

The scope of the work includes renovation of existing open well in the school campus. Rain water recharge pits proposed shall help in conserving the rain water and measures for flood mitigation.

3. Land for structures

The land for construction of the proposed structures will be made available by the authorities of the institutions proposed. The locations for each activity shall be identified jointly by authorities of above mentioned institution and KRWSA. The construction works shall be made only at the sites identified and proposed.

4. General technical specification

PART II. TECHNICAL SPECIFICATIONS.

.II. (1) . MATERIALS

All materials required for the works shall be procured and supplied by the Contractor himself. The materials shall be of good quality and conforming to relevant BIS specification. The materials which are classified for ISI marking should be supplied with ISI marking only.

I. Cement and Steel.

I.1 The entire quantity of cement and steel required for the work shall be procured by the Contractor. The Contractor is responsible for all transport and storage of the materials and shall bear all related cost. The Employer shall be entitled at any reasonable time to examine the cement and steel supplied by the contractor.

I.2. The cement procured by the contractor shall comply with the requirements of IS 269/1976 with the latest revision thereof for ordinary port land cement and IS 8112/1989 with the latest revision thereof for 43 grade ordinary Portland cement. It shall be of the best normal setting quality unless especially rapid hardening or quick setting quality if expressly instructed by the Engineer to be supplied. Each bag shall bear ISI Certification mark and as per specification no.10 of TNBP volume 1.

1.3. The steel bars shall comply with the requirements set forth in the IS 432 Part 1, IS 1139, IS 1786 as the case may be with the latest revision thereof and the test as described for ultimate tensile strength, bond test and elongation tests All reinforcing steel shall be clean and free from oil, grease, loose scales or rust or other coatings of any character which would reduce or destroy the bond. Each band containing the bars shall bear the ISI Certification marks.

1.4. The Cement/steel shall be tested in nearby laboratories of Polytechnic or Engineering College by the Employer. Two samples should be taken by the Engineer in charge in the presence of the contractor or his authorized representatives or the technical personnel employed by the Contractor as in the Agreement. The contractor shall without extra cost, provide samples and cooperate in the testing of the cement. /steel. One sample shall be got tested and the other sample shall be retained by making clear identification in the sample by the Engineer in charge so as to identify at a later date. **The cost of such test shall be borne by the contractor.**

1.5. All cement shall be procured in bags and shall be stored in a dry place for which the contractor shall be responsible. Consignment of bagged cement shall be properly stacked in a manner

which will permit easy access for inspection and definite identification. Cement shall be used in approximately in the chronological order in which it is received, but cement that has been stored for a period more than 3 months from the date of manufacturing shall not be used unless it has been re-tested at the expenses of the contractor and passed by the Engineer in charge as good quality on the re-tested. Cement aged more than 90 days from the date of packing shall be rejected.

- 1.6. Cement which has become caked or perished shall on no account be used in works and shall be rejected, although the Engineer may have passed any consignment if he finds that any deterioration in the quality thereon has taken place.
- 1.7. A record of the quantity of cement/steel procured shall be maintained by the contractor with the name of dealer, bill no., date etc. This should be produced for examination by the Engineer in charge at any time. The age of the cement shall be reckoned from the date of manufacture and it shall be verified by the Engineer in charge.
- 1.8. The rejected consignment of cement and steel should be removed from the site within two days.

2. Aggregates.

- 2.1 Sand for use in masonry and plaster works conform to relevant specification in Tamilnadu Building Practice (TNBP) (Specification No. 7) and I.S.2116/1985, I.S.1542/1977. **Due to restriction in Mining River sand M-Sand approved by the Engineer in Charge can be used.**
- 2.2 The coarse and fine aggregates for concrete shall conform to I.S.383/1970 and as specified in the relevant clauses of I.S.456/1978. Other aggregates free from deleterious materials shall be used at the concurrence and approval of the Engineer after sufficient tests have been carried out at the contractors cost.
- 2.3. The maximum quantities of deleterious materials in the aggregates, as determined in accordance with I. S. 2386/(Part II/1963 shall not exceed the limits given in table 1 of I. S. 383. Unless otherwise specified all coarse aggregate in RCC shall be graded aggregate of 20 mm nominal size. All aggregates shall be stored in hard impervious surface to ensure exclusion of all foreign materials and as per IS 4082/1977 and specification no 5 of TNBP Volume 1.

3. Water required for Construction.

- 3.1. The water used in the construction shall be of potable quality and shall be tested at the contractor's cost. The contractor has to make his own arrangements at his cost for water required for construction, testing, filling, etc., either from local bodies or from elsewhere by paying the charges directly and arranging tanker etc., as per necessity. No claim for extra payment in case of non availability of water nearby, no claim for extra lead for bringing water shall be entertained. All required piping arrangements and pumping if required for water shall be made by

the contractor at his cost. Water for mortar mixing and curing of concrete shall be free from harmful substances that may be deleterious to concrete or steel and taken from a source approved by the Engineer. Water for mixing and curing shall conform to the provisions in the clause 4.3 of IS 456/2000

4. Admixtures.

The Admixtures shall conform to relevant IS specification (IS-9103/1972), and shall produce some beneficial effect to the concrete and approved by the engineer-in-charge.

5. Form work and Centering

5.1.1 Steel or wooden form work shall be used. If wooden form work is used, it shall consist of planks not less than 40mm thick and strong props. This shall be provided complying with clause 10 of IS 456/1978 and specification no. 30.8. of TNBP. The timber for form works shall be best hard wood and got approved by the Engineer in charge. This shall be deemed to be included in the items of contract even otherwise specified.

6. Separator (Cover Block)

6.1.1 For bottom cover of beams, slabs etc., separators of pre cast cement mortar blocks of suitable size with wire embedment as directed shall be used and tied to the reinforcement. Between layers of reinforcements, separators consisting of pieces of bars of suitable diameter shall be used. The required cover shall be provided as per clause 24.4 of IS 456/2000

7. Pipes, Specials and Valves.

7.1 General.

7.1.1. All types of pipes required for the works should be of good quality conforming to relevant BIS and CPHEO specifications should be procured from reputed manufacturer. Each pipe should bear the trade mark of the manufacturer, the nominal diameter, class, weight, batch number and the last two digits of the year of manufacture suitably and legibly marked on it. The Engineer shall have the right to conduct any test to ascertain the quality of the pipes supplied by the contractor. The contractor should make all necessary arrangements for testing the pipes. All the charges and expenses towards the testing shall be borne by the contractor. The materials which are classified for ISI marking should be supplied with ISI marking only.

7.1.2. If on examination of any sample from any portion of the supply, the material is found to be sub standard and not comply with the relevant specification, the entire consignment shall be

rejected. In case of doubt whether the materials confirm to the specification or not, the decision of the Executive Engineer shall be final.

7.3 GI pipes.

7.3.2 G I pipes should be procured by the contractor from reputed manufacturers or from their authorized dealers and should conform to IS 1239/part 1, namely the inner and outer diameter, length, weight and galvanization. The pipes which are found to be not conforming to relevant specification shall be rejected by the Engineer-in-charge. Guarantee shall be obtained from manufacturer for two years.

7.4 CI D/F pipes.

7.4.1. The CI D/F pipes procured for use in the work should conform to the relevant BIS specification and suitable for use in the work.

7.5. Valves.

The Contractor should procure reputed make of sluice valves, scour, reflux valves, non return valves, pressure release valves and air valves from the manufacturer or his authorized dealer and they should conform to the relevant BIS specification and suitable for use in the work. The valves shall bear ISI marks. Pressure release valves will be provided so as to minimize high residual heads and equalize the pressure in the system to near uniform pattern. Pressure rating for valves shall be PN.1

7.6 DI/CI/GI Specials and Fittings shall be in conformity with relevant B.I.S. specification

7.6.1 Testing of materials intended to be used in works for assuring quality shall generally be done by the contractor at his own cost in the laboratory approved by the Employer by providing requisite materials transportation of test specimen and other assistance required thereof.

V (2). CIVIL WORKS.

1. General.

The scope of work for the contractor under the contract for civil works include all civil constructions works, such as excavation, foundation, buildings, trenches all water retaining structures including sumps, weir, together with ducts and piping etc. and clearing of the site after completion of the work. The limits; of the contract, the provision of space, shall be the same as shown on the tender drawings and described in the work specification of the tender documents.

The civil works shall be carried out in accordance with the National Building Codes, the Kerala PWD (B&R) specifications and explanatory notes, and TamilNadu Building practice (TNBP). In case of any variation between the PWD specifications and specifications given here, the latter shall prevail. In case where the PWD specification and the specifications given below are silent about any aspects in respect of any item, the work shall be carried out as per the relevant. IS codes of practice in the latest version and as per sound engineering practice.

The excavation items will include; all lifts, and leads within limits of work, labour for dewatering, shoring wherever necessary, backfilling around completed structures and disposal of surplus/soil etc..as directed by Engineer-in Charge. If any road is to be dug up for any purpose whatsoever, the contractor shall reinstate it to the original condition as demanded by the Engineer-in-Charge or the Statutory Body concerned, at no extra cost.

The contractor shall programme his construction activities in such a manner that all inlet and outlet arrangements are ready for testing purposes to avoid any delays.

1.1. Design & Drawings

The contractor shall construct all civil works in accordance with the standard specification and as per the designs. The contractors shall alter/modify/the design based on the directions of the engineer and the decision of engineer is final and binding on the contractor. Special attention shall be given to the climate of the project area before planning the constructional structures. Notwithstanding any approval by the Engineer/Consultant, contractor is solely responsible for the performance and structural safety/stability of the equipment/structures under the contract.

1.2 Deleted

1.3 Check for Reinforcement and concreting

All reinforcement shall be checked and recorded in M-Books, by a representative of the Engineer-in-Charge. Similarly, the entire concrete pouring work shall be done in the presence of an engineer's representative. The contractor shall therefore, give a notice of minimum three days to the Engineer-in-Charge or his representative, such that the works can be checked by him or his representative.

Main standards for Civil Works

Some of the important IS codes referred during execution of the work are as follows:

| | |
|--------------|--|
| IS: 3764 | - Safety code for excavation works |
| IS: 280 | - Mild Steel wire for general engineering purposes |
| IS: 269/8112 | - Portland cement/OPC-Grade 43 |
| IS: 383 | - Course and fine aggregate |
| IS: 432 | - Medium tension steel bards and hard drawn steel wire. |
| IS: 456 | - Code of Practice for plain and reinforced concrete. |
| IS: 516 | - Methods of testing for strength of concrete |
| IS: 1199 | - Method of sampling and analysis of concrete |
| IS: 1566 | - Fabric reinforcement |
| IS: 1786 | - High strength deformed bars for concrete reinforcement |
| IS: 2062 | - Structural Steel |

- | | |
|----------|---|
| IS: 2386 | - Methods of tests for aggregates of concrete |
| IS 3370 | - Code of Practice for concrete structures for the Storage of liquids. |

1.4 Building works

- | | |
|----------|---|
| IS 1567 | -Code of Practice for construction of stone masonry General |
| IS: 1200 | -Method of Measurement |

2. Earth work.

2.1. Specification.

Tamil Nadu Detailed Building Practice (specification No.23 to the extent applicable) shall be followed for earthwork excavation.

2.2. Conveyance.

The surplus excavated earth, blasted rubble etc., shall be conveyed and deposited in the Panchayath lands, within 150m of work site and as directed by the Engineer in charge.

2.3. Stacking.

Where the location of the work is such and does not permit the deposition of excavated earth while digging trenches for laying pipes, the excavated earth should be conveyed to a convenient place and deposited there temporarily, as directed by the Engineer-in-charge. Such deposited soil shall be reconvened to the site of work for the purpose of refilling of trenches, if it is suitable for refilling. The unit rate for trench work of excavated and refilling shall include the cost of such operation.

2.4 Disposal of surplus Earth.

The excavated soil which is surplus to that required for filling and after allowing for settlement will have to be removed, spread and sectioned at places shown on the site during excavation for purpose of widening or leveling the road. Sectioning is to be done as detailed in TNBP, It is to be understood that no extra payment, will be made for this and the unit rate for trench work of excavation and refilling shall made for this and the unit rate for trench work of excavation and refilling shall include the cost removal of surplus earth to disposalsite approved by the Engineer in charge, its spreading and sectioning at the bidder's expense.

2.5 Shoring, Strutting and Baling out water.

The rate for excavation of trench work shall include charges of shoring, strutting, bailing out water wherever necessary and no extra payment will be made for any of these contingent works. While bailing out water, care should be taken to see that the bailed out water is properly canalized to flow away without stagnation or inundating the adjoining road surfaces and properties.

3. Concrete.

3.1. Specification.

Concrete for use in the works shall generally comply with TNBP (specification No.30) and the relevant BIS. The concrete mix shall be in specified proportions satisfying the maximum aggregate size, water cement ratio and required cube strength and workability as per IS 456-2000. Such concrete must be adequately vibrated to form solid mass without voids. The entire concreting works should be done only with the prior approval and in the presence of Engineer-in-charge.

3.2. Mixing Concrete.

The concrete shall be proportioned as far as cement and aggregates are considered by volume. The amount of water required being measured either by weight or volume the adjustments must be made to frequent intervals at the discretion of the Engineer or his assistant to account for the moisture content of the aggregates. The mixing operation shall be performed only in a mechanical concrete mixer and shall continue until the whole batch of uniform consistency and colour. The mixing of concrete shall be done in accordance with clause 8 and 9 of IS 456-2000.

3.3. Transporting, Placing and Compacting Concrete.

3.3.1. Transportation, placing and compaction of concrete mix by mechanical vibrators shall be done in accordance with clause 12 of IS 456-2000. It is imperative that all concreting operations be done rapidly and efficiently with minimum rehandling and adequate manpower shall therefore be employed to ensure this.

3.3.2. The form work shall be first cleaned and moistened before placing concrete.

3.3.3. The mix should not be dropped from such a height as it may cause segregation and air entrainment. When the mix is placed in position, no further water shall be added to provided easier workability.

3.3.4. No concrete mix shall be used for the work if it has been left for a period exceeding its initial setting time before being deposited and vibrated into its final position in the member.

3.3.5. While one concrete is being placed in position it shall be immediately spread and ramped sufficiently and suitable to attain dense and complete filling of all spaces between and

around the reinforcement and in to the corners of form work for ensuring a solid mass entirely free from voids.

- 3.3.6. Construction joints required in any of the structural members shall be provided generally complying with clause 12.4 of IS 456-2000 and as directed by the Engineer-in-charge.. The efficiency of tempering and consolidation will be judged by complete absence of air pockets, voids and honey combing after removal of form works.

3.4.0 **Curing.**

- 3.4.1. Curing shall be done to avoid excess shrinkage or harmful effect to the members generally complying with clause 12.5 of IS 456-2000.
- 3.4.2. The method adopted shall be effective and any special method used must be approved by the Engineer and be subject to complete supervision.
- 3.4.3. Any deficiency in concreting such as cracking, excessive honey combing exposure of reinforcement or other fault which entail replacement of the defective part by fresh concrete and whatever remedy reasonable required without hampering the structural safety and architectural concept, all at the cost of contractor.

3.5. Removal of Form Work.

- 3.5.1. Removal of form work shall be done as per TNBP and BIS and as directed by the engineer in such a manner that no damage is caused to the structures. The stripping time shall not be less than that indicated in clause 11.3 of IS 456-2000.

3.6. **Testing of Concrete**

- 3.6.1. During the progress of construction sampling, preparation of test specimens, curing and testing of concrete shall be conducted in accordance with IS 1199 and IS 516, to determine whether the concrete being produced complies with the strength requirements as specified. At least one slump test shall be carried out for every compressive strength test carried out or as directed by the Engineer. Six No.15 cm cubes shall be made for each cubic meter or portion thereof or for each proper grade of concrete. This number may be increased at the discretion of the Engineer. Six specimens shall preferably be prepared from different batches, three being tested after 7 days and the remaining three being tested at 28 days; The contractor shall provide, at his own expense, all apparatus, labour and arrange for testing at a laboratory, approved by the Engineer in Charge.
- 3.6.2. In addition to the above tests, any other test which may if desired by the Engineer-in-charge be carried out from time to time as per relevant specifications at the cost of contractor. In case the concrete does not meet the strength requirements, all corrective measures shall be taken at once at the contractor's cost.

3.6.3. The inspection and testing of structures shall be done in accordance with clause 16 of IS 3370 volume I water Retaining Structures

3.6.4. **Acceptance of Concrete**

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

3.6.6 **Failure to meet strength requirements**

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

- Curing and load testing of the concrete member concerned represented by the test which failed.
- Replacement of any portions of the structure. No payment shall be made for the dismantling of the concrete, relevant framework or reinforcement shall be made. Embedded
- fixtures and reinforcement of adjoining structures damaged during dismantling shall be made good to the contractor at his own expenses.
- Extended curing of the structure of the concrete represented by the specimen.
- Collection and testing of a core specimen from the hardened concrete. The location number and size of such specimen shall be taken as directed by the Engineer.
- Any other test i.e., ultrasonic and/or rebound hammer tests to be decided by the Engineer, at the contractor’s own cost.

4. **Masonry**

All masonry works such as Random Rubble/Brick work must be done as per TNBP Specification and Bid schedule specification.

5. Plastering.

- 5.1 Plastering would be 12mm,15mm and 20mm thick cement plaster .either plain or waterproof as per specification may be provided.
- 5.2 The plastering items shall be executed in thickness and cement mortar of proportion as detailed in respective items in the BOQ. Similarly the plastering shall be either ordinary or waterproof as specified in respective item in the BOQ.
- 5.3 In case of water proof plaster standard approved water proofing compound shall be mixed in cement mortar in required percentage as directed and then the plaster is applied.
- 5.4 The finishing shall be either smooth or rough as may be directed by the Engineer unless otherwise specifically mentioned in the BOQ.
- 5.5 Neat finish wherever directed by the Engineer shall be done at no extra cost.
- 5.6 Curing and watering shall be one as directed and plaster shall be in alignment and level. Any sub standard work is liable to be rejected and shall have to be re-done at contractors cost.
- 5.6.1 Sand to be used shall be of approved quality only. Cost of all scaffolding shall be included in the rates quoted in the BOQ.

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8 Painting.

8.1. The work shall be carried out as per the description of the tender item and as directed by Engineer- in-charge.

In general, all items of works must be done as per bid schedule specifications.

2.20 Collection of Rubbish

The Contractor shall, at his cost, on completion of the Work remove all water and other materials or rubbish of every description which may have been collected in the works find a deposit thereof and anything which may have collected within the works, during the period of maintenance shall also be removed before the Works are finally accepted by the Employer.

V(9) REFERENCE TO SPECIFICATIONS/CODE OF PRACTICE

| | |
|--|-----------------------------|
| Ordinary Portland Cement (33 Grade) | 269-1976 |
| 43 Grade Ordinary Portland Cement | 8112-1989 |
| Pozzolona Portland Cement | 1489-1991 |
| Hydrophobic Portland Cement | 8043-1978 |
| Rapid Hardening portland Cement | 8041-1990 |
| Low Heat Portland Cement | 12600-1989 |
| Standard sand for testing of cement | 650-1966 |
| Methods of Test for Pozzolonic Materials | 1727-1967 |
| Methods of sampling and test for water & waste water (Physical & chemical) | 3025-1984 (Part 1 to 37) |
| Methods of Sampling hydraulic Cement | 3535-1986 |
| Methods of Physical tests for hydraulic Cement | 4031-1988 (1 to 14) |
| Methods of Chemical analysis of hydraulic cement | 4032-1985 |
| Aggregates coarse & Fine from Natural resources | 383-1970 |
| For concrete. | 4082/1977 |
| Sand for Masonry Mortar | 2116-1965 1542/1977 |
| | 2386-1963 (Part 1 to 8) |
| Methods of tests for aggregates for concrete | |
| Part 1-Particle size and shape | 2386-1963 (Part-1) |
| Part II-Estimation of deleterious Materials & Organic impurities | 2386-1963 (Part III) |
| Soundness | 2386-1963 (Part- |

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| | III) |
| Methods for sampling of aggregates for concrete | 2430-1986 |
| Specifications for test sieves Wire cloth test Sieves | 460-1978 (Part – I) |
| Common Burnt clay building bricks | 1077-1976 |
| Mild Steel and Medium tensile steel bars and hard Drawn steel wire, concrete reinforcement, Part-I-Mild Steel & Medium tensile steel Bars Part-II-Hard drawn steel wire | 432-1982 |
| High Strength deformed steel bars and wires for Concrete reinforcement | 1786-1985 |
| High Tensile Steel for PSC Pipes | 1784-1986 (Part-I) |
| Bending and flexing of bars for concrete reinforcement | 2502 – 1969 |
| Recommendations for detailing of reinforcement in reinforced concrete works | 5525-1969 |
| Method for tensile testing of steel wire | 1521-1972 |
| Method of test for determining modulus of elasticity | 2854-1964 |
| Glossary of terms relating to cement concrete | 6461-1972 (Part 1 to 12) |
| Methods of test for strength of concrete | 516-1959 |
| Methods of testing bond in reinforced concrete Pull out test | 2770-1967 |
| Methods of test for permeability of cement Mortar and concrete | 3085-1965 |
| Methods of test for splitting tensile strength Of concrete cylinders | 5816-1970 |
| Code of practice for construction of | 2911 (Part I) |
| Pile foundations (concrete piles) | Sec-1-1979 |
| Driven cast-in-situ concrete piles | Sec-2-1979 |
| Bored cast –in-situ piles | Sec-3-1979 |
| Driven pre-cast concrete piles Bored pre-cast concrete piles | Sec-4-1984 |
| Code of practice for construction of raft foundation | 2950-1981 |
| Design Aids for reinforced concrete | SP 16-1980 |
| Explanatory Hand Book on Codes for earth w Engineering | SP 22-1982 |
| Explanatory Hand Book on IS Code 456-19 | SP24-1983 |
| Hand Book on causes and prevention of cracks in buildings | SP 25-1984 |
| Hand Book on concrete reinforcement & detailing | SP 34-1987 |

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| Brick Masonry | 2212-1962 |
| Construction of Stone Masonry | 1957-1967 |
| Asbestos cement pressure pipes | 1592-1989 |
| Concrete pipes with and without reinforcement | 458-1988 |
| P.S.C Pipes (including fittings) | 784-1978 |
| Methods of tests for concrete pipes | 458-1988 3597-1985 |
| Materials for M.S. Specials Specifications for M.S.Specials for P.S.C.Pipes. | 22-1976 & 2062-1980 |
| Specifications for Steel cylinders reinforced Concrete pipes. | 1916-1989 |
| Methods of tests of concrete pipes | 3597-1985 |
| Specials for steel cylinders reinforced concrete pipes | 3597-1985 |
| Cast iron specials for asbestos cement pressure Pipes for water, gas & sewage | 5531-1988 |
| Methods of test for asbestos cement products | 5913-1989 |
| Centrifugally Cast (Spun)Iron pressure pipes for Water, gas and sewage Including fittings. | 1536-1989 |
| Specifications for Centrifugally Cast (Spun)D.I.Pipes for Water, Gas and Sewage. | 8329-1990 |
| D.I.Fittings for pipes for water,gas & sewerage | 9523-1980 |
| Dimensional requirements of rubber gaskets for Mechanical joints and push on joints for the use With C.I.D.I.Pipes. | 12820-1986 |

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| C.I.Specials for Mechanical and push on flexible joints for pressure pipe lines for water, gas &sewage | 13382-1992 |
| Horizontally cast iron double flanged pipes for water. Gas and sewage | 7181-1986 |
| Cast iron fittings for pressure pipes for water, gas And sewage | 1538-1976 (Part 1 to 24) |
| Cast iron detachable joints for use with Asbestos Cement pressure pipes | 8794-1988 |
| Rubber rings for jointing C.I.Pipes, R.C.C.Pipes & AC Pipes. | 5382-1969 |
| Rubber rings for jointing P.S.C.Pipes | 5382-1985 |
| Rubber rings for jointing AC Pipes with AC couplings | 10292-1985 |
| Pig Lead (caulking lead) | 782-1978 |
| Hemp yarn | 6587-1966 |
| Rubber Insertion to be used in jointing CIDF pipes | 638-1979 |
| Bolts & Nuts to be used in jointing CIDF Pipes | 1363-1967 |
| Unplasticized PVC Pipes for potable water supplies | 4985-1988 |
| Injection moulded PVC socket fittings with Solvent cement joints for water supplies. | 7834-1987 (Part 1 to 8) |
| Fabricated PVC fittings for potable water supplies | 10124-1988(Part 1 to 13) |
| Methods of test for unplasticized PVC pipes for potable water supplies | 12235-1986 (Part 1 to 11) |
| Sluice valves for water works purposes (50 to 300 mm Dia size) | 780-1984 |
| Sluice valves for water works purposes (300 to 1200 ;mm Dia size) | 2906-1984 |
| Water meter (15 mm) | 2401-1973 |
| Surface boxes for sluice valves | 3950-1979 |
| Manhole covers for sluice valves | 1726-1974 |
| Laying of Asbestos Cement Pressures Pipes | 6530-1972 |
| Laying of Concrete pipes | 783-1985 |
| Laying of Cast-Iron Pipes | 3114-1985 |
| Laying of PSC Pipes | 126 of APSS & 783-1985 |
| Laying of DI Pipes | 12288-1987 |
| Laying and jointing of unplasticized PVC Pipes | 7634-1975 (Part 3) |
| Batch type concrete mixer | 1791-1968 |
| Sheep foot roller | 4616-1968 |
| Safety code for excavation works | 3764-1966 |
| Safety code for scaffolds and ladders | |
| Part-I Scaffolds | 3696-1966 (Part I) |
| Part II-Ladders | 3696-1966 (Part-II) |
| Safety code for piling and other deep foundations | 5121-1969 |
| Safety code for working with construction machinery | 7293-1974 |
| Tamil Nadu Building Practice | Volume-I Volume-II |

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| Government of India Manual on Water Supply and Treatment | Latest (Revised) |
| Gravel for packing | 4091-1967 |
| Hard drawn Steel Wire | 1785-1983 (Part I and II) |
| Structural Steel | 226-1975 |
| Hard rolled mils steel for concrete | 1139-1966 |
| Hard drawn Steel Wire | 1566-1982 |
| American Society for Testing of Materials | 1566-1982 |
| British Standard | 2494-1955 Part I |
| Welding Electrodes | 814-1970 |
| Steel Sheets | 225-1975 |
| Guinitting | 7322-1994 |
| Welded Joints | 3589-1966and 2041-1962 |
| Tensile Test | 223-1950 |
| Mechanical and Electrical Works | |
| Turbine Pump | 1710-1972 |
| Submersible Pump | 8030-1976 |
| Submersible Motor | 9283-1979 |
| Earthing | 3043-1966 |
| Transformer | 1180-1964 |
| Generator | 22 53-4722 |

5. Operation and Maintenance after commissioning

The well/ structures that has been constructed and handed over shall be operated and maintained by the team/person assigned by the authorities of GHS, GHSS & GTTI, Manacadu, Thiruvananthapuram.. Whatever expenses incurred towards operation and maintenance has to be met by the institution only. However, during the defect liability period the maintenance required shall be the responsibility of contractor who has executed the work. It should be ensured that the structures developed as part of the project has to be periodically monitored and maintained by the institution itself. The surroundings of the pond constructed and recharge pits constructed should be kept clean and hygiene.

B.BILL OF QUANTITIES

Validate

Print

Help

Item Rate BoQ

Tender Inviting Authority: Executive Director, KRWSA , 3rd Floor,S.S.Kovil Road, Thampanoor -695001

Name of Work: CONSTRUCTION OF RWH FACILITY AT GOVT GIRLS HIGH SCHOOL MANAKKADU, THIRUVANANTHAPURAM AND AT GOVT TEACHERS TRAINING INSTITUTE MANAKKADU, THIRUVANANTHAPURAM

Contract No: 131/RC/KRWSA/2019/MANACADU

| Name of the Bidder/ Bidding Firm / Company : | | | | | | | |
|---|--|----------|--------|----------------|--|----------------------------|-----------------------|
| PRICE SCHEDULE (This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only) | | | | | | | |
| NUMBER # | TEXT # | NUMBER # | TEXT # | NUMBER | NUMBER # | NUMBER # | TEXT # |
| Sl. No. | Item Description | Quantity | Units | Estimated Rate | BASIC RATE In Figures To be entered by the Bidder Rs. P | TOTAL AMOUNT Without Taxes | TOTAL AMOUNT In Words |
| 1 | 2 | 4 | 5 | 6 | 13 | 53 | 55 |
| 1 | Appendix -1- RENOVATION OF EXISTING 10,000.00 LITRE CAPACITY RWH UNITS AT GOVT GIRLS HIGH SCHOOL MANAKKADU | | | | | | |
| 1.01 | Clearing grass and removal of the rubbish upto a distance of 50 m outside the periphery of the area cleared. | 20.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 1.02 | Plastering with cement mortar 1:3 in 12mm thick for plinth portion including all charge for cost and conveyance, watering curing, labour charges etc complete - Patch plastering | 20.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 1.03 | Washing, cleaning ,and repacking filter media in the filter chamber including supplying of additional quantity if any required as per the direction of department officers. | 2.00 | no | 0.00 | | 0.000 | INR Zero Only |
| 1.04 | Supplying & fixing 63mm dia PVC pipe | 100.00 | m | 0.00 | | 0.000 | INR Zero Only |

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| 1.05 | Supplying & fixing 50mm dia PVC scour pipe | 5.00 | m | 0.00 | | 0.000 | INR Zero Only |
| 1.06 | Supplying & fixing scour valve 50mm dia (PVC) | 2.00 | each | 0.00 | | 0.000 | INR Zero Only |
| 1.07 | Supplying & fixing 63 mm PVC valve at down pipe | 2.00 | each | 0.00 | | 0.000 | INR Zero Only |
| 1.08 | Earthwork excavation in hard soil for ground water recharge pit, including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus soil as directed, within a lead of 50 m. | 2.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 1.09 | Filling the recharge pit with stones, brick bats, etc available at the locality | 2.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 1.1 | Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : All kinds of soil | 28.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 2 | Appendix -2- Renovation of existing open well AT GOVT GIRLS HIGH SCHOOL MANAKKADU | | | | | | |
| 2.01 | Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area | 400.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 2.02 | Cleaning the well inside by engaging man mazdor (special) | 5.00 | each | 0.00 | | 0.000 | INR Zero Only |
| 2.03 | Bailing out water for dewatering the well for cleaning | 60.00 | kwh | 0.00 | | 0.000 | INR Zero Only |
| 2.04 | Supply and fixing chequered aluminium plate of 4mm thickness cutting to the required shape and size placing over the well parapet so as to cover the entire well opening including all labour for cutting conveying etc to the fully finished work. | 7.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 2.05 | Engaging plumbers for repair works of pipes | 3.00 | each | 0.00 | | 0.000 | INR Zero Only |

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| 2.06 | Engaging man mazdor for repair works of gutter pipe cleaning etc | 3.00 | each | 0.00 | | 0.000 | INR Zero Only |
| 2.07 | Supply and laying 110 mm (6 kg/cm2) PVC pipe to convey rain water from the roof top of Teachers training institute to the open well at the High school premises | 100.00 | m | 0.00 | | 0.000 | INR Zero Only |
| 2.08 | Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : All kinds of soil | 27.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 2.09 | Supply and erection of pump set | 1.00 | each | 0.00 | | 0.000 | INR Zero Only |
| 3 | Appendix -3- Construction of rain water Recharge pit (50 no.s) AT GOVT GIRLS HIGH SCHOOL MANAKKADU | | | | | | |
| 3.01 | Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area | 2500.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 3.02 | Earth work excavation of rain water pit (above water) in all classes of soil and conveying and depositing the spoil with in intial lead of 50m and lift up to 1.50m including neat banking for diameter of 1.40m etc. complete as per the direction of departmental officers. | 150.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 3.03 | Earth work excavation of rain water pit (above water) in all classes of soil and conveying and depositing the spoil with in intial lead of 50m and lift up to 1.50m including neat banking for diameter of 1.40m etc. complete as per the direction of departmental officers. | 40.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 3.04 | Supplying precast concrete ring of 1.2m dia, 0.3 m height and 10cm thick at the well site and lowering the rings inside the well using suitable lifting and lowering mechanism and placing at the bottom of well with good seating and providing one above the other and filling the gap with locally available gravelly materials etc as per the direction of department officers. | 250.00 | each | 0.00 | | 0.000 | INR Zero Only |

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| 3.05 | Supplying precast concrete cover slab of dia 1.70m & 10 cm thick with cement concrete 1:2:4 (cast as rectangular slabs of 1.7 m length and width of 30cm with 40mm PVC pipe holes through the middle of the slab (30cm C/C) conveying and placing over the precast concrete rings fixed in the rain water pit etc.complete as per the direction of departmental officers. | 3.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 3.06 | Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level. (1kg/10 dm3) | 1300.00 | kg | 0.00 | | 0.000 | INR Zero Only |
| 3.07 | Centering and shuttering including strutting, etc. and removal of form for: Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc. | 100.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 3.08 | Supply and fixing 110 mm PVC 6kg/cm2 from the existing rain water down pipe end to the newly constructed pit including cost of all specials labour charge etc. completed as per the direction of departmental officers. | 500.00 | m | 0.00 | | 0.000 | INR Zero Only |
| 3.09 | Removing the excavated earth and other debris from site & making good the surface clean etc. completed as per the direction of departmental officers after completion of the work of each pit.(Qty vide item no. 2 and 3) | 55.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 4 | Appendix -4- PROVIDING RECHARGE FACILITY AT PREMISES OF INSTITUTE AT GOVT TEACHERS TRAINING INSTITUTE MANAKKADU, THIRUVANANTHAPURAM | | | | | | |
| 4.01 | Clearing grass and removal of the rubbish upto a distance of 50m outside the periphery of the existing recharge pit. | 10.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 4.02 | Supply and laying 110m (6kg/cm2)PVC pipe to convey rain water from the roof top of the TTI institute to the existing recharge pit at the premises of the institute | 50.00 | m | 0.00 | | 0.000 | INR Zero Only |
| 4.03 | Earthwork excavation in hard soil for ground water recharge pit, including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out the excavated soil and disposal of surplus soil as directed within ahead of 50m. | 1.00 | m3 | 0.00 | | 0.000 | INR Zero Only |

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| 4.04 | Filling the recharge pit with stones, brick bats, etc available at the locality | 1.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 5 | Appendix -5- Construction of rain water Recharge pit (50 no.s) AT GOVT TEACHERS TRAINING INSTITUTE MANAKKADU, THIRUVANANTHAPURAM | | | | | | |
| 5.01 | Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area | 2500.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 5.02 | Earth work excavation of rain water pit (above water) in all classes of soil and conveying and depositing the spoil with in intial lead of 50m and lift up to 1.50m including neat banking for diameter of 1.40m etc. complete as per the direction of departmental officers. | 150.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 5.03 | Earth work excavation of rain water pit (above water) in all classes of soil and conveying and depositing the spoil with in intial lead of 50m and lift up to 1.50m including neat banking for diameter of 1.40m etc. complete as per the direction of departmental officers. | 40.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 5.04 | Supplying precast concrete ring of 1.2m dia, 0.3 m height and 10cm thick at the well site and lowering the rings inside the well using suitable lifting and lowering mechanism and placing at the bottom of well with good seating and providing one above the other and filling the gap with locally available gravelly materials etc as per the direction of department officers. | 250.00 | each | 0.00 | | 0.000 | INR Zero Only |
| 5.05 | Supplying precast concrete cover slab of dia 1.70m & 10 cm thick with cement concrete 1:2:4 (cast as rectangular slabs of 1.7 m length and width of 30cm with 40mm PVC pipe holes through the middle of the slab (30cm C/C) conveying and placing over the precast concrete rings fixed in the rain water pit etc.complete as per the direction of departmental officers. | 3.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| 5.06 | Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level. (1kg/10 dm3) | 1300.00 | kg | 0.00 | | 0.000 | INR Zero Only |
| 5.07 | Centering and shuttering including strutting, etc. and removal of form for: Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc. | 100.00 | m2 | 0.00 | | 0.000 | INR Zero Only |
| 5.08 | Supply and fixing 110 mm PVC 6kg/cm2 from the existing rain water down pipe end to the newly constructed pit including cost of all specials labour charge etc. completed as per the direction of departmental officers. | 500.00 | m | 0.00 | | 0.000 | INR Zero Only |

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|------------------------------|---|---------------|----|------|--|-------|---------------|
| 5.09 | Removing the excavated earth and other debris from site & making good the surface clean etc. completed as per the direction of departmental officers after completion of the work of each pit.(Qty vide item no. 2 and 3) | 55.00 | m3 | 0.00 | | 0.000 | INR Zero Only |
| Total in Figures | | | | | | 0.000 | INR Zero Only |
| Quoted Rate in Words | | INR Zero Only | | | | | |
| Percentage of applicable GST | | | | | | | |