**E1**

**January 2001**

*Office of the Superintending Engineer, Groundwater Circle, PWD,*

*Taramani, Chennai-600113.*

Telephones: 91-44-22541591 Fax: 044-22541106 Email: gwcchn@gmail.com

NATIONAL COMPETITIVE BIDDING

|  |  |  |
| --- | --- | --- |
| “Supply, installation, testing, commissioning, training and maintenance of Hydrological Information System for XXXX State” | | |
| BID REFERENCE | **:** | *TNHP-II / 1/2011-12* |
| DATE OF COMMENCEMENT OF SALE OF BIDDING DOCUMENT | **:** | 05.03.2012 |
| LAST DATE FOR SALE OF BIDDING DOCUMENT | **:** | 09.04.2012 upto 17.30 hrs |
| LAST DATE AND TIME FOR RECEIPT OF BIDS | **:** | 10.04.2012 upto 15.00 hrs |
| TIME AND DATE OF OPENING OF BIDS | **:** | 10.04.2012 at 15.30 hrs |
| PLACE OF OPENING OF BIDS | **:** | Office of the Superintending Engineer, Groundwater Circle, PWD,  PWD Campus, Taramani, Chennai-600113. |
| ADDRESS FOR COMMUNICATION | **:** | Office of the Superintending Engineer, Groundwater Circle, PWD,  PWD Campus, Taramani, Chennai-600113.  Fax: 91-44-**22541368**  Email: gwcchn@gmail.com |

SECTION I INVITATION FOR BIDS (IFB)

**NATIONAL COMPETITIVE BIDDING FOR THE**

“Supply, installation, testing, commissioning, training and maintenance of Hydrological Information System for XXXX State”

**SECTION I. INVITATION FOR BIDS (IFB)**

Date :05-03-2012.

Loan No. :IBRD Loan 4749 (IN)

IFB No. :*TNHP-II / 1/2011-12*

1. The Government of India has received a loan (*Loan 4749-IN)*)from the International Bank for Reconstruction and Development in various currencies towards the cost of *Hydrology Project-II* and it is intended that part of the proceeds of this Loan will be applied to eligible payments under the Contracts for which this Invitation for Bids is issued.
2. The Superintending Engineer, Groundwater Circle, PWD,PWD Campus, Taramani, Chennai-600113 (Purchaser) now invites sealed Bids from eligible Bidders for the “Supply, installation, testing, commissioning, training and maintenance of Hydrological Information System for XXXX State”
3. Interested eligible Bidders may obtain further information from and inspect the Bid Document at the office of *the Superintending Engineer, Groundwater Circle* PWD, PWD Campus*, Taramani, Chennai-600113.*
4. A complete set of Bid Document may be purchased by any interested eligible bidder on the submission of a written application to the above office and upon payment of a non-refundable fee as indicated below in the form of a Demand Draft/Cashier's cheque /Certified cheque in favor of *Executive Engineer, Gauging Division, Taramani, Chennai-600113,* payable at *Chennai*.
5. The provisions in the Instructions to Bidders and in the General Conditions of contract are based on the provisions of the World Bank Standard Bidding Document - Procurement of Goods.
6. The Bid Document may be obtained from *the office of Superintending Engineer,* PWD, PWD Campus *Taramani, and Chennai-600113* during office hours namely, from **11.00** hrs to **17.30** hrs, on all Working Days either in person or by post. For the bidders who prefer to purchase the Bid Document by post, the Bid Document will be sent by Registered Post. The Purchaser is not responsible for any postal delay or loss in obtaining the Bid Document by post.

|  |  |  |
| --- | --- | --- |
| a | Price of Bid Document (non-refundable) | Rs. ………………../- (Separate DD) |
| b | Vat 4% on Bid Document price (non-refundable) | Rs. ………../- (Separate DD) |
| c | Postal charges, inland | Rs. 250/- |
| d | Postal charges, overseas | Rs. 1000/- |
| e | Date of commencement of sale of Bid Document | 05.03.2012 |
| f | Date of Pre bid meeting | 19-03-2012 at 11.00 hrs. |
| g | Last date for sale of Bid Document | 09.04.2012 upto 17.30 hrs. |
| h | Last date and time for receipt of Bids | 10.04.2012 upto 15.00 hrs. |
| i | Time and date of opening of Bids | 10.04.2012 at 15.30 hrs |
| j | Place of Pre bid meeting | Office of the Superintending Engineer, Groundwater Circle, PWD, PWD Campus, Taramani, Chennai-600113. |
| k | Place of opening of Bids | Office of the Superintending Engineer, Groundwater Circle, PWD, PWD Campus, Taramani, Chennai-600113. |
| l | Address for communication | Office of the Superintending Engineer, Groundwater Circle, PWD, PWD Campus, Taramani, Chennai-600113. |

7. The Bid document may be downloaded free of cost from the websites, ”www.tenders.tn.gov.in” and “ www.tenders.gov.in”

8. All Bids must be accompanied by a Bid Security as specified in the bid document and must be delivered to the above office at the date and time indicated above in person or through the representative duly authorized by the Bidder or by registered post. The Purchaser is not responsible for any postal delay or loss in receiving the bid document by post within the prescribed date and time.

9. Bids will be opened in the presence of Bidders / Bidder’s representatives who choose to attend on the specified date and time of Bid opening.

10. In the event of the date specified for Bid receipt and opening being declared as a closed holiday for Purchaser’s office, the due date for submission of Bids and opening of Bids will be the following Working Day at the same appointed hours.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IFB No. | Name of work | Estimate Cost  (Rs.) | Bid security  (Rs.) | Cost of document  (Rs.) | Period of completion of supply |
| 1 | 2 | 3 | 4 | 5 | 6 |
| TNHP-II/1 /2011-12 | “Supply, installation, testing, commissioning, training and operation & maintenance of Hydrological Information System for XXXX State” |  |  | ………..+  ….. (VAT) | 12 Months following the date of signing the Contract. |

SECTION II: INSTRUCTIONS TO BIDDER(ITB)

**SECTION II: INSTRUCTIONS TO BIDDERS (ITB)**

**TABLE OF CLAUSES**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Clause No | Topic Number | Page No |  | Clause No | Topic Number | Page No |
|  | **A.Introduction** |  |  | 21 | Modification and withdrawal of Bids | 17 |
| 1 | Source of Funds | 8 |  |  | **E. Opening and Evaluation of Bids** |  |
| 2 | Eligible Bidders | 8 |  | 22 | Opening of Bids by the Purchaser | 18 |
| 3 | Eligible Goods and Services | 8 |  | 23 | Clarification of Bid | 18 |
| 4 | Cost of Bidding | 9 |  | 24 | Preliminary Examination | 18 |
|  | **B. Bidding Documents Evaluation of Bids** |  |  | 25 | Conversion to Single Currency | 19 |
| 5 | Contents of Bidding Documents | 9 |  | 26 | Evaluation and Comparison of Bids | 19 |
| 6 | Clarification of Bidding Documents | 10 |  | 27 | Domestic Preference | 21 |
| 7 | Amendment of Bidding Documents | 10 |  | 28 | Contacting the Purchaser | 21 |
|  | **C. Preparation of Bids** |  |  |  | **F. Award of Contract** |  |
| 8 | Language of Bid | 11 |  | 29 | Post-qualification | 22 |
| 9 | Documents Comprising the Bid | 11 |  | 30 | Award Criteria | 22 |
| 10 | Bid Form | 11 |  | 31 | Purchaser's Right to Vary Quantities | 22 |
| 11 | Bid Prices | 12 |  | 32 | Purchaser's Right to Accept Any Bid and to Reject Any or All Bids | 22 |
| 12 | Bid Currencies | 12 |  | 33 | Notification of Award | 23 |
| 13 | Documents Establishing Bidder's Eligibility and Qualifications | 12 |  | 34 | Signing of Contract | 23 |
| 14 | Documents Establishing Goods Eligibility and Conformity to Bid Documents | 13 |  | 35 | Performance Security | 23 |
| 15 | Bid Security | 14 |  | 36 | Corrupt or Fraudulent Practices | 23 |
| 16 | Period of Validity of Bids | 15 |  |  |  |  |
| 17 | Format and Signing of Bid | 16 |  |  |  |  |
|  | **D. Submission of Bids** |  |  |  |  |  |
| 18 | Sealing and Marking of Bids | 16 |  |  |  |  |
| 19 | Deadline for Submission of Bids | 17 |  |  |  |  |
| 20 | Late Bids | 17 |  |  |  |  |

A. Introduction

**1. Source of Funds**

1.1 The Government of India has received Loan from the International Bank for Reconstruction and Development (hereinafter called Bank) in various currencies equivalent to US Dollars 105.0 million towards the cost of the National Hydrology Project and intends to apply part of the proceeds of this Loan to eligible payments under the Contract(s) for which this Invitation for Bid is issued.

1.2 Payment by the Bank will be made only at the request of the Borrower and upon approval by the Bank in accordance with the terms and conditions of the Loan Agreement, and will be subject in all respects to the terms and conditions of that agreement. The Loan Agreement prohibits a withdrawal from the Loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan Agreement or have any claim to the Loan proceeds.

**2. Eligible Bidders**

2.1 This Invitation for Bids is open to all suppliers from eligible source countries as defined in *Guidelines: Procurement under IBRD Loans and IDA Credits*, May 2004, hereinafter referred as the *IBRD Guidelines for Procurement*, except as provided hereinafter.

2.2 Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation of Bids.

2.3 Government-owned enterprises in the Purchaser’s country may participate only if they are legally and financially autonomous, if they operate under commercial law, and if they are not a dependent agency of the Purchaser.

2.4 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Bank in accordance with ITB Clause 36.1.

**3. Eligible Goods and Services**

3.1 All goods and ancillary services to be supplied under the Contract shall have their origin in eligible source countries, defined in the IBRD Guidelines for Procurement and all expenditures made under the Contract will be limited to such goods and services.

3.2 For purposes of this clause, "origin" means the place where the goods are mined, grown, or produced or from which the ancillary services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.

3.3 The origin of goods and services is distinct from the nationality of the Bidder.

**4. Cost of Bidding**

4.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and *The Superintending Engineer, Groundwater Circle,PWD,PWD Campus,Taramani, Chennai-600113, India*, hereinafter referred to as "the Purchaser", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

B. The Bidding Documents

**5. Content of Bidding Documents**

5.1 The Goods required, bidding procedures and contract terms are prescribed in the Bid Document. In addition to the Invitation for Bids, the bidding documents include:

1. Instruction to Bidders (ITB);
2. General Conditions of Contract (GCC);
3. Special Conditions of Contract (SCC);
4. Schedule of Requirements;
5. Technical Specifications;
6. Qualification Criteria;
7. Bid Form and Price Schedules;
8. Bid Security Form;
9. Contract Form;
10. Performance Security Form;
11. Performance Statement Form;
12. Manufacturer’s Authorization Form;
13. Capability Statement Form;
14. Service Support Details Form;
15. Equipment and Quality Control Form.
16. Map of sites

5.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a Bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in rejection of its Bid.

**6. Clarification of Bidding Documents**

6.1 A prospective Bidder requiring any clarification of the bidding documents may notify the Purchaser in writing or by telex or cable or fax at the Purchaser's mailing address indicated in the Invitation for Bids. The Purchaser will respond in writing to any request for clarification of the bidding documents which it receives no later than 15 days prior to the original deadline for submission of Bids prescribed by the Purchaser, or 7 days prior to the date of Pre-bid meeting whichever is earlier. This cut-off date for receipt of written clarifications by the Purchaser will not be extended even if the Bid submission date is extended later. Written copies of the Purchaser's response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective Bidders which have received the bidding documents. The same will also be published in the web-sites,”www.tenders.tn.gov.in” and “www.tenders.gov.in”

6.2     Pre-bid meeting:

 6.2.1  The Bidder or its official representative is invited to attend a pre-bid meeting which will take place in the venue, date and time specified in the Section-I : Invitation For Bids (IFB).

6.2.2  The purpose of the Pre-bid meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

 6.2.3  The Bidder is requested to submit any questions in writing or by cable to reach the Purchaser not later than one week before the meeting.

 6.2.4  Minutes of the Pre-bid meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given will be transmitted without delay to all purchasers of the bidding documents. The same will also be published in the web-sites,”www.tenders.tn.gov.in” and “ www.tenders.gov.in”. Any modification of the bidding documents listed in Sub-Clause 8.1 which may become necessary as a result of the pre-bid meeting shall be made by the Purchaser exclusively through the issue of an Addendum pursuant to Clause 10 and not through the minutes of the pre-bid meeting.

6.2.5    Non-attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

**7. Amendment of Bidding Documents**

7.1 At any time prior to the deadline for submission of Bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by amendment.

7.2 All prospective Bidders who have received the bidding documents will be notified of the amendment in writing or by cable or by fax, or in the web-sites,”www.tenders.tn.gov.in” and “ [www.tenders.gov.in](http://www.tenders.gov.in)”and it will be binding on the Bidders.

7.3 In order to allow prospective Bidders reasonable time in which to take the amendment into account in preparing their Bids, the Purchaser, at its discretion, may extend the deadline for the submission of Bids.

C. Preparation of Bids

**8. Language of Bid**

8.1 The Bid prepared by the Bidder, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Purchaser shall be written in English language. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the English language in which case, for purposes of interpretation of the Bid, the translation shall govern.

**9. Documents Constituting the Bid**

9.1 The bid prepared by the Bidder shall comprise the following components:

(a) A Bid Form and a Price Schedule completed in accordance with ITB Clauses 10, 11 and 12;

(b) Documentary evidence established in accordance with ITB Clause 13 that the Bidder is eligible to bid and is qualified to perform the Contract if its Bid is accepted;

(c) Documentary evidence established in accordance with ITB Clause 14 that the Goods and ancillary Services to be supplied by the Bidder are eligible Goods and Services and conform to the bidding documents; and

(d) Bid Security furnished in accordance with ITB Clause 15.

**10. Bid Form**

10.1 The Bidder shall complete the Bid Form and the appropriate Price Schedule furnished in the bidding documents, indicating the Goods to be supplied, a brief description of the Goods, their country of origin, quantity and prices.

**11. Bid Prices**

11.1 The Bidder shall indicate on the Price Schedule the unit prices and total bid prices of the Goods it proposes to supply under the Contract. To this end, the Bidders are allowed the option to submit the Bids for any one or more schedules specified in the ‘Schedule of Requirements’ and to offer discounts for combined schedules. However, Bidders shall quote for the complete requirement of Goods and Services specified under each schedule on a single responsibility basis, failing which such Bids will not be taken into account for evaluation and will not be considered for award.

11.2 Prices indicated on the Price Schedule shall be entered separately in the following manner:

(i) the price of the goods, quoted (ex-works, ex-factory, ex-showroom, ex-warehouse, or off-the-shelf, as applicable), including all duties and sales and other taxes already paid or payable:

a. on components and raw material used in the manufacture or assembly of goods quoted ex-works or ex-factory; or

b. on the previously imported goods of foreign origin quoted ex-showroom, ex-warehouse or off-the-shelf.

(ii) any Indian duties, sales and other taxes which will be payable on the goods if this Contract is awarded;

(iii) deleted.

(iv) the price of other incidental services listed in Clause 8 of the Special Conditions of Contract including the price of Extended Warranty and annual maintenance services for 5 years after final acceptance, as indicated in Clause 8 of the Special Conditions of Contract.

11.3 The Bidder's separation of the price components in accordance with ITB Clause 11.2 above will be solely for the purpose of facilitating the comparison of bids by the Purchaser and will not in any way limit the Purchaser's right to Contract on any of the terms offered.

11.4 Fixed Price: Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account. A Bid submitted with an adjustable price quotation will be treated as non-responsive and rejected, pursuant to ITB Clause 24.

**12. Bid Currencies**

12.1 Prices shall be quoted in Indian Rupees.

**13. Documents Establishing Bidder's Eligibility and Qualifications**

13.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its Bid, documents establishing the Bidder's eligibility to bid and its qualifications to perform the Contract if its Bid is accepted.

13.2 The documentary evidence of the Bidder's eligibility to bid shall establish to the Purchaser's satisfaction that the Bidder, at the time of submission of its Bid, is from an eligible country as defined under ITB Clause 2.

13.3 The documentary evidence of the Bidder's qualifications to perform the Contract if its Bid is accepted, shall establish to the Purchaser's satisfaction:

(a) that, in the case of a Bidder offering to supply Goods under the contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized (as per authorization form in Section XII) by the Goods' Manufacturer or producer to supply the Goods in India.

*[Note: Supplies for any particular item in each schedule of the Bid should be from one manufacturer only. Bids from agents offering supplies from different manufacturer's for the same item of the schedule in the Bid will be treated as non-responsive.]*

(b) that the Bidder has the financial, technical, and production capability necessary to perform the Contract and meets the criteria outlined in the Qualification requirements specified in Section VI-A. To this end, all Bids submitted shall include the following information:

(i) The legal status, place of registration and principal place of business of the company or firm or partnership, etc.;

(ii) Details of experience and past performance of the Bidder on equipment offered and on those of similar nature within the past five years and details of current contracts in hand and other commitments (suggested Performa given in Section XI);

**14. Documents Establishing Goods' Eligibility and Conformity to Bidding Documents**

14.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its Bid, documents establishing the eligibility and conformity to the bidding documents of all Goods and Services which the Bidder proposes to supply under the Contract.

14.2 The documentary evidence of the Goods and Services eligibility shall consist of a statement in the Price Schedule on the country of origin of the Goods and services offered which shall be confirmed by a certificate of origin at the time of shipment.

14.3 The documentary evidence of conformity of the Goods and Services to the bidding documents may be in the form of literature, drawings and data, and shall consist of :

1. A detailed description of the essential technical and performance characteristics of the Goods ;
2. a list giving full particulars, including available sources and current prices, of spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods for a period of **ten** years, following commencement of the use of the Goods by the Purchaser; and
3. an item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the Goods and Services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.
4. a confirmation that, if the Bidder offers system and/or other software manufactured by another company, such software operates effectively on the system offered by the Bidder; and the Bidder is willing to accept responsibility for it’s successful operations; and

e) a confirmation that the Bidder is either the owner of the intellectual Property Rights in the hardware and the software items offered, or that it has proper authorization and/or license from the owner to offer them. Willful misrepresentation of these facts will lead to the cancellation of the Contract without prejudice of other remedies that the Purchaser and/or the World Bank may take.

14.4 For purposes of the commentary to be furnished pursuant to ITB Clause 14.3(c) above, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its Bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

**15. Bid Security**

15.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, a Bid Security in the amount as specified in Section-V - Schedule of Requirements.

15.2 The Bid Security is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture, pursuant to ITB Clause 15.7.

15.3 The Bid Security shall be denominated in Indian Rupees and shall:

(a) at the Bidder’s option, be in the form of either a demand draft, or a bank guarantee from a nationalized/Scheduled Bank located in India;

1. be substantially in accordance with one of the form of Bid Security included in Section-VIII or other form approved by the Purchaser prior to Bid submission;
2. be payable promptly upon written demand by the Purchaser in case any of the conditions listed in ITB Clause 15.7 are invoked;
3. be submitted in its original form; copies will not be accepted; and
4. remain valid for a period of 45 days beyond the original validity period of Bids, or beyond any period of extension subsequently requested under ITB Clause 16.2.

15.4 Any Bid not secured in accordance with ITB Clauses 15.1 and 15.3 above will be rejected by the Purchaser as non-responsive, pursuant to ITB Clause 24.

15.5 Unsuccessful Bidder's Bid Securities will be discharged/returned as promptly as possible but not later than 30 days after the expiration of the period of Bid validity prescribed by the Purchaser, pursuant to ITB Clause 16.

15.6 The successful Bidder's Bid Security will be discharged upon the Bidder signing the Contract, pursuant to ITB Clause 34, and furnishing the Performance Security, pursuant to ITB Clause 35.

15.7 The Bid Security may be forfeited:

(a) if a Bidder (i) withdraws its Bid during the period of Bid validity specified by the Bidder on the Bid Form; or (ii) does not accept the correction of errors pursuant to ITB Clause 24.2; or

(b) in case of a successful Bidder, if the Bidder fails:

(i) to sign the Contract in accordance with ITB Clause 34; or

(ii) to furnish Performance Security in accordance with ITB Clause 35.

**16. Period of Validity of Bids**

16.1 Bids shall remain valid for *90 days* after the deadline for submission of Bids prescribed by the Purchaser, pursuant to ITB Clause 19. A Bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

* 1. In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing (or by cable or telex or fax). The Bid Security provided under ITB Clause 15 shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request will not be required nor permitted to modify its Bid, except as provided in ITB Clause 16.3 hereinafter.
  2. In the case of fixed prices contracts, in the event that the Purchaser requests and the Bidder agrees to an extension of the validity period, the Contract Price, if the Bidder is selected for award shall be the Bid Price corrected as follows :

At the written request of the successful Bidder, the Bid Price shall be increased by *0.1346 %* for each week or part of a week that has elapsed from the expiration of the initial bid validity to the date of issue of letter of acceptance to the successful Bidder. This increase will be effected on each line item of the Price Schedule under Section VII : Bid Form and the Contract Form under Section IX: Contract Form.

16.4 Bid evaluation will be based on the Bid Prices without taking into consideration the above corrections.

**17. Format and Signing of Bid**

17.1 The Bidder shall prepare two copies of the Bid, clearly marking each "Original Bid" and "Copy Bid", as appropriate. In the event of any discrepancy between them, the "Original Bid" shall govern.

17.2 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. The latter authorization shall be indicated by written power-of-attorney accompanying the Bid. All pages of the Bid shall be initialed by the person or persons signing the Bid.

17.3 Any interlineations, erasures or overwriting shall be valid only if they are initialed by the persons or persons signing the Bid.

17.4 The Bidder shall furnish information as described in the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the Contract.

D. Submission of Bids

**18. Sealing and Marking of Bids**

18.1 The Bidder shall seal the original and each copy of the Bid in separate inner envelopes; duly marking the envelopes as "Original Bid" and "Copy Bid", as appropriate. The Bidder shall then place all the inner envelopes in an outer envelope.

18.2 **The inner and outer envelopes shall**:

(a) be addressed to the Purchaser at the following address:

Office of the *Superintending Engineer, Groundwater Circle,PWD,PWD Campus, Taramani, Chennai-600113.*

(b) bear the Project Name, the Invitation for Bids(IFB) title and number, and a statement "Do not open before **15.30 hours on 10-04-2012**". This time and date shall be as specified in Section-1: Invitation for Bids (IFB) or as may be extended by the Purchaser.

18.3 The inner envelopes shall also indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared "late".

18.4 If the outer envelope is not sealed and marked as required by ITB Clause 18.2, the Purchaser will assume no responsibility for the Bid's misplacement or premature opening.

18.5 Telex, cable or facsimile Bids will be rejected.

**19. Deadline for Submission of Bids**

19.1 Bids must be received by the Purchaser at the address specified under ITB Clause 18.2 (a) no later than the time and date specified in Section-1:Invitation for Bids (IFB). In the event of the specified date for the submission of Bids being declared a holiday for the Purchaser, the Bids will be received upto the same appointed hours on the next Working Day.

19.2 The Purchaser may, at its discretion, extend this deadline for submission of Bids by amending the Bid Documents in accordance with ITB Clause 7, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

**20. Late Bids**

20.1 Any Bid received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to ITB Clause 19, will be rejected and/or returned unopened to the Bidder.

**21. Modification and Withdrawal of Bids**

21.1 The Bidder may modify or withdraw its Bid after the Bid's submission, provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of Bids.

21.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of ITB Clause 18. A withdrawal notice may also be sent by telex or cable or fax but followed by a signed confirmation copy, post marked not later than the deadline for submission of Bids.

21.3 No Bid may be modified subsequent to the deadline for submission of Bids.

21.4 No Bid may be withdrawn in the interval between the deadline for submission of Bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal of a Bid during this interval may result in the Bidder's forfeiture of its Bid Security, pursuant to ITB Clause 15.7.

E. Bid Opening and Evaluation of Bids

**22. Opening of Bids by the Purchaser**

22.1 The Purchaser will open all Bids, in the presence of Bidders or Bidders' official representatives who choose to attend, at **15.30** hours on **10.04.2012** and in the following location:

*Office of the Superintending Engineer, Groundwater Circle,PWD,PWD Campus, Taramani, Chennai-600113.*

This time and date shall be as specified in Section-1: Invitation for Bids (IFB) or as may be extended by the Purchaser. The Bidders' representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of Bid opening being declared a holiday for the Purchaser, the Bids shall be opened at the same appointed hour and location on the next Working Day.

22.2 The Bidders’ names, Bid modifications or withdrawals, Bid Prices, discounts, and the presence or absence of requisite Bid Security and such other details as the Purchaser, at its discretion, may consider appropriate, will be announced at the bid opening. No Bid shall be rejected at bid opening, except for late Bids, which shall be returned unopened to the Bidder pursuant to ITB Clause 20.

22.3 Bids (and modifications sent pursuant to ITB Clause 21.2) that are not opened and read out at Bid opening shall not be considered further for evaluation, irrespective of the circumstances.

22.4 The Purchaser will prepare Minutes of the Bid Opening.

**23. Clarification of Bids**

23.1 During evaluation of Bids, the Purchaser may, at its discretion, ask the Bidder for a clarification of its Bid. The request for clarification and the response shall be in writing and no change in prices or substance of the Bid shall be sought, offered or permitted.

**24. Preliminary Examination**

24.1 The Purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. Bids from Agents, without proper authorization from the manufacturer as per Section XII, shall be treated as non-responsive.

24.1.1 Where the Bidder has quoted for more than one schedule, if the Bid Security furnished is inadequate for all the schedules, the Purchaser shall take the Price Bid into account only to the extent the Bid is secured. For this purpose, the extent to which the Bid is secured shall be determined by evaluating the requirement of Bid Security to be furnished for the schedule included in the Bid (offer) in the serial order of the Schedule of Requirements of the Bid Document.

24.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If the Bidder does not accept the correction of errors, its Bid will be rejected and its Bid Security may be forfeited.

24.3 The Purchaser may waive any minor informality or non-conformity or irregularity in a Bid which does not constitute a material deviation, provided such a waiver does not prejudice or affect the relative ranking of any Bidder.

24.4 Prior to the detailed evaluation, pursuant to ITB Clause 26, the Purchaser will determine the substantial responsiveness of each Bid to the Bid Document. For purposes of these Clauses, a substantially responsive Bid is one which conforms to all the terms and conditions of the Bid Document without material deviations. Deviations from or objections or reservations to critical provisions such as those concerning Performance Security (GCC Clause 7), Warranty (GCC Clause 15), Force Majeure (GCC Clause 25), Limitation of liability (GCC Clause 29), Applicable law (GCC Clause 31), and Taxes & Duties (GCC Clause 33) will be deemed to be a material deviation. The Purchaser's determination of a Bid's responsiveness is to be based on the contents of the Bid itself without recourse to extrinsic evidence.

24.5 If a Bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

**25.** Deleted

**26. Evaluation and Comparison of Bids**

26.1 The Purchaser will evaluate and compare the Bids which have been determined to be substantially responsive, pursuant to ITB Clause 24 for each schedule separately. No Bid will be considered if the complete requirements covered in the schedule is not included in the Bid. However, as stated in Para 11, Bidders are allowed the option to Bid for any one or more schedules and to offer discounts for combined schedules. These discounts will be taken into account in the evaluation of the Bids so as to determine the Bid or combination of Bids offering the lowest evaluated cost for the Purchaser in deciding award(s) for each schedule.

26.2 The Purchaser's evaluation of a Bid will exclude and not take into account:

(a) in the case of goods manufactured in India or goods of foreign origin already located in India, sales and other similar taxes, which will be payable on the goods if a contract is awarded to the Bidder;

(b) any allowance for price adjustment during the period of execution of the Contract, if provided in the Bid.

26.3 Deleted.

26.4 The Purchaser's evaluation of a Bid will take into account, in addition to the Bid Price (Ex-factory/ex-warehouse/off-the-shelf price of the goods offered from within India, such price to include all costs as well as duties and taxes paid or payable on components and raw material incorporated or to be incorporated in the goods, and Excise duty on the finished goods, if payable) and price of incidental services, the following factors, in the manner and to the extent indicated in ITB Clause 26.5 and in the Technical Specifications:

(a) cost of inland transportation, insurance and other costs within India incidental to the delivery of the goods to their final destination;

(b) delivery schedule offered in the Bid;

(c) deviations in payment schedule from that specified in the Special Conditions of Contract;

(d) the cost of components, mandatory spare parts and service;

(e) the availability in India of spare parts and after-sales services for the goods / equipment offered in the Bid;

(f) the projected operating and maintenance costs during the life of the equipment; and

(g) the performance and productivity of the equipment offered.

26.5 Pursuant to ITB Clause 26.4, one or more of the following evaluation methods will be applied:

(a) *Inland Transportation, Insurance and Incidentals*:

(i) Inland transportation, insurance and other incidentals for delivery of goods to the final destination as stated in ITB Clause 11.2 (iii).

The above costs will be added to the Bid Price.

(b) *Delivery Schedule*:

(i) The Purchaser requires that the Goods under the Invitation for Bids (IFB) shall be delivered at the time specified in the Schedule of Requirements.

(c)  *Deviation in Payment Schedule*:

The Special Conditions of Contract (SCC) stipulate the payment schedule offered by the Purchaser. If a Bid deviates from the schedule and if such deviation is considered acceptable to the Purchaser, the Bid will be evaluated by calculating interest earned for any earlier payments involved in the terms outlined in the Bid as compared to those stipulated in this invitation, at a rate of 12% percent per annum.

(d) *Cost of Spare Parts*: *Deleted*

(e) S*pare Parts and After Sales Service Facilities in India*:

The cost to the Purchaser of establishing the minimum service facilities and parts inventories, as outlined elsewhere in the Bid Document, if quoted separately, shall be added to the Bid Price.

(f) *Operating and Maintenance Costs during Warranty and AMC*: The cost of 5 years annual maintenance service charge after final acceptance will be added to Bid Price for each schedule without discounting.

(g) *Performance and Productivity of the Equipment*:

Goods offered shall have a minimum productivity specified under the relevant provisions in Technical Specifications to be considered responsive.

**27.** Deleted.

**28. Contacting the Purchaser**

28.1 Subject to ITB Clause 23, no Bidder shall contact the Purchaser on any matter relating to its Bid, from the time of the Bid opening to the time the Contract is awarded. If the Bidder wishes to bring additional information to the notice of the Purchaser, it should do so in writing.

28.2 Any effort by a Bidder to influence the Purchaser in its decisions on Bid evaluation, Bid comparison or Contract award may result in rejection of its Bid.

F. Award of Contract

**29. Post qualification**

29.1 In the absence of prequalification, the Purchaser will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive Bid meets the criteria specified in ITB Clause 13.3 (b) and is qualified to perform the Contract satisfactorily.

29.2 The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 13, as well as such other information as the Purchaser deems necessary and appropriate.

29.3 An affirmative determination will be a prerequisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's Bid, in which event the Purchaser will proceed to the next lowest evaluated Bid to make a similar determination of that Bidder's capabilities to perform the Contract satisfactorily.

**30. Award Criteria**

30.1 Subject to ITB Clause 32, the Purchaser will award the Contract to the successful Bidder whose Bid has been determined to be substantially responsive and has been determined as the lowest evaluated Bid, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

**31. Purchaser's right to vary Quantities**

* 1. The Purchaser reserves the right, at the time of Contract award and/or during the Warranty period to increase up to 25% in one lot or at the time of Contract award decrease up to 10% in one lot, the quantity of Goods and Services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions. If such percentage increase or decrease is in decimals, the increase or decrease in quantities may be rounded off to the next whole number irrespective of the order of decimal.

**32. Purchaser's Right to Accept Any Bid and to Reject Any or All Bids**

32.1 The Purchaser reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids at any time prior to Contract award, without thereby incurring any liability to the affected Bidder or Bidders.

**33. Notification of Award**

33.1 Prior to the expiration of the period of Bid Validity, the Purchaser will notify the successful Bidder in writing by registered letter or by cable/telex or fax, to be confirmed in writing by registered letter, that its Bid has been accepted.

33.2 The notification of award will constitute the formation of the Contract.

33.3 Upon the successful Bidder's furnishing of Performance Security pursuant to ITB Clause 35, the Purchaser will promptly notify the name of the winning Bidder to each unsuccessful Bidder and will discharge its Bid Security, pursuant to ITB Clause 15.

33.4 If, after notification of award, a Bidder wishes to ascertain the grounds on which its Bid was not selected, it should address it’s written request to the Purchaser, within 10 days of such notification pursuant to ITB Clause 33.3.The Purchaser will promptly respond in writing to the unsuccessful Bidder, within 30 days. The Purchaser is not liable to reply the unsuccessful Bidder’s queries made after this 7 days limit.

**34. Signing of Contract**

34.1 At the same time as the Purchaser notifies the successful Bidder that its Bid has been accepted, the Purchaser will send the Bidder the Contract Form provided in the Bidding documents, incorporating all agreements between the parties.

34.2 Within 21 days of receipt of the Contract Form, the successful Bidder shall sign and date the Contract and return it to the Purchaser.

**35. Performance Security**

35.1 Within 21 days of the receipt of notification of award from the Purchaser, the successful Bidder shall furnish the Performance Security in accordance with the Conditions of Contract, in the Performance Security Form provided in the Bid Document or in another form acceptable to the Purchaser.

35.2 Failure of the successful Bidder to comply with the requirement of ITB Clause 34.2 or ITB Clause 35.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security, in which event the Purchaser may make the award to the next lowest evaluated Bidder or call for new Bids at its discretion.

**36 Corrupt or Fraudulent Practices**

36.1 It is the Bank’s policy to require that Borrowers (including beneficiaries of Bank loans), as well as Bidders, suppliers, and contractors and their subcontractors under Bank-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. [[1]](#footnote-1) In pursuance of this policy, the Bank:

1. defines, for the purposes of this provision, the terms set forth below as follows:

i)“corrupt practice”[[2]](#footnote-2) is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) “fraudulent practice”[[3]](#footnote-3) is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) “collusive practice”[[4]](#footnote-4) is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) “coercive practice”[[5]](#footnote-5) is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) “obstructive practice” is:

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under sub-clause 37.1(e) below.

(b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question;

(c) will cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of the loan engaged in corrupt, fraudulent, collusive, or coercive practices during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to the Bank to remedy the situation;

(d) will sanction a firm or individual, including declaring them ineligible, either indefinitely or for a stated period of time, to be awarded a Bank-financed contract if it at any time determines that they have, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for, or in executing, a Bank-financed contract; and

(e) will have the right to require that a provision be included in Bidding documents and in contracts financed by a Bank Loan, requiring Bidders, suppliers, contractors and consultants to permit the Bank to inspect their accounts and records and other documents relating to the Bid submission and contract performance and to have them audited by auditors appointed by the Bank.

36.2 Furthermore, Bidders shall be aware of the provision stated in Sub-Clause 24.1 (c) of the General Conditions of Contract.”

SECTION III: GENERAL CONDITIONS OF CONTRACT (GCC)

**SECTION III: GENERAL CONDITIONS OF CONTRACT (GCC)**

**TABLE OF CLAUSES**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Clause No | Topic Number | Page No |  | Clause No | Topic Number | Page No |
| 1 | Definitions | 31 |  | 21 | Subcontracts | 38 |
| 2 | Application | 32 |  | 22 | Delays in Supplier's Performance | 38 |
| 3 | Country of Origin | 32 |  | 23 | Liquidated Damages | 38 |
| 4 | Standards | 32 |  | 24 | Termination for Default | 38 |
| 5 | Use of Contract Documents and Information | 32 |  | 25 | Force Majeure | 39 |
| 6 | Patent Rights | 33 |  | 26 | Termination for Insolvency | 39 |
| 7 | Performance Security | 33 |  | 27 | Termination for Convenience | 40 |
| 8 | Inspection and Tests | 33 |  | 28 | Settlement of Disputes | 40 |
| 9 | Packing | 34 |  | 29 | Limitation of Liability | 41 |
| 10 | Delivery and Documents | 34 |  | 30 | Governing Language | 41 |
| 11 | Insurance | 34 |  | 31 | Applicable Law | 41 |
| 12 | Transportation | 34 |  | 32 | Notices | 41 |
| 13 | Incidental Services | 35 |  | 33 | Taxes and Duties | 41 |
| 14 | Spare Parts | 35 |  | 34 | Fraud and Corruption | 42 |
| 15 | Warranty | 36 |  | 35 | Inspections and Audit by the Bank | 43 |
| 16 | Payment | 36 |  |  |  |  |
| 17 | Prices | 37 |  |  |  |  |
| 18 | Change Orders | 37 |  |  |  |  |
| 19 | Contract Amendments | 37 |  |  |  |  |
| 20 | Assignment | 37 |  |  |  |  |

**General Conditions of Contract (GCC)**

**1. Definitions**

1.1 In this Contract, the following terms shall be interpreted as indicated:

1. "**Contract**" means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, including all the attachments and appendices thereto and all documents incorporated by reference therein;
2. "**Contract Price**" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations;
3. "**Goods**" means all the equipment, machinery, and/or other materials which the Supplier is required to supply to the Purchaser under the Contract;
4. "**Services**" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other obligations of the Supplier covered under the Contract;
5. “**GCC**” means the General Conditions of Contract contained in this section.
6. “**SCC**” means the Special Conditions of Contract.
7. “**Purchaser**” means the organization purchasing the Goods, as named in **SCC**.
8. “**Purchaser’s country**” is the country named in **SCC**.
9. “**Bid Document**” means the complete set of documents which the Purchaser issues and requires the Bidder to offer the Bidder’s proposal for the Contract.
10. “**Bidder(s)**” means the individual(s) or firm(s) bidding for the supply of the Goods and Services.
11. “**Bid(s)**” means the completed Bid Document(s)submitted by a Bidder(s) to the Purchaser.
12. "**Bid Price**" means the total price offered by a Bidder in its Bid for providing the Goods and Services.
13. “**Supplier**” means the individual or firm supplying the Goods and Services under this Contract.
14. “**World Bank**” means the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).
15. “**Project Site**”, where applicable, means the place or places named in **SCC**.
16. “**Day**” means calendar day.
17. “**Working Day(s)**” means the day(s) of conduct of business of the office of the Purchaser.

**2. Application**

2.1 These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

**3. Country of Origin**

3.1 All Goods and Services supplied under the Contract shall have their origin in the member countries and territories eligible under the rules of the World Bank as further elaborated in **SCC**.

3.2 For purposes of this Clause "origin" means the place where the Goods are mined, grown or produced, or from which the Services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

3.3 The origin of Goods and Services is distinct from the nationality of the Supplier.

**4. Standards**

4.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

**5. Use of Contract Documents and Information**

5.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2 The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information enumerated in GCC Clause 5.1 except for purposes of performing the Contract.

5.3 Any document, other than the Contract itself, enumerated in GCC Clause 5.1 shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.

**6. Patent Rights**

6.1 The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

**7. Performance Security**

7.1 Within 21 days of receipt of the notification of contract award, the Supplier shall furnish Performance Security in the amount specified in **SCC**.

7.2 The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

7.3 The Performance Security shall be denominated in Indian Rupees and shall be in one of the following forms, unless specified otherwise in **SCC**.:

(a) A Bank guarantee or irrevocable Letter of Credit, issued by a nationalized/scheduled bank located in India or a bank located abroad acceptable to the Purchaser, in the form provided in the Bidding documents or another form acceptable to the Purchaser; or

(b) A cashier's check, certified check, or demand draft.

7.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than 30 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, unless specified otherwise in **SCC**.

**8. Inspections and Tests**

8.1 The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser. **SCC** and the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Supplier in writing in a timely manner of the identity of any representatives retained for these purposes.

8.2 The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and/or at the Goods final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data shall be furnished to the inspectors at no charge to the Purchaser.

8.3 Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.

8.4 The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.

8.5 Nothing in GCC Clause 8 shall in any way release the Supplier from any warranty or other obligations under this Contract.

**9. Packing**

9.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, if any, specified in **SCC** and in any subsequent instructions ordered by the Purchaser.

**10. Delivery and Documents**

10.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified by the Purchaser in the Notification of Award. The details of shipping and/or other documents to be furnished by the supplier are specified in **SCC**.

**11. Insurance**

11.1 The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in **SCC**.

**12. Transportation**

12.1 Deleted.

12.2 Deleted.

12.3 Where the Supplier is required under the Contract to transport the Goods to a specified place of destination within India defined as Project Site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the Contract Price.

12.4 Deleted

**13. Incidental Services**

13.1 The supplier may be required to provide any or all of the following services, including additional services, if any, specified in **SCC**:

(a) performance or supervision of the on-site assembly and/or start-up of the supplied Goods;

(b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;

(c) furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods;

(d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and

(e) training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance and/or repair of the supplied Goods.

13.2 Prices charged by the Supplier for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

**14. Spare Parts**

14.1 As specified in the **SCC**, the Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

(a) such spare parts as the Purchaser may elect to purchase from the Supplier, providing that this election shall not relieve the Supplier of any warranty obligations under the Contract; and

(b) In the event of termination of production of the spare parts:

(i) advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and

(ii) following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if requested.

**15. Warranty**

15.1 The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for **5 years** after the Goods or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract, or for 6 years after the date of shipment from the place of loading whichever period concludes later, unless specified otherwise in the **SCC**.

15.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the Supplier shall, within the period specified in **SCC** and with all reasonable speed, repair or replace the defective Goods or parts thereof, without cost to the Purchaser other than, where applicable, the cost of inland delivery of the repaired or replaced Goods or parts from ex-works or ex-factory or ex-showroom to the final destination.

15.5 If the Supplier, having been notified, fails to remedy the defect(s) within the period specified in **SCC**, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

**16. Payment**

16.1 The method and conditions of payment to be made to the Supplier under this Contract shall be specified in the **SCC**.

16.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to GCC Clause 10, and upon fulfillment of other obligations stipulated in the contract.

16.3 Payments shall be made promptly by the Purchaser but in no case later than sixty (60) days after submission of the invoice or claim by the Supplier and acceptance by the Purchaser.

16.4 Payment shall be made in Indian Rupees.

**17. Prices**

17.1 Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its Bid, with the exception of any price adjustments authorized in **SCC** or in the Purchaser’s request for Bid validity extension, as the case may be.

**18. Change Orders**

18.1 The Purchaser may at any time, by written order given to the Supplier pursuant to GCC Clause 31, make changes within the general scope of the Contract in any one or more of the following:

(a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;

(b) the method of shipping or packing;

(c) the place of delivery; and/or

(d) the Services to be provided by the Supplier.

18.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.

**19. Contract Amendments**

19.1 Subject to GCC Clause 18, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

**20. Assignment**

20.1 The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

**21. Subcontracts**

21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the Bid. Such notification, in his original Bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

21.2 Subcontracts must comply with the provisions of GCC Clause 3.

**22. Delays in the Supplier's Performance**

22.1 Delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser in the Schedule of Requirements.

22.2 If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier’s notice, the Purchaser shall evaluate the situation and may, at its discretion, extend the Supplier’s time for performance with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Contract.

22.3 Except as provided under GCC Clause 25, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 23, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of liquidated damages.

**23. Liquidated Damages**

23.1 Subject to GCC Clause 25, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in **SCC** of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage specified in SCC. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause 24.

**24. Termination for Default**

24.1 The Purchaser may, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

(a) if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 22; or

(b) if the Supplier fails to perform any other obligation(s) under the Contract.

(c) if the Supplier, in the judgment of the Purchaser has engaged in fraud and corruption, as defined in GCC Clause 34, in competing for or in executing the Contract.

24.2 In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 24.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

**25. Force Majeure**

25.1 Notwithstanding the provisions of GCC Clauses 22, 23, 24, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

25.2 For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

25.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

**26. Termination for Insolvency**

26.1 The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

**27. Termination for Convenience**

27.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

27.2 The Goods that are complete and ready for shipment within 30 days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:

(a) to have any portion completed and delivered at the Contract terms and prices; and/or

(b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and for materials and parts previously procured by the Supplier.

**28. Settlement of Disputes**

28.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

28.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

28.2.1 Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.

28.2.2 Arbitration proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.

28.3 Notwithstanding any reference to arbitration herein,

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and

(b) the Purchaser shall pay the Supplier any monies due the Supplier.

**29. Limitation of Liability**

29.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 6,

(a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser; and

(b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

**30. Governing Language**

30.1 The contract shall be written in English language. Subject to GCC Clause 30, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

**31. Applicable Law**

31.1 The Contract shall be interpreted in accordance with the laws of the Union of India.

**32. Notices**

32.1 Any notice given by one party to the other pursuant to this Contract shall be sent to other party in writing or by cable, telex or facsimile and confirmed in writing to the other Party’s address specified in **SCC**.

32.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

**33. Taxes and Duties**

33.1 Deleted.

33.2 Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser.

**34. Fraud and Corruption**

34.1 If the Purchaser determines that the Supplier has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Purchaser may, after giving 14 days notice to the Supplier, terminate the Contract, and the provisions of Clause 24 shall apply as if such termination had been made under Sub-Clause 24.1.

(a) For the purposes of this Sub-Clause:

(i) “corrupt practice”[[6]](#footnote-6) is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) “fraudulent practice”[[7]](#footnote-7) is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) “collusive practice”[[8]](#footnote-8) is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) “coercive practice”[[9]](#footnote-9) is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) “obstructive practice” is

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

(bb) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under Clause 35 [Inspections and Audits by the Bank].

34.2 Should any employee of the Supplier be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the purchase of the Goods, then that employee shall be removed.

**35.** **Inspections and Audit by the Bank**

35.1 The Supplier shall permit the Bank and/or persons appointed by the Bank to inspect the Supplier’s offices and/or the accounts and records of the Supplier and its sub-contractors relating to the performance of the Contract, and to have such accounts and records audited by auditors appointed by the Bank if required by the Bank. The Supplier’s attention is drawn to Clause 34, which provides, inter alia, that acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under Sub-Clause 35.1 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility under the Procurement Guidelines).

SECTION IV: SPECIAL CONDITIONS OF CONTRACT (SCC)

**SECTION IV: SPECIAL CONDITIONS OF CONTRACT**

**TABLE OF CLAUSES**

|  |  |  |  |
| --- | --- | --- | --- |
| Item No. | GCC Clause | Topic | Page Number |
| 1 | 1 | Definitions | 43 |
| 2 | 3 | Country of Origin | 43 |
| 3 | 7 | Performance Security | 43 |
| 4 | 8 | Inspection and Tests | 44 |
| 5 | 9 | Packing | 44 |
| 6 | 10 | Delivery and Documents | 44 |
| 7 | 11 | Insurance | 45 |
| 8 | 13 | Incidental Services | 45 |
| 9 | 14 | Spare Parts | 45 |
| 10 | 15 | Warranty | 45 |
| 11 | 16 | Payment | 46 |
| 12 | 17 | Prices | 49 |
| 13 | 21 | Sub-contracts | 49 |
| 14 | 23 | Liquidated Damages | 50 |
| 15 | 28 | Settlement of Disputes | 50 |
| 16 | 32 | Notices | 51 |
| 17 |  | Progress of Supply | 51 |
| 18 |  | Training | 52 |
| 19 |  | Technical Documentation | 52 |
| 20 |  | Income Tax Statement | 52 |

**Special Conditions of Contract (SCC)**

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

1. **Definitions (GCC Clause 1)**

1. The Purchaser is : The *Superintending Engineer, Groundwater Circle Chennai, PWD,PWD Campus,Taramani, Chennai-600113.*
2. The Supplier is ..: ..............................................

2. **Country of Origin (GCC Clause 3)**

All countries and territories as indicated in Section XIV of the Bid Document, “Eligibility for the Provisions of Goods, Works, and Services in Bank-Financed Procurement”.

3. **Performance Security (GCC Clause 7)**

3.1 Within 21 days after the Supplier’s receipt of Notification of Award, the Supplier shall furnish Performance Security to the Purchaser for an amount of *10%* of the Contract Price, valid up to 60 days after the date of completion of performance obligations including warranty and Annual Maintenance Services obligations.

In the event of any correction of defects or replacement of defective material during the warranty and Annual Maintenance Services period, the warranty for the corrected/replaced material shall be extended to a further period of *12 months, beyond the original warranty period* and the Performance Bank Guarantee for proportionate value shall be extended 60 days over and above the extended warranty period.

3.2 Substitute Clause 7.3 (b) of the GCC by the following:

A cashier’s cheque or banker’s certified cheque or crossed demand draft or pay order drawn in favour of *Executive Engineer, PWD, Gauging Division, PWD Campus, Taramani, Chennai-600113, India.*

3.3 Substitute Clause 7.4 of the GCC by the following:

The Performance Security will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier’s performance obligations, including the *warranty* and Annual Maintenance Services obligations, under the Contract.

3.4 Add as Clause 7.5 to the GCC the following:

In the event of any contract amendment, the Supplier shall, within 21 days of receipt of such amendment, furnish the amendment to the Performance Security, rendering the same valid for the duration of the Contract as amended for 60 days after the completion of performance obligations including warranty and Annual Maintenance Services obligations.

4. **Inspection and Tests (GCC Clause 8)**

Any or all of the following inspection procedures and tests are required by the Purchaser.

1. Inspection of equipments before dispatch.
2. Inspection of equipments at site of work before installation / commissioning.
3. Testing of equipments at site of work after installation to ensure conformity to the specification.

The Evaluation Committee shall decide and propose necessary tests as it may deem fit for the purpose of evaluation. The detailed procedure of testing for the purpose of acceptance of the Goods and Services is given under “Schedule of Requirements”.

5. **Packing (GCC Clause 9)**

Add as Clause 9.3 of the GCC the following:

Packing Instructions : The Supplier will be required to make separate packages for each Consignee. Each package will be marked on three sides with proper paint/indelible ink, the following:

i) Project ii) Contract No. iii) Country of Origin of Goods iv) Supplier’s Name, and v) Packing list reference number.

6. **Delivery and Documents (GCC Clause 10)**

Upon delivery of the Goods, the Supplier shall notify the Purchaser and the insurance company by cable/telex/fax the full details of the shipment including contract number, railway receipt number and date, description of goods, quantity, name of the consignee etc. The Supplier shall mail the following documents to the Purchaser with a copy to the insurance company:

(i) Two Copies of the Supplier invoice showing Contract number, goods' description, quantity, unit price, total amount;

(ii) Railway receipt/acknowledgment of receipt of goods from the consignee(s);

(iii) Two Copies of packing list identifying the contents of each package;

(iv) Insurance Certificate;

(v) Manufacturer's/Supplier's warranty certificate;

(vi) Inspection Certificate issued by the nominated inspection agency, and the Supplier's factory inspection report; and

(vii) Certificate of Origin.

The above documents shall be received by the Purchaser before arrival of the Goods (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.

7. **Insurance (GCC Clause 11)**

For delivery of Goods at Project Site, the insurance shall be obtained by the Supplier in an amount equal to 110% of the value of the Goods from "warehouse to warehouse" (final destinations) on “All Risks" basis including War Risks and Strikes.

8. **Incidental Services (GCC Clause 13)**

The following services covered under Clause 13 shall be furnished and the cost shall be included in the Contract Price:

1. The Services specified under the “Schedule of Requirements”.

9. **Spare Parts (GCC Clause 14)**

Add as Clause 14.2 to the GCC the following:

Supplier shall carry sufficient inventories to assure ex-stock supply of consumables and spares for the Goods during the entire Warranty and Annual Maintenance Services periods.

10. **Warranty(GCC Clause 15)**

(i) G.C.C. Clause 15.2:

In partial modification of the provisions, the warranty period shall be **5 years** from the date of Final Acceptance of Goods. The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the Contract. If for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall at its discretion either:

* 1. make such changes, modifications, and/or additions to the Goods or any part thereof as may be necessary in order to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further performance tests in accordance with SCC 4 ;

(ii) Substitute Clause 15.4 of the GCC by the following:

“Upon receipt of such notice, the Supplier shall, within the period specified in SCC 10 (iii) and with all reasonable speed, repair or replace the defective goods or parts thereof, free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Purchaser for the replaced parts/goods thereafter.

In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected/replaced material shall be extended to a further **period of 12 months**.”

(iii) GCC Clauses 15.4 and 15.5:

The period for correction of defects in the warranty and Annual Maintenance Services period is *3 (Three) Working Days from the date of notification*. If the Supplier fails to remedy the defects within 3 Working Days of notification, the Purchaser, at its discretion, shall deduct from any monies due to the Supplier including the Performance Security, at the rate of Rs.1000 / Station / day for the first 30 days and at the rate of Rs 2000 / Station / Day thereafter, from the date of notification till the date of setting right the defects or replacing the good with equivalent new Goods. The deduction of monies as above shall be limited to the Performance Security amount.

(iv) The Warranty covers the use of the Goods and Services anywhere in the state of Tamilnadu.

11. **Payment (GCC Clause 16)**

Payment for Goods and Services shall be made in Indian Rupees as follows:

(i) *Advance Payment*: *Nil*

(ii) *On Delivery*: Nil

(iii) On ***Operational Testing***: The 40 (forty) percent of the “Contract Price (item 8, Table:4, Section-IX: Contract Form)” shall be paid to the Supplier within *60 (sixty) days* after the date of the operational testing Certificate issued by the Purchaser’s representative for the respective delivery. The operational testing may be pro-rated if all the stations are not made available for operational testing.

1. *On* ***Final Acceptance***: the 2*0 (twenty) percent* of the “Contract Price (item 8, Table:4, Section-IX: Contract Form)” shall be paid to the Supplier within *60 (sixty) days* after the date of the Final Acceptance Certificate issued by the Purchaser’s representative for the respective delivery.
2. On the satisfactory completion of **First year** of warranty and Operation & Maintenance: the 8 (eight) *percent* of the “Contract Price (item 8, Table:4, Section-IX: Contract Form)”shall be paid to the Supplier within *60 (sixty) days* after the date of the completion of first year of Warranty and Operation & Maintenance period after Final Acceptance Certificate. Satisfactory completion is deemed if all the Goods are functional and there is no loss of data.
3. On the satisfactory completion of **Second year** of warranty and Operation & Maintenance: the 8 (eight) *percent* of the “Contract Price (item 8, Table:4, Section-IX: Contract Form)”shall be paid to the Supplier within *60 (sixty) days* after the date of the completion of second year of Warranty and Operation & Maintenance period after Final Acceptance Certificate. Satisfactory completion is deemed if all the Goods are functional and there is no loss of data.
4. On the satisfactory completion of **Third year** of warranty and Operation & Maintenance: the 8 (eight) *percent* of the “Contract Price (item 8, Table:4, Section-IX: Contract Form)”shall be paid to the Supplier within *60 (sixty) days* after the date of the completion of third year of Warranty and Operation & Maintenance period after Final Acceptance Certificate. Satisfactory completion is deemed if all the Goods are functional and there is no loss of data.
5. On the satisfactory completion of **Fourth year** of warranty and Operation & Maintenance: the 8 (eight) *percent* of the “Contract Price (item 8, Table:4, Section-IX: Contract Form)”shall be paid to the Supplier within *60 (sixty) days* after the date of the completion of fourth year of Warranty and Operation & Maintenance period after Final Acceptance Certificate. Satisfactory completion is deemed if all the Goods are functional and there is no loss of data.
6. On the satisfactory completion of **Fifth year** of warranty and Operation & Maintenance: the 8 (eight) *percent* of the “Contract Price (item 8, Table:4, Section-IX: Contract Form)”shall be paid to the Supplier within *60 (sixty) days* after the date of the completion of fifth year Warranty and Operation & Maintenance period after Final Acceptance Certificate. Satisfactory completion is deemed if all the Goods are functional and there is no loss of data.
7. All the payment due to the Supplier will be made by the Purchaser in the form of Government of West Bengal cheques only.
8. The Supplier shall produce **Advance Stamped** Receipts for the payments due before receiving the payments.
9. The Supplier shall get the **Acceptance Certificate** in triplicate from the officer in charge of the equipment, not lower than the rank of Assistant Executive Engineer, when it is installed and the same should also be in the format as follows:

Acceptance Certificate

Certified that the following equipments were supplied and installed by

the Supplier ………………………………………………………

………………………………………………………………………………..

and are functioning well.

Assistant Executive Engineer

Office of ……………………

1. The Income Tax and surcharges, if applicable, will be deducted from the payments due to the Supplier.
2. The Suppliers request for payment with invoice in triplicate, with advance stamp receipt and the Acceptance certificate for each equipment should be sent to the Purchaser’s representative,“The Executive Engineer,Gauging Division,PWD, PWD Campus,Taramani,Chennai-113“.
3. **Prices (GCC Clause 17)**

Substitute 17.1 of GCC with the following:

1. Prices payable to the Supplier as stated in the Contract shall be firm during the performance of the Contract.
2. The VAT and the other taxes are applicable and the prices should be inclusive of all these taxes at the time of supply. The increase in the rate of VAT shall be borne by the Supplier and the decrease in VAT shall be deducted from the Contract Price.

13. **Sub-contracts (GCC Clause 21)**

Add at the end of GCC sub-clause 21.1 the following:

Sub-contract shall be only for bought-out items and sub-assemblies.

14. **Liquidated Damages (GCC Clause 23)**

14.1 For delays :

GCC Clause 23.1 -- The applicable rate is 0.5% per week and the maximum deduction is 10% of the Contract Price.

15. **Settlement of Disputes (Clause 28)**

The dispute settlement mechanism to be applied pursuant to GCC Clause 28.2.2 shall be as follows:

(a) In case of Dispute or difference arising between the Purchaser and a domestic Supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of 3 arbitrators one each to be appointed by the Purchaser and the Supplier. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as Presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the President of the Institution of Engineers (India), Chennai Chapter.

(b) In the case of a dispute with a Foreign Supplier, the dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules. The Arbitral Tribunal shall consist of three Arbitrators one each to be appointed by the Purchaser and the Supplier. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties, and shall act as presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the President of the Institution of Engineers (India), Chennai Chapter.

(c) If one of the parties fails to appoint its arbitrator in pursuance of sub-clause (a) and (b) above, within 30 days after receipt of the notice of the appointment of its arbitrator by the other party, then the President of the Institution of Engineers (India), Chennai Chapter both in cases of the Foreign supplier as well as Indian supplier, shall appoint the arbitrator. A certified copy of the order of the President of the Institution of Engineers, Chennai Chapter, making such an appointment shall be furnished to each of the parties.

(d) Arbitration proceedings shall be held at *Chennai, India*, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be *English*.

(e) The decision of the majority of arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation etc. of its proceedings as also the fees and expenses paid to the arbitrator appointed by such party or on its behalf shall be borne by each party itself.

(f) Where the value of the contract is Rs. 10 million and below, the disputes or differences arising shall be referred to the Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the appointing authority namely the President of the Institution of Engineers (India), Chennai Chapter.

*(\* Delete whichever is not applicable.)*

16. **Notices (Clause 32)**

For the purpose of all notices, the following shall be the address of the Purchaser and Supplier.

Purchaser: The *Superintending Engineer, Groundwater Circle, PWD,*

*PWD Campus, Taramani, Chennai-600113.*

Email: gwcchn@gmail.com

Fax: 91-44-22541106

Supplier: *(To be filled in at the time of Contract signature)*

.............................................

.............................................

17. **Progress of Supply**

Supplier shall regularly intimate progress of Supply, in writing, to the Purchaser as under\*:

- Quantity offered for inspection and date;

- Quantity accepted/rejected by inspecting agency and date;

- Quantity dispatched /delivered to consignees and date;

- Quantity where incidental services have been satisfactorily completed with date;

- Quantity where rectification/repair/replacement effected/completed on receipt of any communication from consignee/Purchaser with date;

- Date of completion of entire Contract including incidental services, if any; and

- Date of receipt of entire payments under the Contract

\*(in case of stage-wise inspection, details required may also be specified).

**18. Training:**

The designated Purchaser’s Technical personnel shall be trained by the Supplier to enable them to effectively operate the total system. Suitable training handouts / manual shall be given to each of the Trainee. The training schedule shall be agreed to by both the parties during the Performance of the Contract. The details of the trainings are specified in “Section-V: Schedule of Requirements”.

**19. Technical Documentation:**

Technical Documentation involving detailed instructions for Operation and Maintenance is to be delivered with every unit of the equipment supplied. The Language of the documentation shall be in English.

**20.** **Income Tax Statement**

The Income Tax statement for the past three years should be produced with the Bid document while submitting the Bid.

SECTION V: SCHEDULE OF REQUIREMENTS

1. List of Goods and Contract Completion Schedule

*[The Purchaser shall fill in this table, with the exception of the column “Bidder’s offered Delivery date” to be filled by the Bidder]*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Line Item**  **No.** | **Description of Goods** | **Quantity** | **Physical unit** | **Final (Project Site) Destination as specified in BDS** | **Delivery (as per Incoterms) Date** | | |
| **Earliest Delivery Date** | **Latest Delivery Date** | **Bidder’s offered Delivery date [*to be provided by the bidder*]** |
| 1 | Supply, installation, testing, commissioning, training and maintenance Real Time Data Acquisition System as per Technical Specification. | 1 Set | one set | As per details given in Section VI (Technical Specification s) Annexure 1 (Drawings) | 9 Months following the date of effectiveness of the contract | 12 Months following the date of effectiveness of the contract |  |
| Automatic Rain Gauge Stations | 10 |
| Automatic Water Level Stations | 10 |
| Automatic Weather Stations | 10 |
| Automatic Reservoir Monitoring Sites | 10 |
| ADCP | 4 |
| Ground station, Data Centre Services & Connectivity equipment as per Technical Specification. | 1 |

**2: List of Related Services and Contract Completion Schedule**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S No | Description of Service | Quantity | Physical Unit | Place where Services shall be performed | Final Completion Date(s) of Services |
|
| 1 | Cost of services for Installation and Commissioning of entire RTDAS system including last mile connection civil works as per technical specifications.   1. Automatic Rain Gauge Stations – 10 Stations 2. Automatic Water Level Stations – 10 Stations 3. Automatic Weather Stations – 10 Stations 4. Automatic Reservoir Monitoring Sites – 10 Sites 5. ADCP – 4 Number 6. Ground Station at Data Centre – 1 Number | 1 | set | Across Tamilnadu | 12 months from effect of Contract |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai | 1 | Set | Chennai | 12 months from effect of Contract |
| 3 | Calibration of gauging sites for discharge measurements from water level using actual discharge measurements with ADCP, as per technical specifications | 200 | Readings | Across Tamilnadu | 5 years from date of Final Acceptance |
| 4 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RT-DAS equipment.-[Details to be given separately] | 20 | Sessions | Across Tamilnadu | 12 months from effect of Contract |
| 5 | Inspections and tests as per technical specifications. | 1 | set | Across Tamilnadu | 12 months from effect of Contract |
| 6 | Tool kit for assembly, installation and maintenance as per technical specifications. | 50 | set | Across Tamilnadu | 12 months from effect of Contract |
| 7 | Manuals, documentation and reports as per technical specifications. | 100 | set | Across Tamilnadu | 12 months from effect of Contract |
| 8 | Operation & Maintenance of the system during the 5 years warranty period following final acceptance. | 1 | set | Across Tamilnadu | 5 years from date of Final Acceptance |

SECTION VI: TECHNICAL SPECIFICATIONS

# General

*Write a short summary about the State or Region covered by this bid document. Include an overview of the area, including size, geography, climate, hydrology, and an explanation as to why a Hydrological Information System would be a benefit. See the following paragraphs as an example:*

Tamil Nadu covers an area of 130,058 km2 (50,216 sq mi), and is the eleventh largest state in India. It is bordered by Kerala to the west, Karnataka to the northwest, and Andhra Pradesh to the north. It is bounded to the east by the Bay of Bengal and the south by the confluence of the Arabian Sea and Indian Ocean. Tamil Nadu has a coastline of about 1,076 km (669 mi).

The western, southern and the north western parts are hilly and rich in vegetation. The Western and Eastern Ghats are mountain ranges meet at the Nilgiri hills. The Western Ghats traverse the entire western border with Kerala, effectively blocking much of the rain bearing clouds of the south west monsoon from entering the state. The eastern parts are fertile coastal plains and the northern parts are a mix of hills and plains. The central and the south central regions are arid plains and receive less rainfall than the other regions.

Tamil Nadu is mostly dependent on monsoon rains, and thereby is prone to droughts when the monsoons fail. The climate of the state ranges from dry sub-humid to semi-arid. The state has two distinct periods of rainfall; the Southwest Monsoon from June to September and the Northeast Monsoon from October to December.

The annual rainfall of the state is about 945 mm (37.2 in) of which 48 per cent is through the north east monsoon, and 32 per cent through the south west monsoon. Since the state is entirely dependent on rains for recharging its water resources, monsoon failures lead to acute water scarcity and severe drought. Tamil Nadu is divided into seven agro-climatic zones: north east, North West, west, southern, high rainfall, high altitude hilly, and Kaveri Delta (the most fertile agricultural zone).

A modern Hydrological Information System (HIS) is needed in Tamil Nadu to provide the necessary data and information for the effective management of the State’s water resources. Management of the resource is critical due to the importance of agriculture to the State.

## Background

*Write a short summary about the present status of your State or Region’s HIS. Include details as to whether it’s primarily a manual or automated system, do any stations have telemetry capabilities, what computer hardware and software are currently installed, and what upgrades would be required to modernize the system. See the following paragraphs as an example:*

A Hydrological Information System (HIS) was developed for Tamil Nadu during phase I of the Hydrology Project (HP-I). The HIS includes 611 standard rain gauges, 56 automatic rain gauges, 45 full climatic stations, 812 piezometers for groundwater monitoring, and 112 gauging stations for surface-water monitoring. The existing data collection system is manual with data transmitted to the State Data Centre from various field data centers on a monthly frequency. The data are managed and archived at the State Data Centre using MS Access and the Surface Water Data Entry System (SWDES).

The State proposes to update the existing HIS by installing telemetry at stream gauging stations in all the river basins in order to facilitate access to reliable water-level and stream flow data on real-time basis. Furthermore, the State plans to establish 25 integrated monitoring systems including streamflow, rainfall, and groundwater levels. The majority of the proposed sites for the new stream gauging stations will be upstream of weir structures. The result will be stable stage-discharge ratings and thus more accurate and reliable stream flow data. In order to understand interaction between surface and groundwater, piezometers for monitoring groundwater levels will be installed at these integrated monitoring stations.

## Objectives

The following are the general objectives of this proposal related to an upgrade of the existing HIS which includes new monitoring instruments and equipment including telemetry and IT hardware and software for data management and dissemination.

* Supply, install, and commission an upgrade to the State’s existing HIS that includes additional stations to fill data gaps and updated sensors, data loggers, and telemetry equipment at each station for real-time data access. Acquire acoustic Doppler instruments for use by field personnel in making discharge measurements.
* Instrument meteorological stations with automated weather stations (AWS) and raingauges.
* Acquire web-based system, hardware and software, for data management including storage, analysis, quality assurance, archival, and dissemination.
* Provide training to State Water Resources Department personnel in all aspects of the upgraded HIS including field data collection, operation and maintenance of monitoring stations, computation of stream flow records including rating analysis, and data management.
* Develop rating curves for Water Level Sites using ADCP.
* Operate and maintain upgraded HIS for a period of five years.

The proposed HIS upgrades will require the following specific instruments, equipment, and software.

* Water-level sensors
  + 2 Radars
  + 2 Ultrasonic
  + 2 Bubblers
  + 2 Pressure sensors
  + 2 Shaft encoders
* 10 Automated weather stations with rain gauges
* 10 Automated rain gauges
* 10 Automatic Reservoir Monitoring Sites
* 4 ADCPs with GPS
* IT equipment for data management
  + XX servers
  + Related networking and storage equipment with accessories
  + Data Acquisition Software with licenses
  + XX database management system with software licenses
  + XX Hydrologic data and analysis software with licenses

## Scope of Work

The Bidder shall be required to provide all of the following services for implementation of a real time data acquisition system for the River basins in the Tamilnadu State of India.

* Supply, Installation, Testing, Training, Commissioning of the real time hydro- meteorological data collection network and establish data communications using GSM/GPRS between the remote stations and the data centre.
* Provide web-based server for data collection and dissemination. The Bidder should arrange for its own or a reputable third party web/database service to receive, process, store, backup and disseminate tabular, graphical and GIS map data on the web during the installation and commissioning stage of the project.

*[This option is based on Data Services from Bidders. It should be modified if the Agency prefers to have its own software and servers]*

* Develop water-level/discharge relationship or “ratings” based on discharge measurements using ADCP.
* Integrate with existing telemetric data from 10 ARG and 10 AWS.
* Supply a detailed operation and maintenance manual for each appropriate unit of supplied goods.
* Provide formal and on-the-job training. This includes operation and maintenance procedures to be carried out at the field stations, office procedures such as rating and shift analyses and records computations, and data management including quality assurance, archival, and dissemination.
* Provision for Warranty and Operation & Maintenance Services for 5 (five) years after the final Acceptance.
* A guarantee by the manufacturer that all equipment being provided will have maintenance support for a minimum of **ten** years after the commissioning of the equipment;

## General Technical Concept

The concept of implementation on which the present technical specifications and special conditions are based intends to acquire the state of art technology available for setting up automated data collection network. Emphasis is provided on a robust and reliable technology. The data acquisition system will comprise of two segments, the data acquisition segment and the data communication segment. Data Acquisition Segment and Data Communication Segment co-operate automatically in an integrated manner to complete the cyclic function of data collection. The data acquisition segment comprises of sensor, data acquisition controller/ data logger and an integrated power controller. The data communication segment comprises of the data communication equipment at site, all intermediate components and the network controller / web server at data processing center. It is preferred that the rechargeable battery used at site gets uninterruptedly recharged by a solar panel attached to the system. Under the project, data transmission has been proposed using GSM /GPRS technology. Accordingly, the sites have been chosen verifying the coverage of telecom network. This methodology has been chosen keeping in view its advantages over the other systems in respect of investment, maintenance and reliability. The bidder shall ensure that the system remains operational even under extreme conditions of weather. The failure of transmission due to temporary disturbances in the network must be taken care of by providing adequate storage in the data logger and ensuring subsequent relay immediately after the network is restored. Two way communication facility and event notification through SMS is highly desirable in the system to be provided by the Bidder. Uninterrupted data recording must be guaranteed for long periods during which regular maintenance visits may not be possible.

## Bidder’s Responsibilities

The upgraded HIS for the (Insert name of State or Region) river basins described in this bid document is considered as a whole and is understood to include all materials and services required to ensure smooth and sustainable operation, even though they may not be expressly described in the various sections of this document. The Bidder is responsible for offering all work and supplying all accessories to ensure that all upgraded HIS components are complete and operational upon acceptance.

The bidder’s Services will include, but is limited to, the following elements:

1. Design, configuration, integration and programming of each type of measurement station according to the technical specifications given in Section 2.1.
2. Provision of detailed instructions and standard design drawings or blueprints of the equipment required for installation. The Bidder shall carry out the ‘last mile connection civil works’ required for installation.
3. Supply and installation of all sensors, dataloggers, and cabling including protective conduit.
4. Supply and installation of all telemetry instrumentation and equipment, including transmitters, antennas, masts, and cabling with protective conduit.
5. Supply and installation of all power supply equipment including solar panels, batteries, and cabling with protective conduit.
6. Delivery of spare parts to be ordered by the Purchaser based on a complete list of recommended spare parts to be provided by the Bidder.
7. Performance testing of all instruments and equipment prior to shipping.
8. Commissioning of the entire system/network after installation.
9. Design and implementation of a training program for the staff of (Insert name of State or Region) Water Resources Department (WRD) that covers all aspects related to the installation, configuration, operation and maintenance of HIS components. The training will include field training on proper data acquisition methods and classroom training on stream flow records computation, hydrologic analysis, and data management. Training will be conducted at the field and office locations selected by the Purchaser.
10. Train WRD staff on the use of ADCPs using both bottom track and GPS positioning for making discharge measurements. Training should include hands-on instruction related to various ADCP deployment methods such as boat, tethered float, or wading rod.
11. Train WRD staff on basic statistical, graphical and reporting capabilities for data conversion and stream flow records computations. This should include the aggregation and summary of all data (e.g. hourly to daily data, means, maximum, and minimum values). Training should employ database management software that is normally used by WRD personnel.
12. Supply, install, and configure all software required for the operation of each HIS network component, including hydro-meteorological sensors, dataloggers, and telemetry instruments.
13. Supply and design web-based server for data collection, analysis, archival, and dissemination. Provide software to be used in the Data Center at (insert location of data center). The software shall store data collected by the GSM/GPRS receiving stations. A non-proprietary software solution such as Post GreSQL or proprietary software like Oracle, whichever is ideal for maintaining a robust RDBMS is recommended to ensure continuous operation of the system. The software system will include data quality control that shall allow for the flagging and/or removal of data using threshold analysis. Easy to use interface allowing sensor by sensor quality control for threshold and rate of change data screening is required. The software will include the features as specified in Technical Specification Section.
14. All the devices including PDAs, computers, and tablets shall be provided with anti-virus protection software including annual subscriptions by the Bidder, during the Contract Period, including Warranty and Operation & Maintenance period
15. Delivery of full documentation related to all components of the network, including operation and maintenance manuals in English, system integration diagrams and wiring diagrams.
16. Provide country of origin for all major equipment and materials.
17. Establish a service agent in (insert State covered by bid), India.
18. Provide a guarantee by the manufacturer that all equipment being provided will be supported for a minimum of **ten** years after the commissioning of the real time data acquisition system.
19. Supply a detailed operation and maintenance manual for each component in the system.
20. Provide appropriate telemetry solutions that operate in remote low power areas using solar powered technology as per choice of technology and specification given in the Technical specification.
21. Specify telemetry communication costs in the bid proposal. Bidder shall be responsible for all operational costs including network communication charges for both the Warranty and Operation and Maintenance periods.
22. Provision for Warranty and Annual Maintenance Services for five (5) years after Final Acceptance of Real Time Data Acquisition System (RTDAS) and back-up acquisition system with SMS/manual entry including all components at the remote stations as well as all newly acquired equipment in the Data Center.
23. Ensure that all software licenses and maintenance agreements are in the name of Purchaser and should seek full support and updates for such software for the duration of the warranty period and Annual Maintenance Services of 5 years Period.
24. Integrate the data collection from the existing 56 Telemetric Automated Raingauges (Tipping Bucket Type) and 6 Telemetric Automated Weather Station with the Real Time Data Acquisition System (RTDAS) provided by the Supplier.
25. Provision for expansion of RTDAS, in both hardware (datalogger) and software (such as server)
26. The Real Time Data Acquisition System (RTDAS) software should have the facility to track the non-functional sensors on a daily basis and display on the web. It should also display the charges recoverable from the Supplier on a monthly basis for the non-functional sensors and data lost in sensor-days at the rates specified in Section-IV SCC Clause 10 (iii).

The Bidder will be responsible for the site installation of all the equipment including the required ‘last mile connection to civil works’. Bidder is responsible for providing sufficient and correct documentation on the civil works and installation, including site-specific features such as lightning protection and power supply for purposes of supervision by the Purchaser.

## Purchaser’s Responsibilities

The Purchaser will be responsible for

* Land ownership issues.
* Obtaining government approvals as required.
* Assist in import / customs clearance.
* Direct the bidder in transportation of equipment to the installation sites.
* The Purchaser’s own costs for witnessing tests.
* Costs of travel, transportation and per diem for training of Purchaser’s staff.

## Delivery and Completion Schedules

The delivery and installation schedules are described in Schedule of Requirements. The maximum time period from the date of effectiveness of Contract to Final Acceptance is twelve (12) months followed by Warranty and Annual Maintenance Services Period of five (5) years. The bidder must comply with the milestones indicated in the delivery schedule and schedule for installation and commissioning.

# Bid Related Requirements

## General

All Goods materials to be incorporated in the supply be new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract.

Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest current edition or revision of the relevant standards or codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable.

## Plans and Schedules to be provided

A project execution plan shall be provided after award of Contract, including system design block diagrams, a list of critical engineering activities, a manufacturing and delivery schedule, the proposed training programme, as well as guidelines and standard drawings for civil works.

## Spare Parts

A list of recommended high-usage spare parts for a period of five (5) years of operation must be submitted by the manufacturer along with cost of these spare parts. High-value spare parts, such as entire components, shall not be included in this list. The Bidder shall indicate a number of spare stations to be supplied which are not intended for immediate installation. These spare stations will be available for short-term replacement of damaged or malfunctioning stations, while arrangements are made for repair, warranty or purchasing spare parts.

In addition, the Bidder must submit a complete listing of spare parts for each equipment component (sensors, data loggers, power supply, etc.) with a price list to remain valid for Five (5) years from the date of Final Acceptance. Cost of these spares shall not be included in Contract Price as well as in the Bid Price for evaluation. Spares shall be ordered separately for supply as needed.

***[This section must be edited if Bidder is supposed to maintain the spare parts with own inventory, and the cost of all replacements are included in O&M price.]***

## Shipping and delivery

The Bidder shall be responsible, at his costs, for loading, transporting, shipping and unloading of the equipment to be supplied under the contract from the point of manufacture to the final destination of delivery. The transportation of equipment to field locations for installation after receiving inspection shall also be the responsibility of the Bidder as part of installation requirement.

The Bidder shall provide such packing of the equipment as is required to prevent its damage or deterioration during transit to its final destination.

## Field Visits

For installation and subsequently for maintenance of the stations, the Bidder must have team of technical staff to meet the requirement and equipped for field visit. As back up, the system must be designed in such a way and the training component must be strong enough that equipment installation at remote stations can also be done by the Purchaser’s national staff, if required. Appropriate training courses shall be conducted by the contractor’s experts. All systems must be preassembled and an end-to-end test must be passed prior to installation.

## Civil Works

### Civil Works by Purchaser

The Bidder shall provide the detailed instructions and standard design drawings like footprints of the equipment required for installation. The main civil works like the Gauge well and fencing shall be provided by the Purchaser.

***[This section should be edited if the civil works are to be included in the main contract]***

### Civil Works by Bidder

The civil works related to installation of equipment like erection of concrete block for Bubbler Nozzle, erection of pole for Data Collection Platform, erection of gauge hut for housing the equipment, mounting of the equipment etc are responsibility of the bidder. The Bidder shall carry out the ‘last mile connection civil works’ required for installation.

## Geographical and Ambient Specifications

All materials and equipment supplied under these specifications shall be suitable for being delivered, stored and operated under continental conditions with extreme changes of temperature between winter and summer and between day and night. It is the bidder’s responsibility that the offered equipment / configuration be appropriate for the following locations and climatic conditions:

|  |  |
| --- | --- |
| Latitude | 100 00′to 130 00′North |
| Longitude | 770 00′ and 790 00′East |
| Elevation | 0 to 300 m at plains & 300-1600 m at hills. |
| Temperature range | 5° to +55° C (air temperature) |
| Relative humidity range | 10 to 100% |

## Units

Measurement units of all the equipment / systems to be procured shall be metric.

## Accessories and Tools

All accessories, tools and fixtures required for installation and dismounting/ remounting of the equipment shall be treated as a part of the supply for each type of equipment. Devices and instruments required for sensor re-calibration shall be offered separately.

## Documentation

The bidder must submit full documentation, including user’s manuals and guidelines for operation and maintenance in English, for all equipment and software components supplied. In addition a project-specific system operation manual has to be prepared, including

* Specific equipment layout;
* A procedural handbook;
* System block diagrams (logical connections);
* Wiring diagrams;
* Interface specifications, including communication protocols and configuration modes; and
* Software licenses.

The documents will also be transformed in to web-based helpline. The manual shall be provided both as hardcopy (10 copies) and on CD-ROM.

# Training Component

## Training Program

The Bidder is required to provide an extensive training programme for the system. The training set forth in the following paragraphs is a minimum requirement and the bidder should propose any additional training that he considers critical for long term success of the system operations.

The Bidder is expected to provide an outline or table indicating the contents of each of the required courses. The table shall describe the specific topics to be covered for each day of the training period.

The Bidder is responsible for the salaries of the training instructors and all training materials. The costs of travel, transportation and per diem for the trainees shall be borne by the Purchaser.

## Training in General Operation

Training shall be provided by the bidder in several phases. The training shall include both classroom and field trainings and will be continued during all five years. The bidder is required to have hydro-meteorological equipment specialists. The training shall include:

|  |  |  |  |
| --- | --- | --- | --- |
| S. No. | Description | Numbers of training sessions/Year | Number of Participants per session |
| 1 | User Training Course for senior management. | 2 | 20 |
| 2 | User Training Course for working staff. | 2 | 20 |
| 3 | Operation and Maintenance course (two weeks). Course topics will include sensor calibration, data logger configuration, data downloading, data retrieval, collection, compilation, processing, maintenance requirements, and procedures for equipment configuration, installation, site testing and commissioning. | 3 | 20 |
| 4 | Design, operation and maintenance of the database at Central Data Centre at Chennai including back-up, recovery and web-services. | 2 | 5 |
| 5 | Specialized Training for Maintenance Technicians on O&M | 2 | 20 |
| 6 | Theory and practice of discharge measurements, and development of rating curves. | 2 | 20 |

The training course will take place at *Chennai, Madurai or Trichy as decided by the Purchaser*. In case of formal training, the Purchaser will provide classroom and other logistics. The Bidder will facilitate the professional and the training materiel. On-the-job training will be provided by the Bidder in conjunction with the installation of hydro-meteorological stations and during the course of maintenance as required.

The Bidder shall prepare a training course plan and include the same in the Bid Document. These trainings will be repeated every year during warranty and annual maintenance periods for refreshing the trained staff and training additional staff.

The classroom training, hands on experience and troubleshooting will be prepared as video for easy access and will be posted on the web. All training modules will be also provided as a media file (Windows Media Player Compatible) on a USB Drive. Five copies on five separate media shall be required.

# Installation Requirements

## Data Collection Platform

The station should be installed so that sensitive equipment such as the data logger, batteries, telemetry radios, and antennas are located well above expected high water to ensure that sensitive instruments are not submerged.

At stations using the satellites for data telemetry, the antenna should be installed and oriented towards the appropriate satellite with considerations made to avoid obstructions in the line-of-site between the antenna and the satellite.

### Lightning Protection

Each station shall employ a grounding system that will protect the electronic equipment from electrical surge caused by lightening. The system will consist of a single point grounding system which will tie all grounding wires to a copper grounding plate. The plate will then be connected with a copper grounding strap to a grounding rod. Antenna cables will utilize polyphasers to protect the data collection platform and radios from lightning damage. The Bidder will provide all parts for this installation and properly install the Single Point Grounding System at each station.

### Enclosure and Wiring Specifications

Enclosures are required inside the gauge houses. The enclosure will be used to hold the DCP, transmitter, battery and solar regulator. Gauge houses will be used at all AWLS sites. In the case of AWS and ARG, the installation will consist of a tamper proof enclosure that will be installed outdoors. All enclosures must come equipped with a keyed lock where no other tool can be used to open the enclosure other than using the correct key. The enclosure must be sealed and secured in a NEMA type 4 enclosures as to prevent water and insects from entering the enclosure. Wires leading in and out of the enclosure must be properly secured and protected from sharp edges. Electrical or any other kind of tape to protect wires leading in and out of the enclosure will not be acceptable.

Instruments should be secured in an orderly fashion inside of the instrument shelter and all wiring and cables should be well organized and clearly labeled and secured (see figure below).



### Power Supply and Charging

The power supply and management system will be supplied with each system and will utilize solar panels charge batteries and uses a charge regulator in order to maintain charge of the battery and extend the life of the battery by not overcharging it.

Solar panels should be oriented to maximize daily sunlight absorption. Due to the variations in sun angle between winter and summer months, the panel should be installed so that it receives sufficient solar radiation to charge the system batteries during the winter months.

The power supply system must meet the requirements mentioned in the table below.

**Power Supply & Management Specifications**

| **Power Supply & Management** | | |
| --- | --- | --- |
| **No.** | **Item** | **Technical Specification** |
| 1 | Charging System | * 12 V Solar Panel(s) sufficient to keep the battery system charged to full capacity during a consecutive cloudy days |
| 2 | Accessories | * Charge regulator properly sized for the selected solar panel and battery |
| 3 | Battery | * 12 V DC Battery * Sized to provide autonomy for 21 days of operation |

### Measurement and Storage of Data

The DCPs will allow programmable measurement times and data collection intervals in addition to producing transmissions. The measured data will be stored on the DCP, and utilize data storage that will drop off the oldest data as new data is stored, though the DCP is required to store a minimum of 12 months of data before any data drops off. The table below provides a guideline to how often data should be measured and logged. *[This measurement and transmission interval would also depend on type of telemetry method use, so might need to be modified accordingly.]*

|  |  |  |  |
| --- | --- | --- | --- |
| **Measurement and Logging Interval** | | | |
| **Sensor** | **Units** | **Logging Interval** | **Transmit Interval** |
| **Automatic Weather and Water Level Station (AWS with Water Level)** | | | |
| Temperature | C | 15 minutes | Hourly |
| Humidity | % | 15 minutes | Hourly |
| Wind Speed | ms-1 | 15 Minutes | Hourly |
| Wind Direction | Deg True | 15 minutes | Hourly |
| Accumulated Rainfall | mm | Each tip event | Each Tip Event or multiple of tip events as programmed by user and Hourly |
| Water Level | m | 1 minute measurements, logged every 15 minutes | Based on user selectable threshold and/or rate of change of the 1 minute measurements and hourly |
| Battery Voltage | V | 1 hour | Hourly |
| Solar Charging Volts | V | 1 hour | Hourly |

### Fencing

If the location of the gauging station isn’t in a secured location, measures should be taken to prevent unauthorized access. This might include fencing with barbed-wire, locks on instrument shelters with protective covers, or camouflaging the installation. The picture below shows one of fencing to protect equipment.



## Automatic Rain Gauge

### Specifications for Installation

ARG stations will require a hardened enclosure on a structure (pipes, mast, and tower) to make the enclosure stable. The enclosure will be mounted 1.5 m above the ground. The rain gauge will be placed away from objects such that the rain gauge orifice is no closer than the 2 times the difference in height (top of the rain gauge to the top of the nearby objects) to other objects.

### Specifications for Civil Works

#### ARG Enclosure

Area of the ARG enclosure should be ideally 7 m x 5 m. If a rare condition demands then even lesser area (5 m x 4 m) can be demarcated in consultation with officials at respective Regional office. The approach to the site should be made free of obstacles like bushes; trees etc and a suitable cement path must be laid to approach the platform.

#### Fencing for the ARG site

* The height of the fencing for the ARG site enclosure must be 2 meters from the ground level.
* The fencing must be made over a cement enclosure which is nine inches above ground level.
* Fencing angle should be of size 50mm x 50mm x 6mm and pre coated with red-oxide.
* The total length of the fencing angle should be 2.8 meters i.e. (2.0m above ground level + 0.8 m below ground level)
* Two MS angles must be used diagonally at each of the four corner angles of the site. The angles can be attached (with welding or the other appropriate means) from the middle of the existing corner angle to the ground. The depth of the support will remain the same as of main angle.
* The dimensions of the fencing angle foundation should be 1.0 ft x 1.0 ft (length X width) and at a depth of 3 feet. The foundation should be square shaped. Distance between each fencing angle should be 1 meter.

#### Chainlink

* Dimensions of GI Chainlink : 3 inches x 3 inches and of Gauge :10 ( 3 mm diameter).
* GI chainlink mesh must be stretched and welded/fixed properly on the fencing angles.
* A pipe or angle must be fixed on the upper part of the fencing to have a neat finishing and at the same time to avoid loosening of the fencing over a period of time.
* The chainlink fencing should be fastened with the help of screws fitted on the fencing angles. Alternately it may be welded neatly at four equidistant positions of 0.5 mt each.

#### Gate

* Dimensions: 2 m X 1 m x 6 mm (Length x Width) with locking facility
* The gate must be fabricated by MS Angle whose dimensions should be minimum 40mm x 40mm x 6mm
* Suitable locking facility with 3 keys for safety purposes is mandatory. Standard locks should be used.
* Gate and MS Angle must be well painted with white / silver colour.
* Gate should have proper support of MS angles with additional support of crossed MS angles. Alternately gate should be fixed with the support of RCC pillars.

#### Tower

* Foundation Dimensions: 3 ft x 3 ft (length x width) and 5 ft deep. The raised platform of the foundation must be 2.0 ft. above the ground level.
* The height of the tower should be 2.5 metres above raised platform.

#### Rain Gauge foundation

* Rain gauge foundation must be of dimensions 1ft x 1 ft (length x width) and 3 ft deep.
* The rain gauge may be located so that it is at a minimum distance of 2 metres away from obstructions on all four sides.
* The raised platform should be six inches above the ground level.
* The base plate of rain gauge should be 1 ft. above ground level.
* In the case of flood prone areas the base plate on which the rain gauge is mounted should be placed 1.0 metre above ground level. The location must be decided after discussion with Field Officer.

#### Proportions for concrete foundations

* Concrete pillar foundations for the ARG tower, fencing angle should be made in the volumetric mixing proportions as follows:
* Concrete foundation : 1 (Cement) : 2 (Sand) : 4 (Metal)
* Fine plastering : 4(Cement) : 1 (Sand)
* Concrete Pillar must be cemented to achieve smooth finish above the ground level.
* After 8 hours, these foundations should be cured with water at least 3 times a day for four days.

#### Local Earthing

* Material required: Salt: 20 Kg; Charcoal: 20 Kg; Sand 100 Kg
* The lightning arrestor rod is made of copper which is mounted on the top most part of the ARG tower.
* It should be of thickness 12 mm and of one meter length with a connected copper wire of dimensions 3.5 Meter length and 6mm thickness (gauge). At the other end of copper wire is the Earthing rod of dimensions 15mm thickness and 1.8 meter length, which is buried into the ground.
* On the bottom of Earthing rod, one copper plate of dimensions 1’ x 1’ should be connected. ARG datalogger enclosure should also be grounded with local earthing.
* A pit of 4-5 feet depth, 2’ X 2’ wide at bottom (like a cone shaped pit) has to be dug.
* After levelling the bottom of the pit, uniform layer in the sequence of 6 inches of Salt + 6 inches Charcoal + 6 inches Sand is filled. Such sequence is repeated 3 times till the earth pit is filled to the top. The copper earthing rod is placed in the centre of the pit. The pit is closed and levelled.

#### Painting

* The tower, fencing angles, chain-link fencing and gate should be properly painted to avoid rusting.
* All concrete foundations shall be painted using white cement.

## Automatic Weather Station

The automatic weather station should be equipped to measure following parameters on real time basis:

Rainfall

Temperature

Relative Humidity

Solar Radiation

Wind Velocity

Wind Direction

Atmospheric Pressure

Evaporation as derived parameter using equations

### Specifications for Installation

AWS stations will be placed in open fields and away from any obstructions which may disturb the measurements. WMO guidelines will be followed during the installation and precise site selection. The AWS stations will require a 3 m tower. The hardened enclosure will be attached to the tower at 1.5 m about the ground. Then temperature/relative humidity will be mounted at 2 m above the ground and sufficiently away from any objects that may produce long wave radiation. The wind speed/direction sensor will be place that the top of the 3 m tower. The rain gauge will be placed away from the tower, at least 3 m from the tower, and no closer than the 2 times the difference in height (top of the rain gauge to the top of the nearby objects) to other objects. At the combined AWS-AWLS sites a gauge house will be used to store the DCP.

### Specifications for Civil Works

#### AWS Enclosure

Area of the AWS enclosure should be ideally 7 m x 5 m. If a rare condition demands then even lesser area (5 m x 4 m) can be demarcated in consultation with officials at respective Regional office. The approach to the site should be made free of obstacles like bushes; trees etc and a suitable cement path must be laid to approach the platform.

#### Fencing for the ARG site

* The height of the fencing for the ARG site enclosure must be 2 meters from the ground level.
* The fencing must be made over a cement enclosure which is nine inches above ground level.
* Fencing angle should be of size 50mm x 50mm x 6mm and pre coated with red-oxide.
* The total length of the fencing angle should be 2.8 meters i.e. (2.0m above ground level + 0.8 m below ground level)
* Two MS angles must be used diagonally at each of the four corner angles of the site. The angles can be attached (with welding or the other appropriate means) from the middle of the existing corner angle to the ground. The depth of the support will remain the same as of main angle.
* The dimensions of the fencing angle foundation should be 1.0 ft x 1.0 ft (length X width) and at a depth of 3 feet. The foundation should be square shaped. Distance between each fencing angle should be 1 meter.

#### Chainlink

* Dimensions of GI Chainlink : 3 inches x 3 inches and of Gauge :10 ( 3 mm diameter).
* GI chainlink mesh must be stretched and welded/fixed properly on the fencing angles.
* A pipe or angle must be fixed on the upper part of the fencing to have a neat finishing and at the same time to avoid loosening of the fencing over a period of time.
* The chainlink fencing should be fastened with the help of screws fitted on the fencing angles. Alternately it may be welded neatly at four equidistant positions of 0.5 mt each.

#### Gate

* Dimensions: 2 m X 1 m x 6 mm (Length x Width) with locking facility
* The gate must be fabricated by MS Angle whose dimensions should be minimum 40mm x 40mm x 6mm
* Suitable locking facility with 3 keys for safety purposes is mandatory. Standard locks should be used.
* Gate and MS Angle must be well painted with white / silver colour.
* Gate should have proper support of MS angles with additional support of crossed MS angles. Alternately gate should be fixed with the support of RCC pillars.

#### Tower

* Foundation Dimensions: 3 ft x 3 ft (length x width) and 5 ft deep. The raised platform of the foundation must be 2.0 ft. above the ground level.
* The height of the tower should be 3 metres above raised platform.

#### Rain Gauge foundation

* Rain gauge foundation must be of dimensions 1ft x 1 ft (length x width) and 3 ft deep.
* The rain gauge may be located so that it is at a minimum distance of 2 metres away from obstructions on all four sides.
* The raised platform should be six inches above the ground level.
* The base plate of rain gauge should be 1 ft. above ground level.
* In the case of flood prone areas the base plate on which the rain gauge is mounted should be placed 1.0 metre above ground level. The location must be decided after discussion with Field Officer.

#### Proportions for concrete foundations

* Concrete pillar foundations for the ARG tower, fencing angle should be made in the volumetric mixing proportions as follows:
* Concrete foundation : 1 (Cement) : 2 (Sand) : 4 (Metal)
* Fine plastering : 4(Cement) : 1 (Sand)
* Concrete Pillar must be cemented to achieve smooth finish above the ground level.
* After 8 hours, these foundations should be cured with water at least 3 times a day for four days.

#### Local Earthing

Material required: Salt: 20 Kg; Charcoal: 20 Kg; Sand 100 Kg

The lightning arrestor rod is made of copper which is mounted on the top most part of the ARG tower.

It should be of thickness 12 mm and of one meter length with a connected copper wire of dimensions 3.5 Meter length and 6mm thickness (gauge). At the other end of copper wire is the Earthing rod of dimensions 15mm thickness and 1.8 meter length, which is buried into the ground.

On the bottom of Earthing rod, one copper plate of dimensions 1’ x 1’ should be connected. ARG datalogger enclosure should also be grounded with local earthing.

A pit of 4-5 feet depth, 2’ X 2’ wide at bottom (like a cone shaped pit) has to be dug.

After leveling the bottom of the pit, uniform layer in the sequence of 6 inches of Salt + 6 inches Charcoal + 6 inches Sand is filled. Such sequence is repeated 3 times till the earth pit is filled to the top. The copper earthing rod is placed in the center of the pit. The pit is closed and leveled.

#### Painting

The tower, fencing angles, chain-link fencing and gate should be properly painted to avoid rusting.

All concrete foundations shall be painted using white cement.

## Water Level Monitoring

### Staff Gauges and Benchmarks

The Bidder is required perform surveys at all 10 water level sites and establish benchmarks that will be used to install a staff gauge, except in the case of barrages, where there may already be a staff gauge in place. The Bidder will be responsible for installing staff gauges and maintaining the staff gauges through the period of the contract. The datum used for the benchmark will be provided by Agency engineers.

*[Change this line to make bidder responsible for establishment of datum if it is not available or needs to be obtained using DGPS or survey]*

Datum should be established at each gauging station by surveying from an existing benchmark or establishing a new benchmark using DGPS or RTKGPS equipment. The benchmark will serve as the future basis for the gauging station’s datum and rating curves and thus should be stable and not subject to movement. Installation in bedrock, a concrete bridge abutment, or other stationary objects is preferred.

A reference gauge such as a staff gauge should be established at each gauging station and the elevation of this reference gauge should be surveyed into gauge datum to a precision of 1 cm. This reference gauge is used during site visits to calibrate the water-level sensor and data-logger.

Staff gauges should be securely attached to an existing structure such as a bridge abutment or pier that will be stationary throughout the expected life of the gauging station. If no existing structure is available for attaching the staff gauge it can be attached to a steel or wooden post that is securely fastened to the streambed near the edge of water. This can be accomplished by driving steel rods into the streambed to a depth of at least four feet or by setting a steel or wooden post into a concrete pier. The pier should be constructed by excavating a hole at least two feet deep by 6 inches or more in diameter at an appropriate location on the streambed near the edge of water.



Staff gauges should be installed so that their lower end is submerged in water at the minimum water level and their upper end can be accessed to provide a water level reading at high flows. The staff gauge should be installed close enough to the sensor or bubbler tube so that the same water level is monitored by both devices. It is sometimes necessary to install more than one staff gauge to provide access to a reference water-level reading over the expected range of flows.

Staff gauges should be installed in such a manner as to avoid pileup or drawdown of the water surface in the vicinity of the staff plate, thus affecting the accuracy of the reading. Pileup can occur on the upstream side of an obstruction in the flow whereas drawdown can occur on the downstream side of an obstruction.

### Specifications for Installation

#### Gauge Hut

The AWLS stations will require a gauge house to be constructed at each site. The two figures shown below show examples of good gauge house construction and serve as examples of what is expected in terms of protecting the equipment in the gauge house.

A small gauge building will be constructed by the bidder of no less than 2m x 2m (internal dimension). The minimum height of the building will be 3 m, high enough to discourage people from gaining access to the roof. The building will be lockable and the hasp and lock area will be protected from vandalism.

In case of where land is not available for gauge hut or security of equipment is a problem, a pillar should be erected to protect the equipment from theft and vandalism. A picture below shows an example of a 20 feet high pillar to house the equipment.



#### General Installation requirements for all Water Level Monitoring Stations

The station should be installed so that sensitive equipment such as the data logger, batteries, telemetry radios, and antennas are located well above expected high water to ensure that sensitive instruments are not submerged.

The preferred location for the installation of in-stream sensors is in a deep pool not subject to sedimentation, turbulence, or wave motion.

The water level in the gauge pool should have a stable control at all stages. Low stages are best controlled by bedrock in the bottom of the channel, medium and high stages are best controlled by a stable channel or bridge opening downstream of the gauge pool. Locations where part of the flow can bypass the water level sensor in a separate channel should be avoided.

If the location of the gauging station isn’t in a secured location, measures should be taken to prevent unauthorized access. This might include locks on instrument shelters with protective covers, or camouflaging the installation.

At stations using INSAT or other satellites for data telemetry the antenna should be installed and oriented towards the appropriate satellite with considerations made to avoid obstructions in the line-of-site between the antenna and the satellite.

The site should be cleared of brush and other obstructions that would make access hazardous and the grounds surrounding the station should be maintained in this manner throughout the Warranty and Maintenance period.

### Additional Installation requirements for Bubbler Sites

Bubbler orifice tubes or pressure transducers are securely fixed to the streambed such that they remain submerged during low flows and are not moved or lost during high flows.

The last 6-10 inches of the bubbler tube should be installed with a slight downward slope towards the stream to avoid water coming into the tube in between bubble cycles. The pressure required to evacuate this water during the bubble cycle will result in an apparent but incorrect surging of the recorded water level.

Orifice tubing or instrument cables should be buried in an appropriate conduit for the site conditions. A 1-2” flexible poly pipe can be easily installed and will hold up for many years in most environmental conditions.

A 2” galvanized steel pipe should be used whenever the conduit will be exposed due to site conditions. This is often the case when the bank is protected by large rip-rap or concrete making it difficult or impossible to bury the conduit.

### Additional Installation requirements for Radar or Ultrasonic Sensor Sites

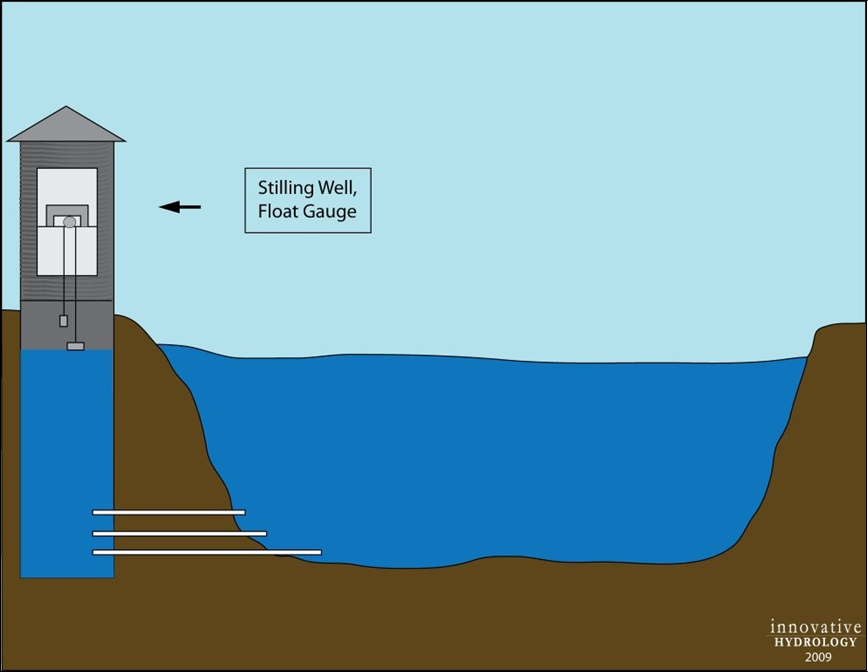
Radar or ultrasonic sensors should be mounted such that they have a direct vertical shot to the water surface with no obstruction of their beams. Beam spread must be determined based on manufacturer’s specification and the maximum expected distance to be measured at low flows. Consideration should be made in designing the mounting structure to allow for easy access to the instrument for maintenance.



Fig. – Radar gauge and mount designed for maintenance access

### Additional Installation requirements for Shaft Encoder sites

Shaft encoders are mounted on the instrument shelf inside of the gauge house which is mounted over the top of the stilling well, as shown in figure below. Stilling wells are made of concrete, corrugated steel pipe, or PVC pipe. (The construction of stilling well is **not** part of requirements under this contract, and would be constructed separately by the Agency.) The shaft encoder sits on the instrument shelf above the well with the well tape extending from the shaft wheel down through a appropriately sized hole in the instrument shelf where it is connected to the float. The float, tape, and float wheel should move freely as the water level rises and falls. The float should be centered in the well so that it doesn’t impinge upon the walls and the tape should pass freely through the hole in the instrument shelf without rubbing.



Float

Shaft encoder

Stilling well

Intakes

Figure - Typical Stilling Well Gauge Equipped with Float, and Shaft Encoder

### Additional Installation requirements for Pressure Transducer sites

In-stream sensors should be installed in such a manner as to avoid pileup or drawdown of the water surface in the vicinity of the sensor, thus affecting the accuracy of the data. Pileup can occur on the upstream side of an obstruction in the flow whereas drawdown can occur on the downstream side of an obstruction.

Orifice tubing or instrument cables should be buried in an appropriate conduit for the site conditions. A 1-2” flexible poly pipe is a good conduit choice for most circumstances as it can be easily installed and will hold up for many years in most environmental conditions. Under some circumstances it might be desirable to use flexible poly pipe from the sensor to the edge of water and 2” galvanized steel pipe whenever the conduit will be exposed due to site conditions. This is often the case when the bank is protected by large rip-rap or concrete making it difficult or impossible to bury the conduit.

## Sediment or Turbidity Monitoring Stations

The sensors are securely fixed to the streambed or rigid structure in the stream such that they remain submerged during low flows and are not moved or lost during high flows.

The mounting structures are designed such that the sensors can be removed for cleaning, servicing, or replacement at all flow conditions.

Provisions should be made for safe and easy access to the instrument shelter during all weather and stream flow conditions. Ladders, ramps, fencing, and handrails should be provided as needed and installed in a secure manner to ensure the safety of field personnel.

## Water Quality Monitoring Stations

The water-quality sondes and sensors are securely fixed to the streambed or rigid structure in the stream such that they remain submerged during low flows and are not moved or lost during high flows.



The mounting structures are designed such that the sensors can be removed for cleaning, servicing, or replacement at all flow conditions.

Provisions should be made for safe and easy access to the instrument shelter during all weather and stream flow conditions. Ladders, ramps, fencing, and handrails should be provided as needed and installed in a secure manner to ensure the safety of field personnel.

## Data Centre

The bidder will be required to install all computer systems, software and ancillary devices that are supplied as part of this tender. The purchaser will provide space to install equipment at offices in Central Location.

### Information Technology (IT) Infrastructure

#### Computer Servers

There will be two computer servers required, and will be placed at Central Location Data Center The computer servers are expected to operate the DAS software as well as all software required on the project. The computer servers will be managed by the Bidder up and through the AMC period of operation. The specifications for the server are given in Table below.

| **Data Centre Computer Server** | | |
| --- | --- | --- |
| **No.** | **Item** | **Technical Specification** |
| 1 | Form Factor | * Rack Mount Server |
| 2 | Processor | * Intel XEON ES-2440 or better |
| 3 | DIMM Memory | * Speed: 1600MT/s RDIMMS or better * 8GB RDIMM, 1600MT/s, Low Volt, Dual Rank or similar |
| 4 | Hard Drive | * RAID 5 Software or Hardware Controller * 5 - 1TB 7.2K RPM Near-Line SAS 6Gbps 2.5in Hot-plug Hard Drive or similar |
| 5 | Network Adapter | * 1 Gb |
| 6 | Power Supply | * Dual, Hot-plug, Redundant Power Supply, 350W or similar |
| 6 | Electrical Supply | * 220V A/C |
| 7 | Devices | * Keyboard, * Mouse, * 22” monitor minimum |
| 8 | Software | * Windows Server 2012R2 |
| 9 | Accessories | * Power Cord * Rack Rail with cable management system * Power Points as needed |

#### Computer Rack and related parts

The Bidder is required to procure two full height computer racks that will hold the computer servers and UPS system being acquired by the project.

#### UPS

An Uninterruptable Power Supply (UPS) will be required at both the Gorakhpur and Lucknow Data Center. The UPS must be capable of operating the computer server(s) for a minimum of 30 minutes.

#### Ancillary Equipment

The Bidder will be required to provide ancillary equipment to the Data Centers. This equipment will include:

2 - Full height computer racks to hold rack mount computers

2 - 16-port computer switches,

2 – Rail mounting system for server

Cables and power points as needed

### Software

#### Data Acquisition Software (DAS)

There is a requirement for two Telemetry Based DAS software package to be installed by the Bidder at Central Location. The DAS must be capable to providing the following:

Collection of Telemetry data from the Telemetry receiver (to be supplied by the bidder as part of the bid)

Telemetry DAS software will come free of annual licensing charges, such that it can run indefinitely without incurring further expense.

No cost for software upgrades through the Warranty and Maintenance period.

Ability to set alarm thresholds and issue SMS text. There must also be an ability to send email to any number of stakeholders, based on either a single condition of multiple conditions.

Ability to automatically enter rating tables that are produced by the time series processing software.

Ability to export the data in xlsx or xls format as well as in text format. The text format shall be in conformance to Agency standards. The export facility must be one that can be run automatically to feed another system (hot drive), such as the DSS or forecasting system.

Color map display of stations and alarm related data that is automatically updated as data is received. Colors of station data on the map will be user programmable based on the requirements of the user. A simple interface to program the display must be available.

Ability to move data from the Central Location computer server to the cloud server.

The provision must be kept to move to a different software package like e-SWIS, being developed separately by Central Water Commission. The bidder must make sure that the data protocols are flexible enough for smooth transition.

#### Time Series Processing Software

Time series processing software is required to perform quality control and develop rating tables. The software is required to have the following capabilities:

Graphical and Tabular viewing facility

Real-time and historical trending of data

Data exporting features

Multiple data base feature (it is required to keep the raw data as well as the processed data, but in separate tables of the data base)

RDBMS Microsoft SQL Server or MySQL

Automatic and Scheduled reporting features

Diagnostic report

Development of rating curves

Statistical capabilities

Manual data entry and input programs

Printing graphical and tabular data

Data Aggregation (e.g. hourly totaling by basin.

#### Field Maintenance Tracking Software

There is a requirement for field maintenance tracking software. This software will allow the field crews to log daily activities, especially activities that have to do with the AWS, ARG, AWLS, Stream Gauging, and Data Center operations. The field maintenance software will provide the following:

Record all station visits including the following activities

* + Date of visit
  + Time of arrival
  + Station name
  + Technician(s) name
  + Purpose of visit
  + Operational status upon arrival
  + Operation status upon departure
  + Activities performed during visit
  + Recommendation of activities on future visit
  + Time of Departure

The records will be sortable by any of the fields. For instance, the software must produce a record of all activities at a given station, or all activities performed by a given technician, or any combination of fields.

The field maintenance tracking software will be used to produce monthly reports that will be prepared by the Bidder and delivered to the Purchaser no later than the 5th day after the end of the month the report is valid for.

## Discharge Measurement

The bidder would be responsible for measurement of discharge and development of rating curves using ADCP for 10 Water Level Stations. The frequency of discharge measurement should be as mentioned in table below:

|  |  |  |  |
| --- | --- | --- | --- |
| Period | Number of Readings per Month | Minimum Interval (days) between two consecutive readings | Maximum Interval (days) between two consecutive readings |
| Monsoon Period  (June – October) | 4 | 5 | 10 |
| Non Monsoon Period  (November – May) | 2 | 10 | 20 |

***[You can insert a table mentioning each station if the required number of readings Change by stations]***

* The hydrographer appointed by the bidder must take all discharge measurement in the presence of engineers from Agency.
* All the procedures, tests, calibrations (like moving bed test, rotation calibration etc) should be followed as mentioned in the user manual supplied by equipment manufacturer.
* The ADCP must be passed through river atleast 4 times to obtain **one reading**. The discharge measured by all the rounds must be between Mean ± Standard Deviation. Any value falling beyond the limits must be discarded and measurement continued until 4 such discharge measurements are available which are within the range of Mean ± Standard Deviation. (Mean – SD < Reading < Mean + SD). Once this criteria is met, the discharge measured would be considered as **one Point** (one reading) on the rating curve.
* The schedule of measurement of discharge has to be agreed in advance with agency Engineers, while keeping in mind the measurement interval as mentioned in table above.

# Personnel Requirements

The project requires the Bidder to provide staff positions to fill the tasks of hydrography and computer systems & software support. The personnel will be required to be dedicated to the project as scheduled below, and will remain onsite for the period of the schedule. **Agency** will provide office space and furnishing (desk, chair, cabinets) for the Bidder provided staff at **Agency** facilities. The hydrographers will have their own arrangements for reliable transportation which will also be supplied by the Bidder. It is required that the vehicle being used will be a 4x4 vehicle capable of holding and securing all of the equipment used for field measurements.

### Staff schedule requirements

The Bidder supplied staff will be required to work in the field during the period of commitment. It is most important that the staff be entirely committed during the flood prone season, which goes from approximately 1 July through 30 October. Absences during this period should be minimal and coordinated with **Agency** in the event such absences are required.

**Table - Staff Commitment Periods**

|  |  |
| --- | --- |
| Position | Period of Commitment |
| Central Office | |
| Senior Computer System & Software Specialist | Full Time |
| Computer System & Software Specialist | 1 May – 1 October |
| Field Office 1 | |
| Senior Hydrographer | Full Time |
| Hydrographer | 1 May – 1 October |
| Field Office 2 | |
| Senior Hydrographer | Full Time |
| Hydrographer | 1 May – 1 October |
| Field Office 3 | |
| Senior Hydrographer | Full Time |
| Hydrographer | 1 May – 1 October |

### Hydrographer Responsibilities, Qualifications and Supervision

There are two levels of hydro-graphers required. There will be a Senior Hydrographer and a Junior Hydrographer.

#### Responsibilities

The hydrographers will be responsible for maintaining all stations installed by the Bidder. The hydrographers will be required to record activities at the stations using the maintenance tracking software purchased as part of this tender. The hydrographer will also work with the time series data base in storing stream gauge measurements and developing rating curves.

The Hydrographers will be responsible for supporting the data flow from the sensor to the data station, as transmitted and received from the **telemetry system**.

#### Senior Hydrographer

The senior hydrographer will be highly trained and certified to have expertise in operation and maintenance of the equipment used in the project. The senior hydrographer will also be certified to have expertise in complete knowledge and understanding in making stream gauging measurement with the profiling ADCP that will also be acquired in this project. The senior hydrographer should have a firm grasp of the installed technology and be able to train hydrographers from both **Agency** and Bidder supplied hydrographers.

It is paramount that the senior hydrographer be able to maintain, repair, and replace all hydromet equipment including the testing and replacement of **telemetry system** as required.

#### Junior Hydrographer

The hydrographer will work under the senior hydrographer and assist in performing stream gauging measurements and performing other duties as assigned, including the repair of equipment. The hydrographer shall be certified by the Bidder to maintain data stations and perform stream gauging measurements.

#### Supervision

The hydrographers (both senior and junior) will take supervision from **Agency**. This means that hydrographer activities must be carefully coordinated with **Agency**. Regular dialogue is required between the Bidder and **Agency**. **Agency** can also request stream gauging measurements.

### Computer System & Software Responsibilities, Qualifications and Supervision

There are two levels of computer system & software staff required. There will be a Senior Computer Systems & Software Specialist and a Junior Computer Systems & Software Specialist.

#### Responsibilities

The computer system and software specialists will have the responsibility if maintaining the computer systems and network that were acquired as part of this project. The specialists will also be responsible for operating the **Data Acquisition** software, Time Series software, and any other software that is procured as part of this tender.

#### Senior Computer System and Software Specialist

The Senior Computer System and Software Specialist will be highly trained and certified to use the **Telemetry** base station software, time series software for developing rating curves and all other software packages that are procured. The senior specialist will have a firm grasp of the software and be capable of training **Agency** officials as requested by **Agency** and also training the seasonal junior specialist. The senior specialist will assure that the data transmitted to the center is be**ing properly stored on the** base station software.

The Senior Specialist will also be capable configuring web pages that are used to disseminate and visualize the collected data.

#### Junior Computer System and Software Specialist experience

The Junior Computer System and Software Specialist will serve the Senior Specialist in providing assistance in maintaining the computer server and all software packages and all other activities of the Senior Specialist.

#### Supervision

The computer system and software specialists (both senior and junior) will take supervision from **Agency**. This means that **IT** activities must be carefully coordinated with **Agency**. Regular dialogue is required between the Bidder and **Agency**. **Agency** can also request stream gauging measurements.

# Warranty Period

The warranty period shall begin immediately after all stations have been commissioned and Final Acceptance certificate issued. The warranty period will last for five years’, during which time the Bidder will be responsible for the operation and maintenance of the entire network. The Bidder will be responsible to replace faulty or damaged equipment that they provided through the contract.

The Bidder will electronically record all maintenance activities on software specified previously in this document. Monthly maintenance reports will be provided to Agency that summarizes the number of visits, sites, visited, and purpose of visits. The bidder may also be required to perform ad-hoc queries that are requested by the purchaser. Further explanation of the monthly maintenance reports can be found in the “Maintenance Reports” section.

The bidder will provide a minimum of 6 hydrological technicians that will be dedicated to the project and remain at the assigned field offices full-time. There will be two instrument technicians at each field office. The maintenance field offices are located at Agency compounds in xxx, yyy and zzz cities. Agency will provide space for the instrument technicians at Agency facilities, though costs of transportation and ancillary equipment and tools will be the responsibility of the bidder. The hydrological technicians will maintain the newly installed network during the warranty period. The technicians will restore station/sensor outages within 48 hours of the outage occurring. This will mean that the instrument technicians will be placed at the regional centers to help reduce response time and meet the requirement of station outages lasting no longer than 48 hours. The instrument technicians will also serve as hydrographers and make stream gauging measurements with equipment that is to be supplied under this contract and as specified.

There will also be two Information Technology Specialists to maintain the newly procured and established Data Center servers. The two IT Specialists will be dedicated to the project full-time, and work out of **Central Locations**. Agencywill provide office space for the IT specialists. The IT Specialists will be tasked to overseeing the collection of data, managing the **DAS** system software, and reprogramming **if required**.

# Operation and Maintenance

The bidder shall provide a bid for Operation & Maintenance (O&M), also known as an Annual Maintenance Contract (AMC) for the five year period (same period as Warranty period for equipment) following the final acceptance. The AMC services will include the following activities:

## Hydrological Technicians:

Maintenance of observation network including:

* + Preventative Maintenance (PM) of observation network to occur every 3 months or sooner whereby each station will be visited at that interval or sooner.
  + Emergency Maintenance (EM) of observation network as required (stations down or delivering questionable data)

Document maintenance visit, whether PM or EM, using software specified and to be acquired by the bidder

Provide monthly maintenance reports accounting for all field visits performed, nature of visits, action taken

Ship equipment requiring maintenance

Receive equipment

Maintain and document equipment inventory

Stream gauging measurements to occur as mentioned in section 4.8

Development of rating curves using software as specified

## Information Technology Specialists:

Manage the data flow from the Telemetry network into the data base

Manage the data base

Manage the web page and provide changes in presentation as required by the purchaser

Provide monthly operation and maintenance reports on computer operation, including the documentation of down time, changes in data dissemination (web page), changes in early warning protocol, etc., or other related activities as directed by the purchaser.

Process rating curves using stream gauging measurements made in the field.

Perform quality control on all data coming in from the stations using the time series data base software.

## Maintenance Reports

There is a requirement for the bidder to provide monthly operation & maintenance reports during the warranty period. The reports are due the 7th day of every month documenting the previous month’s activity. The reports must include an accounting of all station visits actions taken.

# Inspections and Tests

The following inspections and tests shall be performed:

## Testing and Inspection

It is the Bidder’s responsibility to ensure that the equipment is sufficiently tested prior to shipment and installation. During final acceptance testing, the Bidder will have to demonstrate full functionality and performance of all system components according to specifications. Prior to final acceptance, all expenditures related to unsatisfactory performance of the equipment, such as the costs of repairs, additional site visits, shipping costs etc., will be at the Bidder’s expenses.

The costs for all tests and for all inspections to be made under the contract shall be borne by the Bidder and shall be deemed to be included in the Contract Price with the exception of the Purchaser’s costs for witnessing tests.

## Factory Acceptance Test

Prior to system shipment, the bidder shall conduct a Factory Acceptance Test (FAT). The FAT shall be conducted at the bidder’s facilities and shall demonstrate “end-to-end” performance of the system components. In order to avoid delays, the factory acceptance testing shall not be witnessed. However, the bidder is required to write a FAT report that will describe the test layout, the individual testing results for each station / component, as well as any problems found. All deficiencies revealed by testing shall be rectified by the bidder at his own expenses and to the approval of the Purchaser. Rectified components shall be subject to re-testing.

## Receiving Inspection

The system is to be inspected in-country, after clearing customs, to ensure that 100 percent of the shipment is received and delivered. The Bidder is to arrange for this receiving inspection as well as for customs clearance and delivery to appropriate storage facilities near Chennai to be provided and maintained by the Bidder.

## Site Installation and Acceptance Tests

The Bidder will install all the equipments and will undertake site tests of each gauge and tests for each lot of equipments included in the Schedule of Requirements. The exact locations for installation by Bidder shall be decided by the Purchaser. A list of proposed stations is provided in Section VI (Schedule of Requirements).

After final configuration and programming, the Bidder will conduct an “end-to-end” operational test for each of these stations. A formal check list shall be followed and the results of the tests shall be recorded. The Purchaser’s personnel will be trained in conducting the same site acceptance tests. A Site Acceptance Test will be passed if all sensors and data collection platforms obtain and store correct values for a period of 24 hours.

## Operational Test (OT)

Operational testing should be done on end to end basis for all the stations to be installed. The test for each station would include but not limited to:

Measurement of data by sensors and recording in datalogger

Setting of datum for water level stations

Transmission of data from remote site to data centre by telemetry

Reception of data on server and storage in database

Quality check on data and application of filters for minimum, maximum and rate of change limits

Presentation of quality checked data in tabular and graphical format on local workstations / servers

Publishing of data on web portal on real time basis (The web portal could either be internal or public, should be decided by purchaser)

Continuous operation of the system for atleast 72 hours period for each station

The operational testing can be performed in batches of multiple stations. Each batch should cover atleast 20% of total number of stations to be installed, making a total of 4-5 batches. Once a batch of stations has passed the operation test, the bidder would be eligible for payment as specified in Clause 11 of SCC on prorated basis, proportional to number of stations passing the operational testing.

During OT, all hardware and software components of this real time network have to be tested. The OT will be considered to be successful if all components as a whole have been operating without problems during at least 72 hours period. OT will be witnessed by the Purchaser’s designated representatives as each lot / batch of stations are completed.

Ideally all the stations should pass the OT before going to next stage, which is Final Acceptance. However, specific waiver for the requirement can be obtained for some stations where either land could not be provided by the purchaser or any such issue arises which is beyond the control of bidder. Once atleast 90% of the total stations pass the OT, the bidder is eligible to go next stage, which is final acceptance.

## Final Acceptance

The final Acceptance shall be provided after test for “end-to-end” performance of the entire system for a period of one month. The bidder shall demonstrate and document that the system correctly generated 95% of all expected data (normally scheduled data collections and transmissions) for the one-month period. The Bidder will produce a report documenting the quantities of data expected / received and indicating the success / failure of the test. The test will be repeated until the 95% success level is achieved.

All equipment failures will be counted except those that can be specifically determined to be “acts of God”. Failure of stations due to acts of God (natural disasters or other incidents) will not count against the 95%. Equipment needed for testing shall be provided by the Bidder.

When the system has passed the Final Test, the Bidder can apply for Final Acceptance. When Final Acceptance is given, the system will be officially considered to be under Warranty.

Before awarding the final acceptance, all the contractual requirements like trainings, user manuals, tool kits, installation and commissioning of Data centre including all the software and hardware etc must be complete in all respect.

# Technical Specifications

## Automatic Rain Gauge Stations

### Automatic Rain Gauge

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | From 0 to +50 Degree C |
| Humidity | 5 to 100 % |
| Altitude | 0 to 2000 meter |
| **Sensor** | |
| Sensor Type | Tipping Bucket reed switch |
| Range | 0-250 mm/h |
| Resolution | 0.5 mm |
| Accuracy (Intensity) | 2 % or better |
| **General Features** | |
| Output Interface | SDI12/ RS 485 / Compatible with Data logger |
| Material | Corrosion Resistance Metal (Stainless steel/ Aluminum or PVC) |
| Enclosure | Ability to service tipping buckets without involving the re-leveling of the gauge. |
| Protection | NEMA 4 or IP65 |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Accessories | Sensor Mounting support, cables and other accessories as required |
| **Specific Features** | |
| Collecting Funnel Diameter | 200 mm or 8 Inch or equivalent |
| Insect Screen | Insect covers on all openings should be provided |

### Rain and Snow Gauge

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +60 |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor** | |
| Sensor Type | Storage Gauge with Anti-freeze system without heating |
| Capacity | 1000 mm minimum |
| Resolution | 0.5 mm or better |
| Accuracy (Intensity) | 2 % or better, ±2 mm |
| **General Features** | |
| Output Interface | SDI12/ RS 485 / Compatible with Data logger |
| Power Supply | 12 V DC or switch rated for 12 VDC |
| Material | Corrosion Resistance Metal (Stainless steel or Aluminum) |
| Enclosure | NEMA 4 |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Accessories | Sensor Mounting support, cables and other accessories as required |

### Snow Depth Sensor

|  |  |
| --- | --- |
| Feature | Units |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +60 |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor** | |
| Sensor Type | Ultrasonic sensor |
| Range | 0-10 meter |
| Resolution | 1 mm or better |
| Accuracy | 0.25 % of measuring distance |
| **General Features** | |
| Output Interface | SDI12/ RS 485 / Compatible with Data logger |
| Power Supply | 9-18 V DC |
| Material | Corrosion Resistance Metal (Stainless steel/ Aluminum or PVC) |
| Enclosure | NEMA 4 |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Accessories | Sensor Mounting support, cables and other accessories as required |

## Automatic Water Level Stations

### Shaft Encoder

|  |  |
| --- | --- |
| **Feature** | **Value** |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +60 |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor** | |
| (\*) Sensor Type | Shaft Encoder based rotary position sensor with Digital Display |
| (\*) Range | 1-100 meter |
| (\*) Resolution | 3 mm or less |
| (\*) Accuracy | 0.025 % FSO |
| Output Interface | SDI-12 / RS 485 / 4-20 mA / compatible with data logger |
| Power Supply | 12 V DC or Switch rated for 12 V DC |
| **General Features** | |
| Material | Corrosion Resistance Metal (Stainless steel or Aluminum) |
| (\*) Enclosure | Lockable (key) box provided by the supplier to be mounted in Stilling well or Gauge hut, with IP65 or NEMA 4 protection |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Graduated Tape | The tape should be of high quality to withstand harsh and humid environment, should not get twisted or wrinkeled while operation. |
| Accessories | Sensor Mounting support, Floats, graduated tapes (metric), wheel, counterweight, and cabling |

### Radar

|  |  |
| --- | --- |
| **Feature** | **Value** |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +60 |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor** | |
| (\*) Sensor Type | Microwave non-contact sensor |
| (\*) Range | 30 meter |
| (\*) Resolution | 3 mm or better |
| (\*) Accuracy | 0.02 % FSO |
| Output Interface | SDI-12 / RS 485 / 4-20 mA / compatible with data logger |
| Power Supply | 10-15 V DC |
| **General Features** | |
| Material | Corrosion Resistance Metal (Stainless steel / Aluminum or PVC) |
| Enclosure | The Sensor shall be easy to dismount and replace in the event of malfunction. |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Accessories | Sensor Mounting support, cables and other accessories as required |
| (\*) Protection | NEMA 4 or IP64 |

### Ultrasonic Sensor

|  |  |
| --- | --- |
| **Feature** | **Value** |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +60 |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor** | |
| (\*) Sensor Type | Ultrasonic non-contact sensor |
| (\*) Range | 10 meter |
| (\*) Resolution | 3 mm or better |
| (\*) Accuracy | 0.02 % FSO |
| Output Interface | SDI-12 / RS 485 / 4-20 mA / compatible with data logger |
| Power Supply | 10-15 V DC |
| **General Features** | |
| Material | Corrosion Resistance Metal (Stainless steel / Aluminum or PVC) |
| Enclosure | The Sensor shall be easy to dismount and replace in the event of malfunction. |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Accessories | Sensor Mounting support, cables and other accessories as required |
| (\*) Protection | NEMA 4 or IP64 |

### Bubbler

|  |  |
| --- | --- |
| **Feature** | **Value** |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +60 |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor** | |
| (\*) Sensor Type | Continuous bubbling system and non-submersible transducer |
| (\*) Range | 15 PSI |
| (\*) Resolution | 3 mm @ 15 PSI or better |
| (\*) Accuracy | 0.02 % FSO |
| Output Interface | SDI-12 / 4-20 mA / RS485, compatible with Data logger |
| Power Supply | 11 to 15 V DC |
| Average current Draw | <15mA based on 1 bubble per second |
| Purge | Manual line purge |
| Bubble Rate | Programmable 30–120 bubbles per minute |
| (\*) Desiccators | The bubbling mechanism and the non-submersible transducer must be equipped with a desiccating system to keep system from malfunction for a period not less than 6 months. |
| **General Features** | |
| Tools | Complete tool kit for installation and routine maintenance |
| Manuals | Full documentation and maintenance instructions in English |
| Accessories | Sensor Mounting support, cables and other accessories as required |
| (\*) Enclosure | NEMA4 or IP64 |

### Pressure Transducer

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +60 |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor** | |
| (\*) Sensor Type | Pressure Sensor |
| (\*) Range | 30 meter |
| (\*) Resolution | 3 mm or better |
| (\*) Accuracy | 0.02 % FSO |
| Output Interface | SDI-12 / RS 485 / 4-20 mA / compatible with data logger |
| Power Supply | 10-15 V DC |
| **General Features** | |
| Material | Corrosion Resistance Metal (Stainless steel / Aluminum or PVC) |
| Enclosure | The Sensor shall be easy to dismount and replace in the event of malfunction. |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Accessories | Sensor Mounting support, cables and other accessories as required |
| (\*) Protection | NEMA 4 or IP64 |

### Gate Level Sensor

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +50 Degree C |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor** | |
| Sensor Type | Incremental / Absolute encoder |
| Range | 0-4 meter |
| Resolution | 1 mm or less |
| Accuracy | 0.025 % FSO |
| **General Features** | |
| Output Interface | SDI-12 / RS 485 / 4-20 mA / compatible with datalogger |
| Power Supply | 12 V DC or switch compatible with 12 VDC |
| Material | Corrosion Resistance Metal (Stainless steel or Aluminium) |
| Enclosure | Outdoor environment with corosion resistant material |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Accessaries | Sensor Mounting support, cabling etc |
| **Specific Features** | |
| It should accept safety inputs like Gate faulty, Gate in Manual (handle on), Gate tide up etc. and convey it to data logger. | |

## Automatic Weather Stations

### AWS Sensors

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +60 |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Temperature Sensor** | |
| Sensor Type | Resistance type Temperature Sensor |
| Range | -20 to 60 Degree C |
| Resolution | ± 0.1°C |
| Accuracy (Intensity) | 0.3°C or better |
| Power Supply | 12 V DC or switch rated for 12 VDC |
| **Humidity Sensor** | |
| Sensor Type | Capacitive/ Solid State Humidity Sensor |
| Range | 5 to 100 % |
| Resolution | 0.5 Percent |
| Accuracy | ±3% or better |
| Power Supply | 12 V DC or switch rated for 12 VDC |
| **Wind Speed and Direction Sensor** | |
| Sensor Type | Ultrasonic sensor (No moving Parts) |
| Range | 65m/s for speed ;  0–360 degrees for direction |
| Resolution | 0.01 m/s for Speed;  0.1 degree for Direction |
| Accuracy | 0.2 m/s or 3% for wind speed;  +/- 2 degrees for direction |
| **Pressure Sensor** | |
| Sensor Type | Temperature Compensated |
| Range | 800 - 1200 hPa |
| Resolution | ± 0.01 hPa |
| Accuracy | ± 0.5 hPa |
| Power Supply | 12 V DC or switch rated for 12 VDC |
| **Solar Radiation Sensor** | |
| Sensor Type | ISO Class 1 Pyranometer (CMP 11 or better) |
| Spectral Range | 300-1000 nm |
| Range | 0-2000 W/Square meter |
| Resolution | 1 W/Square meter |
| Accuracy (Including Temperature Compensation) | 3% |
| **General Features** | |
| Material | Corrosion Resistance Metal (Stainless steel/ Aluminum or PVC) |
| Tools | Complete tool kit for operation and routine maintenance |
| Manuals | Full Documentation and maintenance manual in English |
| Accessories | Sensor Mounting support, cables and other accessories as required |
| Output Interface | SDI 12/RS 485/ 4-20 mA/ Compatible with Data logger |

## Water Quality Stations

### Water Quality Sensors

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | -5 to 45 Degree C |
| Humidity | 5-100 % |
| Altitude | 0-5000 meter |
| **Multi parameter Sonde** | |
| Ports | 6 or more |
| Response Time | <90 s |
| Output | SDI-12, RS-232 |
| **Depth** | |
| Accuracy | 0.003 m |
| Resolution | 0.001 m |
| Range | 0 to 60m |
| **Conductivity** | |
| Accuracy | +/- 3% FS or 5μS/cm |
| Resolution |  |
| Range | 0 - 100 μS/cm |
| **Dissolved oxygen (optical)** | |
| Accuracy | +/- 5% reading  or +/- 0.2 mg/L |
| Resolution | 0.01 mg/L |
| Range | 0 to 50 mg/L |
| Sensor Cleaning | Automated sensor cleaning mechanism |
| **Temperature** | |
| Accuracy | +/- 0.2oC |
| Resolution | 0.2oC |
| Range | -5 to 45o C |
| **Turbidity** | |
| Accuracy | +/- 5% reading or 2 NTU |
| Resolution | 1 NTU |
| Range | 0 to 1000 NTU |
| Sensor Cleaning | Automated sensor cleaning mechanism |
| **pH** | |
| Accuracy | +/- 0.2 pH units; +/- 1.0 mV |
| Resolution | 0.01 pH unit; 0.1 mV |
| Range | 2 - 12 pH units (minimum) ; 0-14 pH units (Preferred) |
| **General Features** | |
| Tools | Complete tool kit for installation and routine maintenance |
| Manuals | Full documentation and maintenance instructions in English |

## Discharge Measurement

### ADCP for shallow canals and streams

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | -5 to 45 Degree C |
| Humidity | 5-100 % |
| Altitude | 0-5000 meter |
| **Sensor** | |
| ADCP Type | Down looking ADCP for measurement of discharge in open channel environment |
| Velocity Profiling Depth Range | 0.1m – 5 m |
| Profiling Velocity | +/-20 m/s |
| Velocity Accuracy | 0.25% of measured velocity |
| Velocity Resolution | 0.001m/s |
| Depth Range | 0.3-20 m |
| Depth Accuracy | 1%. |
| Depth Resolution | 0.001 m |
| Positioning | Optional capability to acquire position by bottom tracking or integrated DGPS. |
| Computations | All performed internally or on Windows-based software (supplied) |
| **Accessories** | |
| Platform | Floating platform for tethered ADCP deployment |
| Positioning | GPS for positioning |
| Tethers | All necessary tethers and taglines |
| Software | Windows-based software for display of velocity, discharge, depth, and width information in real-time. |
| **General Features** | |
| Tools | Complete tool kit for installation and routine maintenance |
| Manuals | Full documentation and maintenance instructions in English |

### ADCP for Shallow Rivers

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | -5 to 45 Degree C |
| Humidity | 5-100 % |
| Altitude | 0-5000 meter |
| **Sensor** | |
| ADCP Type | Down looking ADCP for measurement of discharge in open channel environment |
| Velocity Profiling Depth Range | 0.4–25m or better |
| Profiling Velocity | +/-20 m/s |
| Velocity Accuracy | 0.25% of measured velocity |
| Velocity Resolution | 0.001m/s |
| Depth Range | 0.3-50 m |
| Depth Accuracy | 1%. |
| Depth Resolution | 0.001 m |
| Positioning | Optional capability to acquire position by bottom tracking or integrated DGPS. |
| Computations | All performed internally or on Windows-based software (supplied) |
| **Accessories** | |
| Platform | Floating platform for tethered ADCP deployment |
| Positioning | GPS for positioning |
| Tethers | All necessary tethers and taglines |
| Software | Windows-based software for display of velocity, discharge, depth, and width information in real-time. |
| **General Features** | |
| Tools | Complete tool kit for installation and routine maintenance |
| Manuals | Full documentation and maintenance instructions in English |

### ADCP for Deep Rivers

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | -5 to 45 Degree C |
| Humidity | 5-100 % |
| Altitude | 0-5000 meter |
| **Sensor** | |
| ADCP Type | Down looking ADCP for measurement of discharge in open channel environment |
| Profiling Range | 0.4–40 m or better |
| Profiling Velocity | +/-20 m/s |
| Velocity Accuracy | 0.25% of measured velocity |
| Velocity Resolution | 0.001m/s |
| Depth Range | 0.3-80 m |
| Depth Accuracy | 1%. |
| Depth Resolution | 0.001 m |
| Positioning | Optional capability to acquire position by bottom tracking or integrated DGPS. |
| Computations | All performed internally or on Windows-based software (supplied) |
| **Accessories** | |
| Platform | Floating platform for tethered ADCP deployment |
| Positioning | GPS for positioning |
| Tethers | All necessary tethers and taglines |
| Software | Windows-based software for display of velocity, discharge, depth, and width information in real-time. |
| **General Features** | |
| Tools | Complete tool kit for installation and routine maintenance |
| Manuals | Full documentation and maintenance instructions in English |

## Telemetry

### GSM / GPRS

|  |  |
| --- | --- |
| Feature | Value |
| Operating Temperature | From -20 to +60 |
| Performance | Data Reception availability of 95% or better |
| Form factor | The Transmitter should either be integral part of data logger specified above, or it should be supplied as independent unit compatible with supplied data logger |
| **Specific Features** | |
| Communication Direction | Utilize GPRS network for two-way TCP/IP (INTERNET) connection |
| VPN protocol | Radio to utilize VPN protocol |
| Transmission trigger | Data collection to be triggered by interrogation from Data Center, or by event based transmission triggered by remote site |
| Power Saving | Ability to disable interrogation system in order to save power at remote site |
| Communication Protocol | Data transmission to execute HTTP Post or FTPS to transmit data to the Data Center |
| Accessories | All associated equipment, including Antenna all cables and mounting hardware |

### INSAT Radio

|  |  |
| --- | --- |
| Feature | Value |
| Operating Temperature | From -20 to +60 |
| Environment Relative Humidity | 0 to 100 % |
| Career Frequency | 402 - 403 MHz |
| Output Power | 3-10 W, user settable |
| Data Bit Rate | 4.8 kbps |
| Antenna cable | LMR 400 grade or better |
| Performance | Data Reception availability of 99% or better |
| Form factor | The Transmitter should either be integral part of data logger specified above, or it should be supplied as independent unit compatible with supplied data logger |
| **Yagi Antenna** | |
| Polarization | LHCP or RHCP, switchable in field |
| Gain | Minimum 11 dbi or better |
| Center Frequency | 402-403 MHz |
| Mounting | Proper mounting and Pointing arrangement for 360 degree azimuth and elevation adjustment |
| Operating Wind speed | 250 kmph |
| Wind Survival | 300 kmph |
| Material | Rust-proof and Oxidation-proof |
| **Specific Features** | |
| Satellite System | INSAT Radio System to be Used on the INSAT Satellite operated by ISRO |
| Certification | Certificate of acceptance required by ISRO and/or IMD as part of the bid package |
| Demonstration in India | Demonstrated use of the satellite radio with at least 200 radios in current operation in India using INSAT |
| Accessories | All associated equipment, including GPS, GPS Antenna, INSAT Antenna, all cables and mounting hardware |

### VSAT Trans-receiver

|  |  |
| --- | --- |
| Feature | Value |
| Operating Temperature | From -20 to +60 |
| Antenna cable | LMR 400 grade or better |
| Performance | Data Reception availability of 99% or better |
| **Specific Features** | |
| Communication Direction | VSAT Radio system to allow two-way communication system between Data Center and remote station |
| Single Hop | VSAT communication will be direct link, and use the internet or any surface based topology for data communication (i.e. leased lines) |
| Bandwidth Sharing | VSAT bandwidth will be able to be shared among all stations |
| Alarm Conditions | VSAT remote stations shall be able to transmit based on alarm conditions at the remote site such as critical water level or exceptional precipitation events |
| Accessories | All associated equipment, including Antenna all cables and mounting hardware |

## Data Collection Platform

### Power Supply

|  |  |
| --- | --- |
| Feature | Units |
| **Battery** | |
| Voltage | From -20 to +60 |
| Type | Sealed Maintenance free |
| Capacity | Based on site conditions and Telemetry method, to provide 21 days of backup |
| **Solar Panels** | |
| Size | Based on Site conditions and Telemetry method used for 21 days of backup |
| Mounts | The mounts should be sturdy in design; the solar panel should not move or rotate with wind. It should have provision to adjust direction and elevation during installation for optimal solar power generation |
| Charger | Smart solar charger with protection |
| **General** | |
| The supplier should determine optimal size of solar panels and batteries, such that system should be operational for at least 21 days in the absence of charging | |

### Data Logger for 1-2 Sensors

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +50 Degree C |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor Interface** | |
| Analogue Inputs | Atleast 2 Analogue Input Channels |
| SDI Port | One SDI-12 Interface port |
| Digital Inputs | 2 Digital Channels, bidirectional |
| Pulse Input | 2 Input for Rain Gauge impulse |
| **Input - Output Interfaces** | |
| Data Transfer | USB stick option for Data transfer |
| Port for Configuration | One Serial Port (RS232) for communication with Laptop or programming |
| Port for Telemetry | Port for Communication with Telemetry Device (GSM/VSAT/INSAT) specified below |
| **Computer Software** | |
| Operating System | Windows software for system configuration / communication |
| Version | English language version |
| Licenses | All required licenses included |
| **General Features** | |
| Flash memory | Non-volatile Flash memory that can one store year of data and expandable to a minimum of 1GB. |
| Resolution | A/D resolution ≥16 bit |
| Recording Interval | Individual recording intervals for each sensor/parameter |
| Firmware Operating System | Multi-tasking operating system - must log data and transmit at same time |
| Display | Digital Display for viewing current data and setting values |
| Power Supply | Power supply 12V DC, low current drain (quiescent ≤10.0mA) |
| Battery Voltage | Monitoring of battery voltage level |
| Internal battery | Internal battery backup for clock |
| User Permissions | Different user levels, system of user rights / passwords, access restricted to authorized personnel |
| Internal clock | Internal clock with drift less than 2 seconds per day or using GPS |
| System integrity | System integrity check procedures |
| Enclosure | for wall-mounting in a shelter / enclosure with IP65 (NEMA 4) protection or better |
| Accessories | Serial cable + adaptor (if required) for notebook connection. All accessories (fixing units, etc.) as required |
| Tools | complete tool kit for installation and routine maintenance giving full detail( number of pieces and type) |
| Manuals | full documentation and maintenance instructions in English (1 copy per station). |

### Data Logger for Multiple Sensors

|  |  |
| --- | --- |
| Feature | Value |
| **Site Conditions** | |
| Ambient Temperature | From -20 to +50 Degree C |
| Humidity | 5 to 100 % |
| Altitude | 0 to 5000 meter |
| **Sensor Interface** | |
| Analogue Inputs | 8 Analogue Input Channels |
| SDI Port | One SDI-12 Interface port |
| Digital Inputs | 6 Digital Channels, bidirectional |
| Pulse Input | 2 Input for Rain Gauge impulse |
| **Input - Output Interfaces** | |
| Data Transfer | USB stick option for Data transfer |
| Port for Configuration | One Serial Port (RS232) for communication with Laptop or programming |
| Serial / RS 485 | One for the INSAT radio |
| RS232 | One for the addition of GSM radio |
| LAN Port | RJ 45 port for LAN / VSAT |
| **Computer Software** | |
| Operating System | Windows software for system configuration / communication |
| Version | English language version |
| Licenses | All required licenses included |
| **General Features** | |
| Flash memory | Non-volatile Flash memory that can one store year of data and expandable to a minimum of 1GB. |
| Resolution | A/D resolution ≥16 bit |
| Recording Interval | Individual recording intervals for each sensor/parameter |
| Firmware Operating System | Multi-tasking operating system - must log data and transmit at same time |
| Display | Digital Display for viewing current data and setting values |
| Power Supply | Power supply 12V DC, low current drain (quiescent ≤10.0mA) |
| Battery Voltage | Monitoring of battery voltage level |
| Internal battery | Internal battery backup for clock |
| User Permissions | Different user levels, system of user rights / passwords, access restricted to authorized personnel |
| Internal clock | Internal clock with drift less than 2 seconds per day or using GPS |
| System integrity | System integrity check procedures |
| Enclosure | for wall-mounting in a shelter / enclosure with IP65 (NEMA 4) protection or better |
| Accessories | Serial cable + adaptor (if required) for notebook connection. All accessories (fixing units, etc.) as required |
| Tools | complete tool kit for installation and routine maintenance giving full detail( number of pieces and type) |
| Manuals | full documentation and maintenance instructions in English (1 copy per station). |

SECTION VI-A : QUALIFICATION CRITERIA

**SECTION VI-A : QUALIFICATION CRITERIA**

(Referred to in Clause 13.3(b) of ITB)

After determining the lowest-evaluated bid, the Purchaser shall carry out the post qualification verification of the Bidder in accordance with ITB Clause 38, using only the requirements specified. Requirements not included in the text below shall not be used in the evaluation of the Bidder’s qualifications.

(A) **Financial Capability:**

The Bidder shall furnish documentary evidence that it meets the following financial requirement(s):

i.    Capacity to have a cash flow - The Bidder must provide a letter from a reputed bank stating the availability of liquid assets and/or credit facilities exclusively for this Contract only, of no less than *INR 15.0 Million*. In the case of joint Ventures, the cumulative liquid assets of the members of joint venture will be considered.

 ii.   The Minimum required annual turnover in respect of supply, installation and commissioning of goods for the successful Bidder in any two of the last five (5) years shall be of *INR 50 Million or its equivalent*. In the case of joint Ventures, the cumulative turnover of the members of joint venture will be considered, but lead member of joint venture must at least meet 40% of this requirement.

(B) **Experience** **and Technical Capacity**

* + 1. The Bidder should be a manufacturer who must have manufactured, tested and supplied the equipment (s) similar to the offered type specified in the ‘Schedule of Requirements’ up to at least 50 sensors (in 50 sites) coupled with a data logger in any one of the last 3 years. The equipment offered should strictly conform to or exceed the product specification and be in satisfactory operation for 6 months as on date of Bid opening. Further, Bidder should be in continuous business of manufacturing products similar to that specified in the schedule of requirements in India during the last three years prior to Bid opening.
    2. Bids of Bidders quoting as authorized representative of an equipment manufacturer, meeting with the above requirement in full, can also be considered provided :

(i) the manufacturer furnishes authorization in the prescribed format assuring full guarantee and warranty obligations as per GCC and SCC and

(ii) the Bidder, as authorized representative of their manufacturer has supplied, installed and commissioned satisfactorily at least 50 sensors (in 50 sites) coupled with a data logger similar to the types specified in the Schedule of Requirements in any one of the last three years which must be in satisfactory operation for at least 6 months on the date of Bid opening. The Bidder must provide evidence of providing maintenance services for the above type of sensors coupled with a data logger installation in at least ONE centre in the Country for over one year. In case the Bidder is unable to provide evidence for maintaining such systems the Bidder should provide a plan for provision of after sales service and annual comprehensive maintenance for the next five years along with the evidence of maintaining instruments using similar technology (a sensor coupled with the datalogger) with similar coverage and amounting to at least 70% of the total cost of the offered Bid in any one of the last three years.

iii) The bidder shall guarantee that adequate specialized maintenance capability and expertise will be made available in the country.

1. The Bidder shall provide evidence to the satisfaction of the Purchaser to the effect of having in-house or externally engaged hydrological and hydraulic expertise to
   1. Conduct the river gauging operations to measure the discharges at different river water levels with all the required equipment like current meters, ADCPs, and trained manpower;
   2. Develop the conversion of the river water levels into river discharges, like stage discharge curves for river courses/bridges and co-efficient of discharge for weirs/sluices.

The Bidder shall provide the CVs of the hydrological and hydraulic experts, field operators and the list of equipment. The CVs of these personnel should demonstrate the successful operation of at-least one such assignment.

1. The Bidder shall furnish documentary evidence to demonstrate that the Goods it offers meet the following Purchaser requirement in general and also the Purchaser requirements specified in detail in Technical Specifications of this bidding document. In case the Bidder is not the manufacturer or producer of the goods it offers to supply and has submitted the bid in accordance with ITB clause 19.1 (b), the bid shall include the above information about the manufacturer whose equipments are being offered.
2. The Bidder should furnish the information on all past supplies and satisfactory performance for both (a) and (b) above, in Performa under Section XI.
3. All the Bids submitted shall also include the following information along with formats under Section XV.
4. Copies of original documents defining the constitution or legal status place of registration and principle place of business of the company or firm or partnership etc.
5. The Bidder should furnish a brief write up backed with adequate data explaining his available capacity and experience (both technical and commercial )for the manufacture and supply of the manufacturer and supply of the required systems and equipment within the specified time of completion after meeting all their current commitments.
6. The Bidder should clearly confirm that all the facilities exist in his factory for inspection and testing and these will be made available to the Purchaser or his representative for inspection. The Purchaser shall decide and propose necessary tests as it may deem fit for the purpose of evaluation.
7. Details of Service Centers and information on service support facilities that would be provided after the warranty period (in the Service Support form given in Section XIV).

Reports on financial stating of the Bidder such as profit and loss statements balance sheets and auditor‘s report for the past three years bankers certificates etc.

SECTION VIB: RESPONSIVENESS MATRIX

**SECTION VI-B : Responsiveness Matrix**

# ARG Station

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Automated Rain gauges (Tipping Bucket Type) | | | | |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
|  |  | | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Rainfall sensor | Sensor | Tipping bucket with siphon |  |  |
| Material | Corrosion resistant metal (like stainless steel); shock and vibration resistant; insects proof. |  |  |
| Measuring range/ intensity | 0- 500 mm /hr |  |  |
| Receiver/ collecting funnel diameter | 200 mm±0.3 diameter with machined aluminium 8 inch rim or equivalent |  |  |
| Accuracy | ± 0.2 mm; 2% of intensity (over a period of 15 minutes), |  |  |
| Sensitivity | one tip at 0.2 mm or 0.01 inch |  |  |
| Serviceability | ability to service tipping bucket gauge without re levelling the gauge. |  |  |
| Contact system | dual reed switch, potted in Silicon rubber |  |  |
| Power supply | 12 V DC or switch rated for 12 V DC |  |  |
| Output interface | as required for the data logger |  |  |

# Automatic Weather Station (AWS)

## Air Temperature Sensor

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
|  |  |  | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Site conditions | Ambient temperature | 10 to 50 degrees C |  |  |
| Relative humidity | 10% to 100%, |  |  |
| Altitude | 10 to 1000 m |  |  |
| Air Temperature Sensor | Range | 10° C to +50° C |  |  |
| Accuracy | ± 0.1°C or better |  |  |
| Resolution | 0.1°C |  |  |
| Sensor type | Resistance Type |  |  |
| Response time | 60 seconds |  |  |
| Power supply | 12 V DC or switch rated for 12 V DC |  |  |

## Relative Humidity Sensor

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
|  |  | | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Site conditions | Ambient temperature | 10 to 50 degrees C |  |  |
| Relative humidity | 10% to 100%, |  |  |
| Altitude | 10 to 1000 m |  |  |
| Relative Humidity Sensor | Sensor type | Capacitive/ Solid State |  |  |
| Range | 0% to 100 % RH |  |  |
| Accuracy | ±3% or better |  |  |
| Resolution | 0.5% or better |  |  |
| Response time | 60 seconds or better |  |  |
|  |  |  |  |
| Power supply | 12 V DC or switch rated for 12 V DC |  |  |
| Output interface | as required for the data logger specified below |  |  |

## Sensors (Wind, Solar radiation, Pressure)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
| Site conditions | Ambient temperature | 10 to 50 degrees C |  |  |
| Relative humidity | 10% to 100%, |  |  |
| Altitude | 10 to 1000 m |  |  |
| All sensors | Power supply | 12 V DC or switch rated for 12 V DC |  |  |
| Output interface | as required for data logger specified below |  |  |
| Wind speed and direction sensor |  |  | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Sensor type | Ultrasonic anemometer (no moving parts) |  |  |
| Range | 0 to 65 m/s (wind speed),  0 to 360 degree for direction |  |  |
| Starting threshold | 0.5 m/s |  |  |
| Accuracy | 0.2m/s or ± 4% (wind speed),  ± 2 degrees (wind direction) |  |  |
| Resolution | 0.5 m/s (wind speed);  1 degree (wind direction) |  |  |
| Solar global radiation sensor |  |  | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Sensor type | silicon photovoltaic or thermopile |  |  |
| Range | 0 to 1500 W/m² |  |  |
| Accuracy | ± 5% |  |  |
| Resolution | 5 W/m² |  |  |
| Barometric pressure sensor |  |  | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Sensor type | temperature compensated |  |  |
| Range | 800 to 1100 h Pa or as determined by sensor elevation |  |  |
| Accuracy | ± 0.5 mb |  |  |

# Data Collection Platform

## Mast and Supports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
| Mast | Height | as per need (2-5 m) |  |  |
| Resistance to wind | including guys and all accessories / tools for mast mounting must be able to resist a wind speed of 110 km/hour. |  |  |
| Resistance to corrosion | Corrosion free. |  |  |
| Sensor Supports, Brackets and accessories | Material | Aluminium or stainless steel |  |  |
| Resistance to wind | able to resist a wind speed of 110 km/hour. |  |  |
| Resistance to corrosion | Corrosion free. |  |  |
| Lightning Protection | Components | * lightning rod, ground rod and conductors * lightning / over voltage protection devices for sensors, data logger, transmitter and solar power supply, as required |  |  |

## Data logger

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
|  |  | | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Site conditions | Ambient temperature | 10 to 50 degrees C |  |  |
| Relative humidity | 10% to 100%, |  |  |
| Altitude | 0 to 1000 m |  |  |
| Data logger | Model | Well proven and widely used model, produced by a primary brand name and tested in a large number of installations. Provide manufacturer’s certificate that the model proposed has been in production for at least 3 years. |  |  |
| Design | Open design, operating with a wide variety of sensors. |  |  |
| Operating system | multi tasking operating system capable of simultaneous data collection and transmission. |  |  |
| change of setup | change of setup do not affect logged data. |  |  |
| plug and play | plug and play ease of setup using a windows based graphical views. |  |  |
| Flash memory | Non-volatile Flash memory that can one store year of data and expandable to a minimum of 1GB. |  |  |
| resolution | ADC resolution ≥ 16 bit. |  |  |
| recording intervals | User defined recording intervals. |  |  |
| triggering | user configurable alarms (triggering) |  |  |
| voltage level | monitoring of voltage level. |  |  |
| Internal clock | Internal clock with drift less than 2 seconds per day (can be accomplished with GPS specified below) |  |  |
| Input Interface | As required for the sensors |  |  |
| GSM/GPRS Protocol | TCP/IP type capable of sending data based on threshold exceedence as well as responding to queries through GPRS. |  |  |
| Input/ Output interface | Should match minimum requirements of particular application:   * for use with AWS, 8 analogue channels and 8 digital input / output channels needed * for use with only rain gauge single counter input might be sufficient * for water level recorder digital input through SDI-12 * The SDI-12, RS232 and USB interfaces are required to connect to different purposes. * output needed for:  1. permanent connection to transmission unit. 2. manual readout. 3. direct data downloading to a USB flash drive without the need for a laptop or data retrieval device. |  |  |
| Housing for equipment | Enclosure | for wall-mounting in a shelter / enclosure.  protection IP65 (NEMA 4) or better |  |  |
| Software | Operating System | Windows software for system configuration / communication. |  |  |
| language | English version |  |  |
| licenses | All required licenses included |  |  |
| User levels privileges | Different user levels, system of user rights / passwords, access restricted to authorised personnel. |  |  |
| Data security | Redundant storage, periodic automatic backup procedures. |  |  |
| System integrity | System integrity check procedures |  |  |
| Accessories | Accessories | Serial cable + adaptor (if required) for notebook connection. All accessories (fixing units, etc.) as required |  |  |

## Power Supply

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
|  |  | | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Site conditions | Ambient temperature | 10 to 50 degrees C |  |  |
| Relative humidity | 10% to 100%, |  |  |
| Altitude | 0 to 1000 m |  |  |
| Power supply | Common | Common power supply for data logger, sensors, and transmitter. |  |  |
| Input | Input power 12 V solar photo voltaic system with the capacity to power all equipments associated with the station. |  |  |
| Capacity | the solar panel and battery must be sized according to the needs of the equipment provided and ensure at least 30 days of full operation without recharge. A power budget indicating how this requirement will be met should be attached. |  |  |
| Regulator | including voltage / charge regulator, a solar regulator for each station to regulate power and maintain optimum battery and data collection platform operation. |  |  |
| battery test indicator | with battery test indicator |  |  |
| On line Status reporting | The balance battery charge available and the number of days it can support all the equipment at a site should be reported everyday live to the Data Centre. |  |  |
| battery chargers | include battery chargers (in: 230 V AC / out: 12 V DC) |  |  |

## Enclosure / Shelter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
|  |  | | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Site conditions | Ambient temperature | 10 to 50 degrees C |  |  |
| Relative humidity | 10% to 100%, |  |  |
| Altitude | 0 to 1000 m |  |  |
| Enclosure for equipment | equipment | To accommodate data logger, sensor cards, battery and regulator, transmitter unit, over voltage protection devices, etc. |  |  |
| Material | Material should withstand hostile environment and provide protection against vandalism and be agreed with the Purchaser. protection IP65 (NEMA 4) or better. |  |  |
| Locks | safety locks of good quality |  |  |

# Automatic Water Level Station (AWLS)

## Shaft Encoder

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Technical specifications | | Specification offered by bidder with brand and Model No | Complied/  Not Complied |
|  |  | | Manufacturer Name:  Place:  Tel:  Fax:  Email: |  |
| Site conditions | Ambient temperature | 10 to 50 degrees C |  |  |
| Relative humidity | 10% to 100%, |  |  |
| Altitude | 0 to 1000 m |  |  |
| Shaft Encoder Sensor | Type | Shaft Encoder with digital readout. |  |  |
| material | Corrosion resistant metal (like aluminium, stainless steel), shock and vibration resistant |  |  |
| Weather resistance | to operate and with stand harsh environmental and weather condition maintaining the reliability and accuracy |  |  |
| range/ intensity | 1 - 15m |  |  |
| Accuracy | ± 3 mm |  |  |
| power supply | 12 V DC or switch rated for 12 V DC |  |  |
| output interface | as required for the data logger specified below |  |  |
| Anti slip and slide | Anti slip and slide arrangements should be there to transfer data from the float/rope to the sensor, without any loss of data. |  |  |
| Accessories | Supports | Sensor mounting support, cables (power and signal), float, counterweight, wheel, graduated tape (metric) and other accessories as required. |  |  |
| Guide pipes | Separate PVC guide-pipes and fixing accessories for accommodating the Float and the Counterweight with adequate tolerance and to full measuring range. |  |  |
| Enclosure | Corrosion resistant Lockable (key) box to be mounted within the gaugewell. |  |  |

SECTION VII: BID FORM AND PRICE SCHEDULE

**SECTION VII: BID FORM AND PRICE SCHEDULE**

Date :........................................

Credit/Loan No : 4749 (IN)

IFB No : *TNHP-II/ 1/ 2011-12*

TO: The *Superintending Engineer, Groundwater Circle PWD,WRD, PWD Campus Taramani, Chennai-600113.*

“Supply, installation, testing, commissioning, training and maintenance of Hydrological Information System for XXXX State”

Gentlemen,

Having examined the Bidding Documents including Addenda Nos...............*[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver “Supply, installation, testing, commissioning, training and maintenance of Hydrological Information System for XXXX State” in conformity with the said Bidding documents for the sum of ..................... *(Total Bid amount in words and figures)* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we will obtain the guarantee of a bank in a sum equivalent to *10 (ten)* percent of the Contract Price for the due performance of the Contract, in the form prescribed by the Purchaser.

We agree to abide by this Bid for the Bid validity period specified in Clause 16.1 of the ITB and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below :

Amount Rupees

Name and Purpose of Commission

Address of agent or gratuity

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(if none, state “none”).

Until a formal contract is prepared and executed, this Bid, together with your written acceptance thereof and your notification of award shall constitute a binding Contract between us.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely “Prevention of Corruption Act 1988”.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

We understand that you are not bound to accept the lowest or any Bid you may receive.

We clarify/confirm that we comply with the eligibility requirements as per ITB Clause 2 of the Bidding documents.

Dated this ....... day of ............................20.....

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*(signature) (in the capacity of)*

Duly authorized to sign Bid for and on behalf of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Price Schedule – Table:1 Goods

Date

Currencies in accordance with ITB Clause 12 NCB No: TNHP-II/1/2011-12

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **Line Item**  **No** | **Description of Goods** | **Delivery Date** | **Quantity and physical unit** | **Unit price of goods (as delivered at site)** | **Total price of goods**  **(Col. 4×5)** | **Customs duty if any on Col:6** | **Sales and other taxes (in accordance with ITB 11)** | **Total Price per line item**  **(Col. 6+7+8)** |
| 1 | Supply, installation, testing, commissioning, training and maintenance Real Time Data Acquisition System as per Technical Specification. |  | 1 Set |  |  |  |  |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |  |  |  |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |  |  |  |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |  |  |  |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |  |  |  |  |
| 1.5 | ADCP |  | 4 ADCP |  |  |  |  |  |
| 1.6 | Ground station, Data Centre Services & equipment as per Technical Specification. |  | One set |  |  |  |  |  |
|  | **Total Price** |  |  |  |  |  |  |  |

**Price Schedule –Table:2 Related Services during Installation Period**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Installation and Commissioning of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 10 Readings |  |
|  | **Total – Related Services during Installation Period** | | |  |

**Table-3a : Related Services during 1st year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 80 Readings |  |
|  | **Total – Related Services during 1st year of Warranty and Annual Maintenance Services** | | |  |

**Table-3b : Related Services during 2nd year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 80 Readings |  |
|  | **Total – Related Services during 2nd year of Warranty and Annual Maintenance Services** | | |  |

**Table-3c : Related Services during 3rd year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 60 Readings |  |
|  | **Total – Related Services during 2nd year of Warranty and Annual Maintenance Services** | | |  |

**Table-3d : Related Services during 4th year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 40 Readings |  |
|  | **Total – Related Services during 4th year of Warranty and Annual Maintenance Services** | | |  |

**Table-3e : Related Services during 5th year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 20 Readings |  |
|  | **Total – Related Services during 5th year of Warranty and Annual Maintenance Services** | | |  |

**Price Schedule: Table: 4 Total Of The Supply Of Goods And Related Services**

|  |  |  |
| --- | --- | --- |
| Currencies in accordance with ITB Clause 12 | | Date:  TNHP-II/ 1/ 2011-12 |
| **Item.No** | **Description** | **Amount (Rs)** |
| **1** | **2** | **3** |
| 1 | Price Schedule – Table:1 Goods |  |
| 2 | Price Schedule –Table:2 Related Services during Installation Period |  |
| 3 | Price Schedule –Table:3a Related Services during 1st year of Warranty and Annual Maintenance Services |  |
| 4 | Price Schedule –Table:3b Related Services during 2nd year of Warranty and Annual Maintenance Services |  |
| 5 | Price Schedule –Table:3c Related Services during 3rd year of Warranty and Annual Maintenance Services |  |
| 6 | Price Schedule –Table:3d Related Services during 4th year of Warranty and Annual Maintenance Services |  |
| 7 | Price Schedule –Table:3e Related Services during 5th year of Warranty and Annual Maintenance Services |  |
| 8 | **Bid Price (Contract Price) (Sum 1-7)** |  |

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*

SECTION VIII: BID SECURITY FORM

**SECTION VIII: BID SECURITY FORM**

Whereas ...........................1*(hereinafter called “the Bidder”)* has submitted its Bid dated ......................*(date of submission of Bid)* for the supply of“Supply installation, testing, commissioning, training and maintenance of Real-time hydro-meteo data acquisition system in Tamilnadu.”

*(name and/or description of the goods)* (hereinafter called “the Bid”).

KNOW ALL PEOPLE by these presents that WE .....................*(name of bank)* of .................. (name of country),having our registered office at ..................*(address of bank)* (hereinafter called “the Bank”), are bound unto*Superintending Engineer, Groundwater Circle, PWD, PWD Campus, Taramani, Chennai-600113(name of Purchaser)* (hereinafter called “the Purchaser”) in the sum of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this \_\_\_\_ day of \_\_\_\_\_\_\_\_\_ 20\_\_\_.

THE CONDITIONS of this obligation are:

1. If the Bidder

(a) withdraws its Bid during the period of Bid validity specified by the Bidder on the Bid Form; or

(b) does not accept the correction of errors in accordance with the ITB; or

2. If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of Bid validity:

(a) fails or refuses to execute the Contract Form if required; or

(b) fails or refuses to furnish the performance security, in accordance with the Instruction to Bidders;

we undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including forty five (45) days after the period of the Bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

...................................

(Signature of the Bank)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Name of Bidder*

SECTION IX: CONTRACT FORM

**SECTION IX: CONTRACT FORM**

**THIS AGREEMENT** made the .......day of.................................., 20... Between *Superintending Engineer, Groundwater Circle Chennai, PWD,PWD Campus, Taramani, Chennai-600113(Name of purchaser)* of India*(Country of Purchaser)* (hereinafter called "the Purchaser") of the one part and .....................*(Name of Supplier)*  of .........................*(City and Country of Supplier)* (hereinafter called "the Supplier") of the other part :

**WHEREAS** the Purchaser is desirous that certain Goods and ancillary services viz., “Supply installation, testing, commissioning, training and maintenance of Real-time hydro-meteo data acquisition system in Tamilnadu.”*(Brief Description of Goods and Services)* and has accepted a Bid by the Supplier for the supply of those goods and services in the sum of .............................. *(Contract Price in Words and Figures)* (hereinafter called "the Contract Price").

**NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:**

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:

(a) the Bid Form and the Price Schedule submitted by the Bidder;

(b) the Schedule of Requirements;

(c) the Technical Specifications;

(d) the General Conditions of Contract;

(e) the Special Conditions of Contract; and

(f) the Purchaser's Notification of Award.

3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

Brief particulars of the goods and services which shall be supplied/provided by the Supplier are as under:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Price Schedule – Table:1 Goods

Date

Currencies in accordance with ITB Clause 12 NCB No: TNHP-II/1/2011-12

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **Line Item**  **No** | **Description of Goods** | **Delivery Date** | **Quantity and physical unit** | **Unit price of goods (as delivered at site)** | **Total price of goods**  **(Col. 4×5)** | **Customs duty if any on Col:6** | **Sales and other taxes (in accordance with ITB 11)** | **Total Price per line item**  **(Col. 6+7+8)** |
| 1 | Supply, installation, testing, commissioning, training and maintenance Real Time Data Acquisition System as per Technical Specification. |  | 1 Set |  |  |  |  |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |  |  |  |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |  |  |  |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |  |  |  |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |  |  |  |  |
| 1.5 | ADCP |  | 4 ADCP |  |  |  |  |  |
| 1.6 | Ground station, Data Centre Services & Connectivity equipment as per Technical Specification. |  | One set |  |  |  |  |  |
|  | **Total Price** |  |  |  |  |  |  |  |

**Price Schedule –Table:2 Related Services during Installation Period**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Installation and Commissioning of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 10 Readings |  |
|  | **Total – Related Services during Installation Period** | | |  |

**Table-3a : Related Services during 1st year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 80 Readings |  |
|  | **Total – Related Services during 1st year of Warranty and Annual Maintenance Services** | | |  |

**Table-3b : Related Services during 2nd year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 80 Readings |  |
|  | **Total – Related Services during 2nd year of Warranty and Annual Maintenance Services** | | |  |

**Table-3c : Related Services during 3rd year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 60 Readings |  |
|  | **Total – Related Services during 2nd year of Warranty and Annual Maintenance Services** | | |  |

**Table-3d : Related Services during 4th year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 40 Readings |  |
|  | **Total – Related Services during 4th year of Warranty and Annual Maintenance Services** | | |  |

**Table-3e : Related Services during 5th year of Warranty and Annual Maintenance Services**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service**  **No** | **Description of Services** | **Delivery Date** | **Quantity** | **Total Price**  **(Rs)** |
| 1 | Cost of services for Comprehensive Warranty and Annual Maintenance Services of entire RTDAS system as per Technical Specifications for the following, |  | 1 Set |  |
| 1.1 | Automatic Rain Gauge Stations |  | 10 Stations |  |
| 1.2 | Automatic Water Level Stations |  | 10 Stations |  |
| 1.3 | Automatic Weather Stations |  | 10 Stations |  |
| 1.4 | Automatic Reservoir Monitoring Sites |  | 10 Stations |  |
| 1.5 | ADCP |  | 4 ADCP |  |
| 1.6 | Ground Station at Data Centre Services & equipment |  | 1 Set |  |
| 2 | Providing web / database services of adequate capacity for the Data Centre at Chennai |  | 1 set |  |
| 3 | Cost of services for Training of Purchaser’s Personnel for operation and maintenance of RTDAS equipment.-[Details to be given separately] |  | 1set |  |
| 4 | Discharge Measurement using ADCP |  | 20 Readings |  |
|  | **Total – Related Services during 5th year of Warranty and Annual Maintenance Services** | | |  |

**Table-4: Contract Price**

|  |  |  |  |
| --- | --- | --- | --- |
| S.No | Description | Amount (Rs) | Delivery Schedule |
| 1 | Table:1 Goods |  | 12 Months from date of effect of Contract |
| 2 | Table-2: Related Services during Installation Period |  | 12 Months from date of effect of Contract |
| 3 | Table-3a: Related Services during 1st year of c Annual Maintenance Services. |  | 1 year after Final Acceptance |
| 4 | Table-3b: Related Services during 2nd year of Warranty and Annual Maintenance Services. |  | 2 year after Final Acceptance |
| 5 | Table-3c: Related Services during 3rd year of Warranty and Annual Maintenance Services. |  | 3 year after Final Acceptance |
| 6 | Table-3d: Related Services during 4th year of Warranty and Annual Maintenance Services. |  | 4 year after Final Acceptance |
| 7 | Table-3e: Related Services during 5th year of Warranty and Annual Maintenance Services. |  | 5 year after Final Acceptance |
| 8 | **Total Bid Price (Contract Price)**  **(items:1 to 7)** |  |  |
|  | Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]* | | |

TOTAL BID PRICE (CONTRACT PRICE): Rs………………………………………….(in words)

**IN WITNESS** whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, Sealed and Delivered by the

said ..................................................... (For the Purchaser)

in the presence of:.......................................

Signed, Sealed and Delivered by the

said ..................................................... (For the Supplier)

in the presence of:....................

SECTION X: PERFORMANCE SECURITY FORM

**SECTION X. PERFORMANCE SECURITY FORM**

To: The *Superintending Engineer, Groundwater Circle, PWD,PWD Campus, Taramani, Chennai-600113*

**WHEREAS**................................................................... (Name of Supplier)

hereinafter called "the Supplier" has undertaken , in pursuance of Contract (Notification of Award) No................. dated,........... 20... to supply “Supply installation, testing, commissioning, training and maintenance of Real-time hydro-meteo data acquisition system in Tamilnadu.” hereinafter called "the Contract".

**AND WHEREAS** it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract.

**AND WHEREAS** we have agreed to give the Supplier a Guarantee:

**THEREFORE WE** hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of ................................... ........................................ (Amount of the Guarantee in Words and Figures) and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limit of ................................ (Amount of Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the ........day of...................20......

Signature and Seal of Guarantors

................................

................................

................................

Date......................20....

Address:........................

................................

................................

SECTION XI: PERFORMANCE STATEMENT

**SECTION XI: PERFORMANCE STATEMENT**

*“Proforma for Performance Statement* (for a period of last five years)***”***

[Please see Clause 13.3 (b) (ii) of Instructions to Bidders]

Bid No. Date of opening: Time :\_\_\_\_\_ Hours

Name of the Firm:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Order placed by  ("full address of  Purchaser) | Order No.  and date | Description and quantity  of ordered equipment  (including model types) | Value of  Order  (Rs) | Date of completion of delivery | | Remarks indicating  reasons for late  delivery, if any | Has the equipment been  satisfactorily functioning  (Attach a certificate from the Purchaser/Consignee) |
| As per contract | Actual |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  | | Total |  |  | | | |

Signature and seal of the Bidder

SECTION XII: MANUFACTURERS' AUTHORIZATION FORM

**SECTION XII**

(Please see Clause 13.3(a) of Instructions to Bidders)

**MANUFACTURERS' AUTHORIZATION FORM\***

No. dated

To

The *Superintending Engineer, Groundwater Circle, PWD, PWD Campus, Taramani, Chennai-600113*

Dear Sir,

IFB No. : *TNHPII-1/2010-11*

We, who are established and reputable manufacturers of *(name and description of goods offered)* having factories at (*address of factory)* do hereby authorize M/s *(Name and address of Agent)* to submit a Bid, and sign the contract with you for the goods manufactured by us against the above IFB.

We understand that we are allowed, under this procurement, to authorize more than one supplier should we so wish.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract and Clause 10 of the Special Conditions of Contract for the goods and services offered for supply by the above firm against this IFB.

Yours faithfully,

(Name)

(Name of manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to legally bind the manufacturer. It should be included by the Bidder in its Bid.

\* Modify this format suitably in case where manufacturer’s warranty and guarantee are not applicable for the items for which Bids are invited.

SECTION XIII BANK GUARANTEE FOR ADVANCE PAYMENT

(Deleted)

SECTION XIV : ELIGIBILITY FOR THE PROVISION OF GOODS, WORKS AND SERVICES IN BANK-FINANCED PROCUREMENT.

**SECTION XIV**

**ELIGIBILITY FOR THE PROVISION OF GOODS, WORKS AND SERVICES IN BANK-FINANCED PROCUREMENT.**

**As of March 2000**1

For the information of Borrowers and Bidders, and with reference to paragraph 1.6, footnote 9, of the *Guidelines: Procurement under IBRD Loans and IDA Credits,* dated January 1995 (revised January and August 1996 and September 1997, and January 1999), set forth below is a list of countries from which Bidders, Goods and Services are not eligible to participate in procurement financed by the World Bank or IDA2.

* Andorra
* Cuba
* Democratic People’s Republic of Korea (North Korea)
* Liechtenstein
* Monaco
* Nauru
* Tuvalu

In addition, Bidders, Goods and Services from other countries or territories may be declared ineligible by a provision in the Bidding. Documents if the borrower’s country has excluded them by a law, an official regulation, or an act of compliance meeting the requirements of paragraph 1.8 (a) of the *Guidelines: Procurement under IBRD Loans and IDA Credits*.

The Loan/Credit Agreement also prohibits a withdrawal from the Loan / Credit Account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. At the present time, this prohibition applies to no country.

**Notes**:

1. The most current listing of eligible countries can be viewed on the PublicInformationCenter’s Web page at: <http://www.worldbank.org/html/pic/PROCURE.html>. A list of firms debarred from participating in World Bank projects is available at: [http://www.worldbank.org/html/opr/procure/debarr.html](http://www.worldbank.org/html/pic/PROCURE.html).

2. Any questions regarding this list should be addressed to the Senior Manager, Procurement Policy and Services Group, Operational Core Services Network, The World Bank

SECTION XV: PROFORMA FOR EQUIPMENT AND QUALITY CONTROL EMPLOYED BY THE MANUFACTURER

**SECTION XV (form A)**

**PROFORMA FOR EQUIPMENT AND QUALITY CONTROL EMPLOYED BY THE MANUFACTURER**

**FORMAT FOR QUALIFICATION REQUIREMENTS**

All the Bidders submitting their Bids against this Bid must submit the qualification requirements along with the information in the following formats together with the relevant documentation:

**FINANCIAL, BUSINESS AND TECHNICAL CAPABILITY**

**(FORMAT –A)**

Name and address of Bidder

Phone: Telex: Fax :

1. Latest Balance Sheet filed with----------------------------on--------------------------- (Attach audited copies of annual accounts of past 3 years. Indigenous Bidders to attach copy of accounts audited under section 44 AB of Income Tax Act. In case the accounts are not required to be audited, the information in this statement should be attested by a Chartered Accountant or Manager of a reputable Bank.

2. Latest Profit & Loss Statement from---------------------------to---------------------filed with-------------------------on----------------------------------------. (Attach an audited copy)

3. Financial position (in the respective currency)

|  |  |
| --- | --- |
| a) | Cash & Bank balances |
| b) | Fixed Assets Gross and Net |
| c) | Current Assets |
| d) | Current Liabilities |
|  | Bank cash credit |
|  | Loans |
|  | Others (including sundry creditors) |
| e) | Provisions |
| f) | Contingent Liability (include claims not acknowledged, pl. specify) |
| g) | Inventories |
| h) | Share Capital |
|  | Free Reserves |
|  | Other reserves (Please specify |
| i) | Terms loans from financial institute & Banks |
| j) | Working Capital |
| k) | Net worth |
| l) | Debtors & advances considered good more than 6 months |
|  | less than 6 months |

|  |  |
| --- | --- |
| 4) | Total liabilities |
| a) | Current Ratio |
|  | Current Assets to |
|  | Current liabilities |
| b) | Acid Test Ratio |
| c) | Total liability to Net worth |
|  |  |
| 5) | Net Sales (in respective currency) |
| a) | Current period |
| b) | During the last financial year |
| c) | During the year before last financial year |
| 6) | Net Profit before Tax |
| a) | Current period |
| b) | During last financial year |
| c) | During the year before the last financial year |
|  |  |

The profit and loss statements have been certified through--------------------------------------------------------------------------------by---------------------------------------.

|  |  |  |
| --- | --- | --- |
| 7) | Bidders’ Financial arrangements (check appropriate item) | |
| a) | Own Resources | |
| b) | Bank Credits | |
| c) | others (specify) | |
|  |  | |
| 8) | Certificate of Financial Soundness from bankers of Bidders. | |
|  |  | |
| 9) | Income Tax clearance [for Bidders from India only] | |
|  | Please enclose copies of following documents: | |
| a) | Details of Income Tax registration; and | |
| b) | Last Income Tax clearance certificate | |
|  |  | |
| 10) | SALES: | |
|  |  | |
| Category | value of current orders to be executed in respective currency | Value anticipated sales for next financial year in respective currency |
| A) | Govt. Department |  |
| B) | Commercial |  |
|  |  |  |
| 11) | Licensed capacity to manufacture | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Description of equipt. | Size cap. | Licensed capacity | No. of Units Manufactured | | |
|  |  |  | Current Yr | Last Yr | 2nd Last Yr |

12. List, if any of Bidder’s rate contract with the following organizations :

|  |  |  |  |
| --- | --- | --- | --- |
|  | Organization | Yes/No | If Yes, date contract finalized |
| a. | Directorate General of Supplies and Disposal, Government of India |  |  |
| b. | Central equipment Stores Purchase Organization for state Governments |  |  |
| c. | Others |  |  |

13. Describe Quality Control Organization, if any, and give the organization Chart.

a) Are goods offered subject to batch test, random sampling or full 100% test for quality?

b) Are tests carried out by factory employees or by a separate testing agency?

c) Are independent Quality Control Organization checks made and certificates issued?

**CAPABILITY STATEMENT OF PERSONNEL, EQUIPMENT,PLANT AND PAST PERFORMANCE**

**(FORMAT –B)**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Name and address of the Bidder | Phone : | |
| 2. | Classifications) | 1) | Manufacturer |
|  | Circle what is applicable | 2) | Authorized Agent |
|  |  | 3) | Dealer |
|  |  | 4) | Others, please specify |
| 3. | Plant: |  |  |
| a) | Location |  |  |
| 4. | Equipments |  |  |

a) Type of equipment manufactured and supplied during last 2 years

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of equipment | Capacity/ Size | Nos. Manufactured | Projects to which supplies are made | No. of orders on hand |
|  |  |  |  |  |

b) Type of equipment manufactured, supplied, installed and commissioned during last 3 years.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of equipment | Capacity/ Size | Nos. Manufactured | Projects to which supplied ,installed and commissioned | No. of orders on hand |
|  |  |  |  |  |

5. a) Types of equipment supplied during last 3 years other than those covered under 4 above.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name of equipment | Capacity/ Size and model | Nos. Manufacturers and Country of origin | Total Nos. supplied in India | Projects to which supplies are made | No. of orders on hand |
|  |  |  |  |  |  |

b) Type of equipment supplied, installed and commissioned during last 3 years other than those covered under 4 (a) and (b) above

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name of equipment | Capacity/ Size and model | Nos. Manufacturers and Country of origin | Total Nos. supplied in India | Projects to which supplies are made | No. of orders on hand |
|  |  |  |  |  |  |

6. Details of Testing facilities available

|  |  |  |
| --- | --- | --- |
| a. | List testing-equipment available |  |
| b. | Give details of tests which can be carried out on items offered. |  |
| c. | Details of the testing organization available. |  |
|  |  |  |

7. Personnel / Organization:

Give Organization chart for following indicating clearly the No. of employees at various levels.

1. Quality assurance
2. Production
3. Marketing
4. Service
5. Spare parts
6. Administrative

8. Nearest service center to Purchaser :

Location.......................................................Phone No............................................................

9. Names of two buyers to whom similar equipment are supplied installed and commissioned in the past and to whom reference may be made by the purchaser regarding the Bidder’s technical and delivery ability :

1. -----------------------------------------------------------------------

2. -----------------------------------------------------------------------

10. Workload as percentage of total capacity for the current and forthcoming financial year on quarterly basis................................................................................................................

11. Details of Organization at Service Centre

a) No. of skilled employees \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) No. of Unskilled employees \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) No. of Engineering employees \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) No. of Administrative employees \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e) List of special repair/workshop

facilities available \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f) The storage space available for spare

parts (sq.m.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

g) Value of minimum stock of spares

available at all the service centres in

respective currency \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

h) Value of the modes/types by number of

equipment serviced by the centre in the

last 3 years

...............................................................

Signature and seal of the Manufacturer

**SECTION XV (form B)**

**PROFORMA FOR EQUIPMENT AND QUALITY CONTROL EMPLOYED BY THE MANUFACTURER**

BID NO:TNHP-II/ 1/ 2011-12 DATE OF OPENING : ................

NAME OF THE BIDDER :

(Note : All details should relate to the manufacturer for the items offered for supply)

1. Name & full address of the Manufacturer

2. (a) Telephone & Fax No Office/Factory/Works

(b) Telex No. Office/Factory/Works

(c) Telegraphic address :

3. Location of the manufacturing factory.

4. Details of Industrial License, wherever required as per statutory regulations.

5. Details of important Plant & Machinery functioning in each dept. (Monographs & description pamphlets be supplied if available).

6. Details of the process of manufacture in the factory.

7. Details & stocks of raw materials held.

8. Production capacity of item(s) quoted for, with the existing Plant & Machinery

8.1 Normal

8.2 Maximum

9. Details of arrangement for quality control of products such as laboratory, testing equipment etc.

10. Details of staff:

10.1 Details of technical supervisory staff in charge of production & quality control.

10.2 Skilled labour employed.

10.3 Unskilled labour employed.

10.4 Maximum No. of workers (skilled & unskilled) employed on any day during the 18 months preceding the date of Tender.

11. Whether Goods are tested to any standard specification? If so, copies of original test certificates should be submitted in triplicate.

12. Are you registered with the Directorate General of Supplies and Disposals, New Delhi 110 001, India? If so, furnish full particulars of registration, period of currency etc. with a copy of the certificate of registration.

...............................................................

Signature and seal of the Manufacturer

SECTION XVI : PROFORMA FOR SERVICE SUPPORT DETAILS

**SECTION XVI**

PROFORMA FOR SERVICE SUPPORT DETAILS

The Bidder shall provide the proposed method of service support during the Warranty and AMC periods including the helpdesk function, downtime management etc.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Name of Service Stations | Destination  Address and District | Phone No.  /Mobile phone No. | Telex/Fax No. | Office Working Days and Hours | Number of Service Engineers | Number of service Staff | Value of Minimum Stock Available at all times (Rs) |
|  |  |  |  |  |  |  |  |

Signature and Seal of the Manufacturer/Bidder

1. In this context, any action taken by a bidder, supplier, contractor, or a sub-contractor to influence the procurement process or contract execution for undue advantage is improper. [↑](#footnote-ref-1)
2. “another party” refers to a public official acting in relation to the procurement process or contract execution]. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions. [↑](#footnote-ref-2)
3. a “party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution. [↑](#footnote-ref-3)
4. “parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels. [↑](#footnote-ref-4)
5. a “party” refers to a participant in the procurement process or contract execution. [↑](#footnote-ref-5)
6. “another party” refers to a public official acting in relation to the procurement process or contract execution]. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions. [↑](#footnote-ref-6)
7. a “party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution. [↑](#footnote-ref-7)
8. “parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels. [↑](#footnote-ref-8)
9. a “party” refers to a participant in the procurement process or contract execution. [↑](#footnote-ref-9)