



ROYAL GOVERNMENT OF BHUTAN  
MINISTRY OF WORKS AND HUMAN SETTLEMENT  
THIMPHU TROMDE

Small Development Project, Government of India

**(Waste Water Treatment Plant Works)**

NAME OF WORK	: Design, Built, Operate and Transfer 1.00 MLD Waste Water Treatment Plant at Jungzhina in Thimphu
PERIOD OF SALE OF BIDDING DOCUMENT	: From 16-03-2020 TO 16-04-2020
PRE BID MEETING	: 30-03-2020; Time 10:30 HRs at conference Hall, TT
LAST DATE AND TIME FOR RECEIPT OF BIDS	:16-04-2020; Time: 10.00 Hrs BST
TIME AND DATE OF OPENING OF BIDS	: 16-04-2020; Time: 10.30 Hrs BST
PLACE OF OPENING OF BID	: Conference Hall Thimphu Thromde
INVITATION OF BIDS	: Executive Secretary, 3rd Floor, NPPF Building, Thimphu Thromde

# **INVITATION FOR BID**

**(IFB)**



TT/INFRA/SEW/SDP II/2019-20/1387

Date:10/3/20

### NOTICE INVITING TENDER

1.Thimphu Thromde invites sealed bids from eligible and qualified bidders for the construction works detailed in the table below:

Sl No	Name of Work	Approximate value of work Nu.	Bid Security Nu.	Cost of Bid Documents Nu.	Project Period	Sale of Tender Documents	Last Date of submission of bids
1	Construction of 1.00 MLD capacity package Waste Water Treatment Plant at Jungzhina-Pamtsho under Thimphu Thromde	40.00 million	800,000	400/-	12 months	16-03-2020	16-04-2020

2. A complete set of bidding documents may be purchased from procurement section, Thimphu Thromde or can be downloaded from our website [www.Thimphucity.bt](http://www.Thimphucity.bt) upon payment of a non-refundable fee of Nu. 400. The cost of tender document which is Nu 400/- in the form of receipt from revenue section should be attached along with the bidding documents which shall be non refundable. The Executive Secretary, Thimphu Thromde will not be held responsible for any postal delay or non-receipt of the same.

3.Bids must be delivered to procurement Section, Thimphu Thromde on or before 10:00 AM on 16-04-20 and will be opened on the same day at 10:30 hours in the presence of bidders who wish to attend.

4. The Bidders must visit the site prior to filling up the tender to avoid any inconveniences on the part of the bidders.

5. The decision of Thimphu Thromde Tender Committee shall be final and binding.

Executive Secretary  
Thimphu Thromde

CC:

1. Circulation Manager, Kuensel corporation, Thimphu to kindly publish the above NIT in the forth coming issue.
2. Dasho Thrompon, for kind information
3. ICT for uploading in Thromde's Website



**SECTION 1: INSTRUCTIONS TO  
BIDDERS (ITB)**

# **Section 1: Instructions to Bidders**

## **Table of Clauses**

<b>A. General</b>	<b>Page No.</b>	<b>D. Submission of Bids</b>	<b>Page No.</b>
1. Scope of Bid	5	19. Sealing and Marking of Bids	14
2. Source of Funds	5	20. Deadline for Submission of Bids	13
3. Eligible Bidders	6	21. Late Bids	13
4. Qualification of the Bidder	6	22. Modification and Withdrawal of Bids	13
5. One Bid per Bidder	9		
6. Cost of Bidding	10		
7. Site Visit	10		
<b>B. Bidding Documents</b>		<b>E. Bid Opening and Evaluation</b>	
8. Content of Bidding Documents	10	23. Bid Opening	14
9. Clarification of Bidding Documents	10	24. Process to be Confidential	14
10. Amendment of Bidding Documents	10	25. Clarification of Bids	14
		26. Examination of Bids and Determination of Responsiveness	15
<b>C. Preparation of Bids</b>		27. Correction of Errors	15
11. Language of Bid	10	28. Currency for Bid Evaluation	
12. Documents Comprising the Bid	10	29. Evaluation and Comparison of Bids	15
13. Bid Prices	11	30. Preference for Domestic Bidders	
14. Currencies of Bid and Payment	11	<b>F. Award of Contract</b>	
15. Bid Validity	11	31. Award Criteria	16
16. Bid Security	11	32. Employer's Right to Accept any Bid and to Reject any or all Bids	16
17. Alternative Proposals by Bidders	12	33. Notification of Award	17
18. Format and Signing of Bid	12	34. Performance Security	17
		235. Advance Payment and Security	17
		36. Adjudicator	17
		37. Corrupt or Fraudulent Practices	17

## **A. General**

### **1. Scope of Bid**

**1.1** The Executive Secretary Thimphu Thromde (referred to as Employer in these documents) invites bids for the construction of works (as defined in these documents and referred to as "the works") detailed in the table given in IFB. The bidders may submit bids for the works detailed in the table given in IFB.

**1.2** The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.

### **2. Source of Funds**

**2.1** Small Development Project, SDP II, Government of India

### **3. Eligible Bidders**

- 3.1** This Invitation for Bids is open to all bidders from the eligible countries as defined under the IBRD Guidelines for Procurement. Any materials, equipment, and services to be used in the performance of the Contract shall have their origin in the eligible source countries.
- 3.2** All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a statement that the Bidder is not associated, nor has been associated in the past, directly or indirectly, with the Consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Borrower to provide consulting services for the preparation or supervision of the works, and any of its affiliates, shall not be eligible to bid.
- 3.3** Government-owned enterprises in the Employer's country may only participate if they are legally and financially autonomous, operate under commercial law and are not a dependent agency of the Borrower or Sub-borrower.
- 3.4** Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Bank in accordance with sub-clause 37.1.

### **4. Qualification of the Bidder**

- 4.1** All bidders shall provide in Section 2, Forms of Bid and Qualification Information, the following:

- Brief description of the treatment process of each treatment unit
- Flow diagram of the proposed treatment plant showing all the unit processes involved from the head works to the final effluent discharge point.
- Preliminary sizing of the chambers, tanks with calculation sheets
- confirmation that the effluent standards specified in table 1.2 (NEC standard) shall be complied with.
- Implementation schedule.
- The plant must be accommodated within the area available.
- Calculations to support that the proposed plant is designed to treat 1.00 MLD of waste water.
- The plant shall comprise of two parallel units so that when one unit of the plant is being shut down for repair & maintenance the other unit is in operation.
- Advantages & disadvantages of the proposed plant.
- Proposed working methodology
- Drawings, charts and brochures of the plant.

- 4.2** In the event that Pre-qualification of potential bidders has been undertaken, only bids from prequalified bidders will be considered for award for Contract. These qualified bidders should submit with their bids any information updating their original prequalification applications or, alternatively, confirm in their bids that the originally submitted prequalification information remains essentially correct as of date of bid submission. The update or confirmation should be provided in Section 2.

- 4.3** If the Employer has not undertaken prequalification of potential bidders, all bidders shall include the following information and documents with their bids in Section 2:

- (a) Copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder;
- (b) Total monetary value of Engineering construction work performed for each of the last five years (2013-2017);

- (c) Experience in works of a similar nature and size for each of the last five years, and details of works under way or contractually committed; and clients who may be contacted for further information on those contracts;
- (d) Major items of construction equipment proposed to carry out the Contract;
- (e) Qualifications and experience of key site management and technical personnel proposed for the Contract;
- (f) Reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past three years; As a minimum the net worth has to be positive.
- (g) Evidence of adequacy of working capital for this contract (access to line (s) of credit and availability of other financial resources);
- (h) Authority to seek references from the Bidder's bankers;
- (i) Information regarding any litigation or arbitration resulting from contracts executed by the Bidder in the last five years or currently under execution. The information shall include the names of the parties concerned, the disputed amount, cause of litigation, and matter in dispute;
- (j) Proposals for subcontracting components of the Works which in aggregate add to more than 20 percent of the Bid Price (*for each, the qualifications and experience of the identified sub-contractor in the relevant field should be annexed; no vertical splitting of work for sub-contracting is acceptable*); and
- (k) The proposed technology and methodology and program of construction including Environmental Management Plan backed with equipment, materials and manpower planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones.

**4.4** Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements:

- [a] The bid shall include all the information listed in Sub-clause 4.3 above;
- [b] The bid and, in case of a successful bid, the Agreement, shall be signed so as to be legally binding on all partners;
- [c] One of the partners shall be nominated as being in charge, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners;
- [d] The partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture and the entire execution of the contract, including payment, shall be done exclusively with the partner in charge;
- [e] All partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms, and a statement to this effect shall be included in the authorization mentioned under [c] above, as well as in the bid and in the Agreement [in case of a successful bid];
- [f] The joint venture agreement should indicate precisely the role of all members of JV in respect of planning, design, construction equipment, key personnel, work execution, and financing of the project. All members of JV should have active participation in all the executions during the currency of the contract. This should not be varied/modified subsequently without prior approval of the employer;
- [g] The joint venture agreement should be registered in Bhutan so as to be legally valid and binding on partners; and
- [h] A copy of the Joint Venture Agreement entered into by the partners shall be submitted with the bid. Alternatively, a Letter of Intent to execute a joint Venture Agreement in the event of a successful bid

shall be signed by all partners and submitted with the bid, together with a copy of the proposed Agreement.

**4.5 A. To qualify for award of the contract, each bidder in its name should have in the last five years 2015-2019:**

- (a) Achieved, in at least one financial year a minimum annual financial turnover (in all classes of civil engineering construction works only) in the last five years of **Nu 33.0 Million (1\*v/t)**
- (b) Satisfactorily completed, as a prime contractor, (or as subcontractor duly certified by the employer/main contractor) at least **one similar work (similar works include construction of WWTP with technology like MBBR, MBR, SBR, activated sludge, extended aeration etc.)** of value not less than **Nu.32.0 Million (80% of the total value of work)**. **The completion certificates must be issued by the employer with the details (E.g. Project Start Date, Project completion Date, Project Cost, Sole or JV etc.)**.

*At 2020 price level. Financial turnover and cost of completed works of previous years shall be given weightage of 8% per year based on Nu. Value to bring them to 2020 price level*

**4.5 B. Each bidder should further demonstrate:**

- (a) Availability (either owned or leased or by procurement against mobilization advances) of the following key and critical equipment for this work:

No.	Equipment Type and Characteristics	Minimum Numbers
1	Excavator (PC 200 Equivalent) or backhoe	1
2	Tripper truck	2
3	Concrete Vibrator(M/C5)	2
4	Concrete Mixture Machine (5/7 cubic feet capacity)	1
5	Survey Instruments/ Leveling Instrument	1set
6	Water Pump	1

*NOTE: The above list is not exclusive but minimum requirement for qualification. All the supporting documents must be furnished in the submitted bids.*

- (b) Availability for this work of a **Project Manager** with no less than three years' experience in construction of similar works including other key personnel listed below with adequate experience as required.

No.	Position	Minimum Qualification	Nos .	Total Work Experience (years)	Similar Works Experience (years)
1	Project Manager	Bachelor degree in Engineering	1	5 years	2 years
2	Project Engineer	Diploma in civil Eng.	1	4 years	2 years
4	Mechanical Engineer	Diploma	1	4 years	2 years
5	Electrical Engineer preferably with knowledge of instrumentation	Diploma	1	4 years	2 years
6	Supervisor (technical)	Certificate	1	4 years	2 years

*NOTE: All the supporting documents including the qualification certificates and the past work experience certificates of the project key personnel **must** be furnished in the bid.*

- (c) Liquid assets and/or availability of credit facilities of no less than **Nu 10.0 million** in the format given in Section 2. (total est. value/duration) X 3 months)  
**(Credit lines/letter of credit/certificates from Banks for meeting the funds requirement etc.)**

**4.5 . To qualify for a package of contracts made up of this contract for which bids are invited in the IFB, the bidder must demonstrate having experience and resources sufficient to meet the qualifying criteria.**

**4.6** The figures for each of the partners of a joint venture shall be added together to determine the Bidder's compliance with the minimum qualifying criteria of Sub-clause 4.5. However, for a joint venture to qualify, the lead firm must meet at least 40 percent and each JV partners must meet 25 percent and all the partners collectively must meet the minimum criteria for Annual turnover as stated above. Other parameters like bid capacity, credit line, experience in works of a similar nature and size (one of the partners), key personnel and equipment could be met by one of the partners or collectively). The general eligibility criteria including financial standing should be fulfilled by each Partners of JV. Failure to comply with this requirement will result in rejection of the joint venture's bid

Sub-contractor's experience and resources will not be taken into account in determining the Bidder's compliance with the qualifying criteria, except to the extent stated in Clause 4.5 [A] above.

**4.7** Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity is more than their bid value. The available bid capacity will be calculated as under:

$$\text{Assessed Available Bid capacity} = (A * N * 1.5 - B)$$

Where:

A = Maximum value of civil engineering works executed in any one year during the last five years (2015-2019) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which bids are invited.

B = Value of existing commitments and on-going works to be completed during the next one year (period of completion of the works for which bids are invited).

**Note:** The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer in charge.

**4.8** Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- Participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.

**4.9** The Bidder (all JV partners in case if JV) must submit a proof of the possession of a valid License in the place of registration. Form of Licenses shall include details of all relevant licenses that the Bidder possesses at the time of the submission of the bids.

If the Bidder does not possess the necessary licenses in the Employer's country at the time of the submission of the bids, the Bidder shall provide reasonable evidence that the Bidder will be in a position to obtain such licenses in the Employer's country .

**4.10** The bidder should provide the history of litigation in the form provided in section 2 ( clause 1.11) A consistent history of litigation awards against the Bidder or any partner of a JV Bidder may result in the rejection of the Proposal .

## **5. One Bid per Bidder**

**5.1** Each bidder shall submit only one bid for one contract either individually or as a partner in a Joint Venture. A bidder who submits or participates in more than one Bid (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Bidder's participation to be disqualified.

## 6. Cost of Bidding

6.1 The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.

## 7. Site visit

7.1 The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

### B. Bidding Documents

#### 8. Content of Bidding Documents

8.1 The set of bidding documents comprises the documents listed in the table below and addenda issued in accordance with Clause 10:

##### Invitation for Bids

Section	1	Instruction to Bidders
	2	Forms of Bid and Qualification Information
	3	Conditions of Contract
	4	Contract Data
	5	Specifications
	6	Drawings
	7	Bills of Quantities
	8	Forms of Securities
	9.	Special condition of contract/ Employer's requirement

8.2 Of the three sets of the bidding documents supplied, two sets should be completed and returned with the bid.

#### 9. Clarification of Bidding Documents

9.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing or by cable (hereinafter "cable" includes telex and facsimile) at the Employer's address indicated in the invitation to bid. The Employer will respond to any request for clarification which he received earlier than 15 days prior to the deadline for submission of bids. Copies of the Employer's response will be forwarded to all purchasers of the bidding documents, including a description of the enquiry but without identifying its source.

#### 10. Amendment of Bidding Documents

10.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda.

10.2 Any addendum thus issued shall be part of the bidding documents and shall be communicated in writing to all the purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum in writing to the Employer.

10.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend as necessary the deadline for submission of bids, in accordance with Sub-Clause 20.2 below.

### C. Preparation of Bids

#### 11. Language of the Bid

11.1 All documents relating to the bid shall be in the English language.

#### 12. Documents comprising the Bid

12.1 The bid submitted by the bidder shall comprise the following:

- (a) The Bid (in the format indicated in Section 2).
- (b) Bid Security;
- (c) Priced Bill of Quantities;
- (d) Qualification Information Form and Documents;

and any other materials required to be completed and submitted by bidders in accordance with these instructions. The documents listed under Sections 2, 4 and 7 of Sub-Clause 8.1 shall be filled in without exception.

12.2 Bidders bidding for this contract together with other contracts stated in the IFB to form a package will so indicate in the bid together with any discounts offered for the award of more than one contract.

13. Bid Prices

13.1 The contract shall be for the whole works as described in Sub-Clause 1.1, based on the priced Bill Quantities submitted by the Bidder.

13.2 The bidder shall fill in rates and prices and line item total (both in figures and words) for all items of the Works described in the Bill of Quantities along with total bid price (both in figures and words). Items for which no rate or price is entered by the bidder will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. Corrections, if any, shall be made by crossing out, initialing, dating and rewriting.

13.3 **All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder.**

13.4 The rates and prices quoted by the bidder shall be fixed for the duration of the Contract and shall not be subject to adjustment on any account.

14. Currencies of Bid and Payment

14.1 The unit rates and the prices shall be quoted by the bidder entirely in Bhutan Ngultrum.

15. Bid Validity

15.1 Bids shall remain valid for a period not less than (120) one hundred and twenty days after the deadline date for bid submission specified in Clause 20. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.

15.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid except as provided in 15.3 hereinafter, but will be required to extend the validity of his bid security for a period of the extension, and in compliance with Clause 16 in all respects.

15.3 In the case of contracts in which the Contract Price is fixed (not subject to price adjustment), 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 :

The price shall be increased by the factor (value of factor B)<sup>1</sup> 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.

15.4 Bid evaluation will be based on the bid prices without taking into consideration the above correction.

16. Bid Security

- 16.1** The Bidder shall furnish, as part of his Bid, a Bid security in the amount as shown in column 4 of the table of IFB for this particular work. This bid security shall be in favor of The Executive Secretary Thimphu Thromde and may be in one of the following forms:
- A bank guarantee issued by a nationalized / scheduled bank located in Bhutan or a reputable bank located abroad in the form given in Section 8; or
  - Certified cheque, Bank draft or Letter of Credit in favor of The Executive Secretary Thimphu Thromde payable at Bhutan
- 16.2** Bank guarantees issued as surety for the bid shall be valid for 28 days beyond the validity of the bid.
- 16.3** Any bid not accompanied by an acceptable Bid Security and not secured as indicated in Sub-Clauses 16.1 and 16.2 above, shall be rejected by the Employer as non-responsive.
- a. 'The bid security of a joint venture must define as 'bidder' all joint venture partners and list them in the following manner: a joint venture consisting of '.....', '.....', and '.....'.
- 16.4** The Bid Security of unsuccessful bidders will be returned within 28 days of the end of the bid validity period specified in Sub-Clause 15.1.
- 16.5** The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.
- 16.6** The Bid Security may be forfeited
- (a) if the Bidder withdraws the Bid after Bid opening during the period of Bid validity;
  - (b) if the Bidder does not accept the correction of the Bid Price, pursuant to Clause 27; or
  - (c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to
    - (i) Sign the Agreement; or
    - (ii) Furnish the required Performance Security.

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1. *The value of B is based on the country's inflation for the period in question. The borrower inserts the value in the bid document prior to issue.*

## **17. Alternative Proposals by Bidders**

**17.1** Bidders shall submit offers that comply with the requirements of the bidding documents, including the basic technical design as indicated in the drawing and specifications. Alternatives will not be considered.

## **18. Format and Signing of Bid**

**18.1** The Bidder shall prepare one original and one copy of the documents comprising the bid as described in Clause 12 of these *Instructions to Bidders*, bound with the volume containing the Form of Bid, and clearly marked "ORIGINAL" and "COPY" as appropriate. In the event of discrepancy between them, the original shall prevail.

**18.2** The original and copy of the Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder, pursuant to Sub-Clauses 4.3. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid.

**18.3** The Bid shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

**18.4** 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**

### **19. Sealing and Marking of Bids**

**19.1** The Bidder shall seal the original and copy of the Bid in separate envelopes, duly marking the envelopes as "ORIGINAL" and "COPY". These envelopes (called as inner envelopes) shall then be put inside one outer envelope.

**19.2** The **inner and outer** envelopes shall

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

The Executive Secretary Thimphu Thromde  
3rd Floor, NPPF Building, Thimphu, BHUTAN

(b) bear the following identification:

- Bid for Construction of 1.00 MLD Package Waste Water Treatment Plant at JUNGZHINA in Thimphu
- Bid Reference No Bid No.: TT/INFRA/SEW/SDP II/19-20/1387
- DO NOT OPEN BEFORE.16/04/2020, 10.30 Hours

**19.3** In addition to the identification required in Sub-Clause 19.2, the inner envelopes shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared late, pursuant to Clause 21.

**19.4** If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

### **20. Deadline for Submission of the Bids**

**20.1** Bids must be received by the Employer at the address specified above no later than 16/04/2020 10.00 Hours. In the event of the specified date for the submission of bids declared a holiday for the Employer, the Bids will be received up to the appointed time on the next working day.

**20.2** The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

### **21. Late Bids**

**21.1** Any Bid received by the Employer after the deadline prescribed in Clause 20 will be returned unopened to the bidder.

### **22. Modification and Withdrawal of Bids**

**22.1** Bidders may modify or withdraw their bids by giving notice in writing before the deadline prescribed in Clause 20.

**22.2** Each Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 18 & 19, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate.

**22.3** No bid may be modified after the deadline for submission of Bids.

**22.4** Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 may result in the forfeiture of the Bid security pursuant to Clause 16.

- 22.5 Bidders may offer discounts to, or modify the prices of their Bids only by submitting Bid modifications in accordance with this clause, or included in the original Bid submission.

### **E. Bid Opening and Evaluation**

#### **23. Bid Opening**

- 23.1 The Employer will open all the Bids received (except those received late), including modifications made pursuant to Clause 22, in the presence of the Bidders or their representatives who choose to attend at 16/04/2020, 10.30. hours on the date and the place specified in Clause 20. In the event of the specified date of Bid opening being declared a holiday for the Employer, the Bids will be opened at the appointed time and location on the next working day.
- 23.2 Envelopes marked "**WITHDRAWAL**" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause 22 shall not be opened. Subsequently all envelopes marked "Modification" shall be opened and the submissions therein read out in appropriate detail.
- 23.3 The Bidders' names, the Bid prices, the total amount of each Bid and of any alternative Bid (if alternatives have been requested or permitted), any discounts, Bid modifications and withdrawals, the presence or absence of Bid security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. No bid shall be rejected at bid opening except for the late bids pursuant to Clause 21. Bids [and modifications] sent pursuant to Clause 22 that are not opened and read out at bid opening will not be considered for further evaluation regardless of the circumstances. Late and withdrawn bids will be returned un-opened to bidders.
- 23.4 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Sub-Clause 23.3.

#### **24. Process to Be Confidential**

- 24.1 Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by a Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid.

#### **25. Clarification of Bids**

- 25.1 To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of the unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause 27.
- 25.2 Subject to sub-clause 25.1, no Bidder shall contact the Employer 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 Employer, it should do so in writing.
- 25.3 Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders' bid.

#### **26. Examination of Bids and Determination of Responsiveness**

- 26.1 Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid (a) meets the eligibility criteria defined in Clause 3; (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding documents.
- 26.2 A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any

substantial way, inconsistent with the Bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

**26.3** If a Bid is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

## **27. Correction of Errors**

**27.1** Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer **as follows**:

- (a) where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and
- (b) where there is a discrepancy between the unit and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.

**27.2** The amount stated in the Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected, and the Bid security may be forfeited in accordance with Sub-Clause 16.6 (b)

## **28. Deleted**

## **29. Evaluation and Comparison of Bids**

**29.1** The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Clause 26.

**29.2** In evaluating the Bids, the Employer will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:

- (a) making any correction for errors pursuant to Clause 27; or
- (b) making an appropriate adjustment for any other acceptable variations, deviations; and
- (c) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with Sub Clause 22.5.

**29.3** The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Bid evaluation.

**29.4** The estimated effect of the price adjustment conditions under Clause 47 of the *Conditions of Contract*, during the period of implementation of the Contract, will not be taken into account in Bid evaluation.

**29.5** If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 34 be increased at the expense of the successful Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

## **30. Deleted**

## **F. Award of Contract**

### **31. Award Criteria**

**31.1** Subject to Clause 32, the Employer will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Price, provided that such Bidder has been determined to be (a) eligible in accordance with the provisions of Clause 3, and (b) qualified in accordance with the provisions of Clause 4.

**31.2** If, pursuant to Clause 12.2 this contract is being let along with other contracts, the lowest evaluated Bid Price will be determined when evaluating this contract in conjunction with other contracts to be awarded concurrently, taking into account any discounts offered by the bidders for the award of more than one contract.

### **32. Employer's Right to accept any Bid and to reject any or all Bids**

**32.1** Notwithstanding Clause 31, the Employer reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

### **33. Notification of Award and Signing of Agreement**

- 33.1** The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the *Conditions of Contract* called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").
- 33.2** The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 34.
- 33.3** The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be kept ready for signature of the successful bidder in the office of employer within 28 days following the notification of award along with the Letter of Acceptance. Within 21 days of receipt, the successful Bidder will sign the Agreement and deliver it to the Employer.
- 33.4** Upon the furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

### **34. Performance Security**

- 34.1** Within 21 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security in any of the forms given below for an amount equivalent to 5% of the Contract price plus additional security for unbalanced Bids in accordance with Clause 29.5 of ITB and Clause 52 of Conditions of Contract:
- a bank guarantee in the form given in Section 8; or
  - Certified cheque/Bank draft, in favor of The Executive Secretary, Thimphu Thromde, payable at Bhutan
- 34.2** If the performance security is provided by the successful Bidder in the form of a Bank Guarantee, it shall be issued either (a) at the Bidder's option, by a Nationalized/Scheduled Bhutan bank or (b) by a foreign bank located in Bhutan and acceptable to the Employer or (c) by a foreign bank through a correspondent Bank in Bhutan [scheduled or nationalized].
- ‘The performance security of a Joint Venture shall be in the name of the joint venture.’
- 34.3** Failure of the successful bidder to comply with the requirements of sub-clause 34.1 shall constitute a breach of contract, cause for annulment of the award, forfeiture of the bid security and any such other remedy the Employer may take under the contract, and the Employer may resort to awarding the contract to the next ranked bidder.

### **35. Advance Payment and Security**

- 35.1** The Employer will provide an Advance Payment on the Contract Price as stipulated in the Conditions of Contract, subject to maximum amount, as stated in the Contract Data.

### **36. Adjudicator**

- 36.1** The Employer proposes that **Executive Director Construction Development Board of Bhutan** be appointed as Adjudicator under the Contract, at a daily fee @ existing rules of MoF plus reimbursable expenses. If the Bidder disagrees with this proposal, the Bidder should so state in the Bid. If in the Letter of Acceptance, the Employer has not agreed on the appointment of the Adjudicator, the Adjudicator shall be appointed by **Construction Development Board of Bhutan** at the request of either party.

### **37. Corrupt or Fraudulent Practices**

**37.1** 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.<sup>1</sup> In pursuance of this policy, the Bank:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
  - (i) “corrupt practice”<sup>2</sup> 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”<sup>3</sup> 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”<sup>4</sup> 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”<sup>5</sup> 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 3.1 (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 address such practices when they occur;
- (d) will sanction a firm or individual, including declaring ineligible, either indefinitely or for a stated period of time, to be awarded a Bank-financed contract if it at any time determines that the firm has, 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, and contractors and their sub-contractors 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.

**37.2** Furthermore, Bidders shall be aware of the provision stated in sub-clause 23.2 and 64 of the Conditions of Contract.

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*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.*

*“Another party” refers to a public official acting in relation to the procurement process or contract execution]. In this context, “public official” includes Thimphu Thromde staff and employees of other organizations taking or reviewing procurement decisions.*

*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.*

*“Parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non-competitive levels.*

*A “party” refers to a participant in the procurement process or contract execution.*

**SECTION 2: FORMS OF BID, QUALIFICATION INFORMATION AND LETTER OF ACCEPTANCE**

**Table of Forms:**

- **CONTRACTOR'S BID**
- **QUALIFICATION INFORMATION**
- **LETTER OF ACCEPTANCE**
- **NOTICE TO PROCEED WITH THE WORK**
- **AGREEMENT FORM**

**Contractor's Bid**

Description of the Works: **Design, Built, Operate and Transfer 1.00 MLD Package Waste Water Treatment Plant at Jungzhina in Thimphu**  
**BID**

To: Executive Secretary, Thimphu Thromde

3rd Floor, NPPF Building, Thimphu, BHUTAN  
Ministry of Works and Human Settlement

GENTLEMEN,

Having examined the bidding documents including addendum, we offer to execute the Works described above in accordance with the Conditions of Contract, Specifications, Drawings and Bill of Quantities accompanying this Bid for the Contract Price of \_\_\_\_\_ [in figures] ( \_\_\_\_\_ ) [in letters].

The advance Payment required is: Ngultrum \_\_\_\_\_.

We accept the appointment of \_\_\_\_\_ as the Adjudicator.

(OR)

We do not accept the appointment of \_\_\_\_\_ as the Adjudicator and propose instead that \_\_\_\_\_ be appointed as Adjudicator whose daily fees and biographical data are attached.

This Bid and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Bid you receive.

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 also 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 Bhutan namely "Prevention of Corruption Act 1988".

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 :

<u>Name and address of agent</u>	<u>Amount</u>	<u>Purpose of Commission or gratuity</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

(if none, state "none")

We hereby confirm that this Bid complies with the Eligibility, Bid Validity and Bid Security required by the Bidding documents.

Yours faithfully,

Authorized Signature:

Name & Title of Signatory: \_\_\_\_\_

Name of Bidder : \_\_\_\_\_

Address : \_\_\_\_\_

### Bid Summary

**Name of Work: Construction of 1.00 MLD Package Waste Water Treatment Plant at Jungzhina-Samteling LAP in Thimphu**

Bid No.: TT/INFRA/SEW/SDP II/19-20/1387

<i>General Summary</i>	<i>Qty.</i>	<i>Amount</i>
Sub head 1: Design, Built, Operate and Transfer of Package Waste Water Treatment Plant with capacity of 1.00 MLD including testing and commissioning and O&M of the Plant for three years.	1 Complete	

**Qualification Information**

The information to be filled in by the Bidder in the following pages will be used for purposes of post qualification as provided for in Clause 4 of the Instructions to Bidders. This information will not be incorporated in the Contract. If any original documents like financial authentication documents, works completion certificates, key persons' documents etc. are in language other than English, translated English version has to be submitted along with the original version.

**1. For Individual Bidders**

1.1 Constitution or legal status of Bidder (for each partner in case of JV)  
*[Attach copy]*

Place of registration: \_\_\_\_\_

Principal place of business: \_\_\_\_\_

Power of attorney of signatory of Bid  
*[Attach]*

1.2 Total value of Civil Engineering construction  
 Work executed and payments received in the last five years \_\_\_\_\_  
 (in Nu. Million) by each JV partners (in case of JV) 1 \_\_\_\_\_  
 \_\_\_\_\_

Year	Total Amount	Remarks if any
2019		
2018		
2017		
2016		
2015		

**Note: The above information must be authenticated by all the supporting documents from relevant agencies/ employer with details.**

1.3.1 Work performed as prime contractor (in the same name) on works of a similar nature over the last five years.

Bidder's Name:.....

Similar work executed			
Contract No ..... of .....	Contract Identification		
Award Date		Completion Date	
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total Contract Amount			
Employer's Name Address Telephone/email address			

**Please Note:** Unless the above referred information is supported by authentic completion certificates from the concerned client it will not be considered for evaluation. This requirement must be fulfilled by one of the partners (in-case of JV)

1.4 Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.

Existing commitments and on-going works:

No.	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work	Estimated Completion Date
1				
2				
3				
4				
5				
6				

Note: Attach certificate(s) from the Engineer(s)-in-Charge for the existing commitment of work. This requirement must be fulfilled by one of the partners for the calculation of bid capacity in case of JV.

1.5 The following items of Contractor's Equipment are essential for carrying out the Works. The Bidder should list all the information requested below. Refer also to Sub Clause 4.3 (d) of the Instructions to Bidders.

\_\_\_\_\_

\_\_\_\_\_

Item of equipment	Requirement		Availability proposals		Age/condition	Remarks (purchased From whom)
	No	Capacity	Owned/leased/to be procured	Nos/capacity		

Note: This requirement must be fulfilled by one of the partners or collectively (in-case of JV) and must be supported by the authenticated documents.

- 1.6 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach all the relevant documents of the key personnel like qualification certificates, past work experience certificates etc. Refer also to Sub Clause 4.3 (e) and 4.5 (B) (b) of instructions to Bidders and Sub Clause 9.1 of the Conditions of Contract.

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No.	Position	Qualification	Nos.	Total Work Experience (years)	Similar Works Experience (years)
1	Project Manager				
2	Project Engineer				
4	Mechanical Engineer				
5	Electrical Engineer				
6	Supervisor (technical)				

- 1.7 Proposed subcontracts and firms involved. [Refer ITB Clause 4.3 (j)]

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Sections of the works	Value of subcontract	Sub-contractor (name and address)	Experience in similar work

- 1.8 Financial reports for the last three years: balance sheets, profit and loss statements, auditors' reports (in case of companies/corporation), etc. List them below and attach copies.

**Each Bidder or all JV partners must fill in this form**

	Year 1: 2016	Year 2: 2018	Year 3: 2019

Information from Financial Statement

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

- Attached are copies of the audited financial statements, including all related notes, and income statements for the last three years, as indicated above, complying with the following conditions:
- All such documents reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies.
  - Historic financial statements must be audited by a certified accountant or taxation agency.
  - Historic financial statements must be complete, including all notes to the financial statement

1.9 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List them below and attach copies of support documents *[sample format attached]*.

1.10. Name, address, and telephone, telex, and fax numbers of the Bidders' bankers who may provide references if contacted by the Employer.

Name of Banker	
Full Address	
Telephone/mobile	
Fax	

1.11 Information on **litigation history** in which the Bidder is involved.

**To be completed for each Bidder or JV partners**

<b>Year</b>	<b>Matter and cause of Dispute (if any)</b>	<b>Value of Pending Claim</b>	<b>Value of Pending</b>

1.12 Statement of compliance under the requirements of Sub Clause 3.2 of the instructions to Bidders.

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1.13 Proposed technology, its advantages, disadvantages, work method and schedule of each activity under the contract. The Bidder should attach descriptions, lay out, drawings and charts as necessary to comply with the requirements of the Bidding documents. [Refer ITB Clause 4.1 and 4.3 (k)].

**2. Joint Ventures**

- 2.1 The information listed in 1.1-1.12 above shall be provided for each partner of the joint venture.
- 2.2 The information in 1.13 above shall be provided for the joint venture.
- 2.3 Attach the power of attorney of the signatory [i.e.] of the bid authorizing signature of the bid on behalf of the joint venture.
- 2.4 Attach the agreement among all partners of the joint venture [and which is legally binding on all partners], which shows the requirements as indicated in sub-clause 4.4 of the Instructions to Bidders'. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed Agreement
- 2.5 Furnish details of participation proposed in the joint venture as below:

**DETAILS OF PARTICIPATION IN THE JOINT VENTURE**

<b><i>PARTICIPATION DETAILS</i></b>	<b><i>FIRM 'A'</i></b> <b><i>(Lead Partner)</i></b>	<b><i>FIRM 'B'</i></b>	<b><i>FIRM 'C'</i></b>
Financial			
Name of the Banker(s)			
Planning			
Construction Equipment			

Key Personnel			
Execution of Work (Give details on contribution of each)			

3. Additional Requirements

3.1 Bidders should provide any additional information required to fulfill the requirements of Clause 4 of the Instructions to the Bidders, if applicable.

**SAMPLE FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CREDIT FACILITIES –\*  
CLAUSE 4.5 [B] [c] OF ITB**

**BANK CERTIFICATE**

This is to certify that M/s. .... is a reputed company with a good financial standing.

If the contract for the work, namely ..... [Funded by the GOI,SDP II ] is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Nu. .... to meet their working capital requirements for executing the above contract.

\_\_ Sd. \_\_

Name of Bank

Senior Bank Manager

Address of the Bank

**\* Change the text as follows for Joint venture:**

*This is to certify that M/s. .... who has formed a JV with M/s. .... and M/s. .... for participating in this bid, is a reputed company with a good financial standing.*

*If the contract for the work, namely ..... [Funded by the World Bank] is awarded to the above Joint Venture; we shall be able to provide overdraft/credit facilities to the extent of Nu. .... to M/s. .... to meet the working capital requirements for executing the above contract.*

*[This should be given by the JV members in proportion to their financial participation.]*

**Letter of Acceptance**  
(letterhead paper of the Employer)

\_\_\_\_\_ [date]

To: \_\_\_\_\_ [name and address of the Contractor]

Dear Sirs,

This is to notify you that your Bid dated \_\_\_\_\_ for execution of the \_\_\_\_\_ [name of the contract and identification number, as given in the Instructions to Bidders] for the Contract Price of Ngultrum \_\_\_\_\_ (\_\_\_\_\_) [amount in words and figures], as corrected and modified in accordance with the Instructions to Bidders<sup>1</sup> is hereby accepted by our Agency.

We accept/do not accept that \_\_\_\_\_ be appointed as the Adjudicator<sup>2</sup>.

We note that as per bid, you do not intend to subcontract any component of work.

[OR]

We note that as per bid, you propose to employ M/s. .... as sub-contractor for executing .....

*[Delete whichever is not applicable]*

You are hereby requested to furnish Performance Security, plus additional security for unbalanced bids in terms of ITB clause 29.5, in the form detailed in Para 34.1 of ITB for an amount of Nu. \_\_\_\_\_ within 21 days of the receipt of this letter of acceptance valid upto 28 days from the date of expiry of Defects Liability Period i.e. upto ..... and sign the contract, failing which action as stated in Para 34.3 of ITB will be taken.

We have reviewed the construction methodology submitted by you along with the bid in response to ITB Clause 4.3[k] and our comments are given in the attachment. You are requested to submit a revised Program including environmental management plan as per Clause 27 of General Conditions of Contract within 14 days of receipt of this letter.

Yours faithfully,

Authorized Signature

Name and Title of Signatory

Name of Agency

1 Delete "corrected and" or "and modified" if only one of these actions applies. Delete "as corrected and modified in accordance with the Instructions to Bidders" if corrections or modifications have not been effected.

2 To be used only if the Contractor disagrees in his Bid with the Adjudicator proposed by the Employer in the "Instructions to Bidders."

**Issue of Notice to proceed with the work**

(letterhead of the Employer)

\_\_\_\_\_ (date)

To

\_\_\_\_\_ (name and address of the Contractor)

\_\_\_\_\_

\_\_\_\_\_

Dear Sirs:

Pursuant to your furnishing the requisite security as stipulated in ITB clause 34.1 and signing of the contract agreement for the construction of \_\_\_\_\_ @ a Bid Price of Nu. \_\_\_\_\_, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title of  
signatory authorized to sign on  
behalf of Employer)

## Agreement Form

### Agreement

This agreement, made the \_\_\_\_\_ day of \_\_\_\_\_ 2030\_\_\_\_\_,  
between \_\_\_\_\_  
\_\_\_\_\_ [name and address of Employer]  
(hereinafter called “the Employer”) of the one part and \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [name and address of contractor] (hereinafter called “the  
Contractor”) of the other part.

Whereas the Employer is desirous that the Contractor execute \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [ name and  
identification number of Contract] (hereinafter called “the Works”) and the Employer has accepted the Bid by the  
Contractor for the execution and completion of such Works and the remedying of any defects therein, at a contract  
price of Nu.....

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein 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.
4. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
  - i) Letter of Acceptance;
  - ii) Notice to proceed with the works;
  - iii) Contractor’s Bid;
  - iv) Contract Data;
  - v) Conditions of contract (including Special Conditions of Contract);
  - vi) Specifications;
  - vii) Drawings;
  - viii) Bill of Quantities; and
  - ix) Any other document listed in the Contract Data as forming part of the contract.
  - (x) Joint Venture Agreement.

In witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of \_\_\_\_\_

was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

in the presence of:

Binding Signature of Employer \_\_\_\_\_

Binding Signature of Contractor \_\_\_\_\_

## **SECTION 3: CONDITIONS OF CONTRACT**

## Conditions of Contract

### Table of Contents

<b>A. General</b>	<b>Page No.</b>	<b>C. Quality Control</b>	<b>Page No.</b>
1. Definitions	33	33. Identifying Defects	40
2. Interpretation	34	34. Tests	40
3. Language and Law	35	35. Correction of Defects	40
4. Engineer's Decisions	35	36. Uncorrected Defects	40
5. Delegation	35		
6. Communications	35		
7. Subcontracting	35	<b>D. Cost Control</b>	
8. Other Contractors	35	37. Bill of Quantities	40
9. Personnel		38. Changes in the Quantities	40
10. Employer's & Contractor's Risks	36	39. Variations	40
11. Employer's Risks	36	40. Payments for Variations	41
12. Contractor's Risks	36	41. Cash Flow Forecasts	41
13. Insurance	36	42. Payment Certificates	41
14. Site Investigation Reports	37	43. Payments	42
15. Queries about the Contract Data	37	44. Compensation Events	42
16. Contractor to Construct the Works	37	45. Tax	43
17. The Works to Be Completed by the Intended Completion Date	37	46. Currencies	43
18. Approval by the Engineer	37	47. Price Adjustments	43
19. Safety	37	48. Retention	44
20. Discoveries	37	49. Liquidated Damages	44
21. Possession of the Site	37	50. Bonus	44
22. Access to the Site	38	51. Advance Payment	44
23. Instructions	38	52. Securities	45
24. Disputes	38	53. Dayworks	45
25. Procedure for Disputes	38	54. Cost of Repairs	45
26. Replacement of Adjudicator	38		
		<b>E. Finishing the Contract</b>	
<b>B. Time Control</b>		55. Completion	45
27. Program	38	56. Taking Over	45
28. Extension of the Intended Completion Date	39	57. Final Account	45
29. Acceleration	39	58. Operating and Maintenance Manuals	45
30. Delays Ordered by the Engineer	39	59. Termination	45
31. Management Meetings	39	60. Payment upon Termination	46
32. Early Warning	39	61. Property	47
		62. Release from Performance	47
		63. Suspension of World Bank Loan or Credit	47
		<b>F. Special Conditions of Contract</b>	48

## Conditions of Contract

### A. General

#### 1. Definitions

**1.1** Terms, which are defined in the Contract Data but not defined in the Conditions of Contract, keep their defined meanings. Capital initials are used to identify defined terms.

The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in Clauses 24 and 25. The name of the Adjudicator is defined in the Contract Data.

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

**Compensation Events** are those defined in Clause 44 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Engineer in accordance with Sub Clause 55.1.

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.3 below.

The **Contract Data** defines the documents and other information, which comprise the Contract.

The **Contractor** is a person or corporate body whose Bid to carry out the Works has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

**Days** are calendar days; **months** are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects Liability Period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works.

The **Engineer** is the person named in the Contract Data (or any other competent person appointed and notified to the contractor to act in replacement of the Engineer) who is responsible for supervising the execution of the works and administering the Contract.

**Equipment** is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

**Materials** are all supplies, including consumables, used by the contractor for incorporation in the Works.

**Plant** is any integral part of the Works, which is to have a mechanical, electrical, electronic or chemical or biological function.

The **Site** is the area defined as such in the Contract Data.

**Site Investigation Reports** are those that were included in the Bidding documents and are factual interpretative reports about the surface and sub-surface conditions at the site.

**Specification** means the Specification of the Works included in the Contract and any modification or addition made or approved by the Engineer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.

**Temporary Works** are works designed, constructed, installed, and removed by the Contractor, which are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Engineer, which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

## 2. Interpretation

- 2.1** In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about the Conditions of Contract.
- 2.2** If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion date for the whole of the Works).
- 2.3** The documents forming the Contract shall be interpreted in the following order of priority:
- (1) Agreement
  - (2) Letter of Acceptance, notice to proceed with the works
  - (3) Contractor's Bid
  - (4) Contract Data

- (5) Conditions of Contract including Special Conditions of Contract
- (6) Specifications
- (7) Drawings
- (8) **Bill of Quantities** and
- (9) any other document listed in the Contract Data as forming part of the Contract.

### **3. Language and Law**

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

### **4. Engineer's Decisions**

**4.1** Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

### **5. Delegation**

**5.1** The Engineer may delegate any of his duties and responsibilities to other people except to the Adjudicator after notifying the Contractor and may cancel any delegation after notifying the Contractor.

### **6. Communications**

**6.1** Communications between parties that are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered as per local government Contract Act.

### **7. Subcontracting**

**7.1** The Contractor may subcontract with the approval of the Engineer but may not assign the Contract without the approval of the Employer in writing. Subcontracting does not alter the Contractor's obligations.

**7.2** The contractor shall not be required to obtain any consent from the employer for:

- a) the sub-contracting of any part of the Works for which the Sub-contractor is named in the contract;
- b) the provision of labor; and
- c) the purchase of materials which are in accordance with the standards specified in the Contract.

Beyond this if the contractor proposes sub-contracting any part of the work during execution of works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract, the Engineer will consider the following before according approval:

- The contractor shall not sub-contract the whole of the Works.
- The contractor shall not sub-contract any part of the Work without prior consent of the Engineer. Any such consent shall not relieve the contractor from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents or workmen.
- The Engineer should satisfy whether (a) the circumstances warrant such sub-contracting; and (b) the sub-contractors so proposed for the Work possess the experience, qualifications and equipment necessary for the job proposed to be entrusted to them in proportion to the quantum of work to be sub-contracted.
- If payments are proposed to be made directly to that sub-contractor, this should be subject to specific authorization by the prime contractor so that this arrangement does not alter the contractor's liability or obligations under the contract.

## **8. Other Contractors**

- 8.1** The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors. The Contractor shall as referred to in the Contract Data, also provide facilities and services for them as described in the Schedule. The employer may modify the schedule of other contractors and shall notify the contractor of any such modification.

## **9. Personnel**

- 9.1** The Contractor shall employ the key personnel named in the Schedule of Key Personnel as referred to in the Contract Data to carry out the functions stated in the Schedule or other personnel approved by the Engineer. The Engineer will approve any proposed replacement of key personnel only if their qualifications, abilities, and relevant experience are substantially equal to or better than those of the personnel listed in the Schedule.
- 9.2** If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or his work force stating reasons the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

## **10. Employer's and Contractor's Risks**

**10.1** The Employer carries the risks, which this Contract states are Employer's risks, and the Contractor carries the risks, which this Contract states are Contractor's risks.

## **11. Employer's Risks**

**11.1** The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer's country, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor's design.

## **12. Contractor's Risks**

**12.1** All risks of loss of or damage to physical property and of personal injury and death that arise during and, in consequence, of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

## **13. Insurance**

**13.1** The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:

- (a) Loss of or damage to the Works, Plant and Materials;
- (b) Loss of or damage to Equipment;
- (c) Loss of or damage of property (except the Works, Plant, Materials and Equipment) in connection with the Contract; and
- (d) Personal injury or death.

**13.2** Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

**13.3** If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

**13.4** Alterations to the terms of insurance shall not be made without the approval of the Engineer.

**13.5** Both parties shall comply with any conditions of the insurance policies.

## **14. Site Investigation Reports**

**14.1** The Contractor, in preparing the Bid, shall rely on any site Investigation Reports referred to in the Contract Data, supplemented by any information available to the Bidder.

## **15. Queries about the Contract Data**

**15.1** The Engineer will clarify queries on the Contract Data.

## **16. Contractor to Construct the Works**

**16.1** The Contractor shall construct and install the Works in accordance with the Specification and Drawings, and as per instructions of Engineer.

**16.2** The Contractor shall take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this report in future by the central Government or local authority.

## **17. The Works to Be Completed by the Intended Completion Date**

**17.1** The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.

## **18. Approval by the Engineer**

**18.1** The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Engineer, who is to approve them if they comply with the Specifications and Drawings.

**18.2** The Contractor shall be responsible for design of Temporary Works.

**18.3** The Engineer's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

**18.4** The Contractor shall obtain approval of third parties to the design of the Temporary Works where required.

**18.5** All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Engineer before their use.

## **19. Safety**

**19.1** The Contractor shall be responsible for the safety of all activities on the Site.

## **20. Discoveries**

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

## **21. Possession of the Site**

**21.1** The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be Compensation Event.

## **22. Access to the Site**

**22.1** The Contractor shall allow the Engineer and any person authorized by the Engineer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured / fabricated / assembled for the works.

## **23. Instructions**

**23.1** The Contractor shall carry out all instructions of the Engineer which comply with the applicable laws where the Site is located.

**23.2** The Contractor shall permit the Bank and/or persons appointed by the Bank to inspect the Site and/or the accounts and records of the Contractor and its subcontractors 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 Contractor's attention is drawn to Clause 64 [Corrupt or Fraudulent Practices] 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 23.2 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility under the Procurement Guidelines)."

## **24. Disputes**

**24.1** If the Contractor believes that a decision taken by the Engineer was either outside the authority given to the Engineer by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Engineer's decision.

## **25. Procedure for Disputes**

**25.1** The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.

**25.2** The Adjudicator shall be paid daily at the rate specified in the Contract Data together with reimbursable expenses of the types specified in the Contract Data and the cost shall be divided equally between the Employer and the Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.

**25.3** The arbitration shall be conducted in accordance with the arbitration procedure stated in the Special Conditions of Contract.

## **26. Replacement of Adjudicator**

**26.1** Should the Adjudicator resign or die, or should the Employer and the Contractor agree that the Adjudicator is not fulfilling his functions in accordance with the provisions of the Contract, a new Adjudicator will be jointly appointed by the Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the Contract Data at the request of either party, within 14 days of receipt of such request.

## **B. Time Control**

## **27. Program**

**27.1** Within the time stated in the Contract Data the Contractor shall submit to the Engineer for approval a Program including Environmental Management Plan showing the general methods, arrangements, order, and timing for all the activities in the Works along with monthly cash flow forecast.

**27.2** An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

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

**27.4** The Engineer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Engineer again at any time. A revised Program is to show the effect of Variations and Compensation Events.

**28. Extension of the Intended Completion Date**

**28.1** The Engineer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the Contractor to incur additional cost.

**28.2** The Engineer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Engineer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

**29. Deleted**

**30. Delays Ordered by the Engineer**

**30.1** The Engineer may instruct the Contractor to delay the start or progress of any activity within the Works.

**31. Management Meetings**

**31.1** Either the Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

**31.2** The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

**32. Early Warning**

**32.1** The Contractor is to warn the Engineer at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of works. The Engineer may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate is to be provided by the Contractor as soon as reasonably possible.

**32.2** The Contractor shall cooperate with the Engineer in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Engineer.

**C. Quality Control**

**33. Identifying Defects**

**33.1** The Engineer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect.

**33.2** The contractor shall permit the Employer's Technical auditor to check the contractor's work and notify the Engineer and Contractor of any defects that are found. Such a check shall not affect the Contractor's or the Engineer's responsibility as defined in the Contract Agreement.

### 34. Tests

- 34.1 If the Engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test of any samples. If there is no Defect the test shall be a Compensation Event.

### 35. Correction of Defects

- 35.1 The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
- 35.2 Every time notice of a Defect is given; the Contractor shall correct the notified Defect within the length of time specified by the Engineer's notice.

### 36. Uncorrected Defects

- 36.1 If the Contractor has not corrected a Defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

**Note: Where in certain cases, the technical specifications provide for acceptance of works within specified tolerance limits at reduced rates, Engineer will certify payments to Contractor accordingly.**

## D. Cost Control

### 37. Bill of Quantities

- 37.1 The Bill of Quantities shall contain items for the construction, supply & installation, testing, and commissioning work to be done by the contractor.
- 37.2 The Bill of Quantities is used to calculate the Contract Price. **The Contractor will be paid for the above work as per the schedule of payment given in table 43.1 format.**

### 38. Changes in the Quantities

- 38.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1% of Initial Contract Price, the Engineer shall adjust the rate to allow for the change.
- 38.2 The Engineer shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the Prior approval of the Employer.
- 38.3 If requested by the Engineer, the Contractor shall provide the Engineer with a detailed cost breakdown of any rate in the Bill of Quantities.

### 39. Variations

- 39.1 All Variations shall be included in updated Programs produced by the Contractor.

### 40. Payments for Variations

- 40.1 The Contractor shall provide the Engineer with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the Engineer. The Engineer shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the Engineer and before the Variation is ordered.
- 40.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Engineer, the quantity of work above the limit stated in Sub Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in form of new rates for the relevant items of work.

- 40.3 If the Contractor's quotation is unreasonable (or if the contractor fails to provide the Engineer with a quotation within a reasonable time specified by the engineer in accordance with Clause 40.1), the Engineer may order the Variation and make a change to the Contract Price which shall be based on Engineer's own forecast of the effects of the Variation on the Contractor's costs.
- 40.4 If the Engineer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.
- 40.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.

#### 41. Cash flow forecasts

- 41.1 When the Program is updated, the contractor is to provide the Engineer with an updated cash flow forecast.

#### 42. Payment Certificates (Not applicable)

- 42.1 The Contractor shall submit to the Engineer monthly statements of the estimated value of the work completed less the cumulative amount certified previously along with details of measurement of the quantity of works executed in a tabulated form as approved by the Engineer.
- 42.2 The Engineer shall check the details given in the Contractor's monthly statement and within 14 days certify the amounts to be paid to the Contractor after taking into account any credit or debit for the month in question in respect of materials for the works in the relevant amounts and under conditions set forth in sub-clause 51(3) of the Contract Data (Secured Advance).
- 42.3 The value of works executed shall be determined by the Engineer after carrying out due checks of the measurement of the quantities claimed as executed by the contractor.
- 42.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.
- 42.5 The value of work executed shall include the valuation of Variations and Compensation Events.
- 42.6 The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

**Note: The Payment Certification will be based on clause 37 table 43.1 not clause 42.**

#### 43. Payments

- 43.1 Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of the contract and taxes, at source, as applicable under the law. The Employer shall pay the Contractor the amounts certified by the Engineer within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at 8% per annum.
- 43.2 If an amount certified is increased in a later certificate, or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.
- 43.3 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

#### 44. Compensation Events

**44.1** The following are Compensation Events unless they are caused by the Contractor:

- (a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
- (b) The Employer modifies the schedule of other contractors in a way which affects the work of the contractor under the contract.
- (c) The Engineer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.
- (d) The Engineer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no Defects.
- (e) The Engineer unreasonably does not approve for a subcontract to be let.
- (f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of Letter of Acceptance from the information issued to Bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.
- (g) The Engineer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
- (h) Other contractors, public authorities, utilities or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
- (i) The advance payment is delayed.
- (j) The effect on the Contractor of any of the Employer's Risks.
- (k) The Engineer unreasonably delays issuing a Certificate of Completion.
- (l) Other Compensation Events listed in the Contract Data or mentioned in the Contract.

**44.2** If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date is extended. The Engineer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

**44.3** As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the Engineer and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Engineer shall adjust the Contract Price based on Engineer's own forecast. The Engineer will assume that the Contractor will react competently and promptly to the event.

**44.4** The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Engineer.

## **45. Tax**

**45.1** The rates quoted by the Contractor shall be deemed to be inclusive of the sales and other taxes that the Contractor will have to pay for the performance of this Contract. The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law.

## **46. Currencies**

**46.1** All payments shall be made in Bhutanese currencies (Ngultrum).

#### **47. Price Adjustment (not applicable for this contract)**

**47.1** Contract price shall be adjusted for increase or decrease in rates and price of labor, materials, fuels and lubricants in accordance with the following principles and procedures and as per formula given in the contract data:

- (a) The price adjustment shall apply for the work done from the start date given in the contract data up to end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor.
- (b) The price adjustment shall be determined during each quarter from the formula given in the contract data.
- (c) Following expressions and meanings are assigned to the work done during each quarter:

R = Total value of work done during the quarter. It would include the amount of secured advance for materials paid for (if any) during the quarter, less the amount of the secured advance recovered, during the quarter. It will exclude value for works executed under variations for which price adjustment will be worked separately based on the terms mutually agreed.

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

#### **48. Retention**

**48.1** The Employer shall retain from each payment due to the Contractor the proportion stated in the Contract Data until Completion of the whole of the Works.

**48.2** On Completion of the whole of the Works half the total amount retained is repaid to the Contractor and half when the Defects Liability Period has passed and the Engineer has certified that all Defects notified by the Engineer to the Contractor before the end of this period have been corrected.

**48.3** On completion of the whole works, the contractor may substitute retention money (*balance half*) with an “on demand” Bank guarantee.

#### **49. Liquidated Damages**

**49.1** The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole of the works or the milestone as stated in the contract data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor. Time is essence of the contract and payment or deduction of liquidated damages shall not relieve the contractor from his obligation to complete the work as per agreed construction program and milestones or from any other of the contractor’s obligations and liabilities under the contract.

**49.2** If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the over payment calculated from the date of payment to the date of repayment at the rates specified in Sub Clause 43.1.

#### **50. Deleted**

#### **51. Advance Payment**

**51.1** The Employer shall make advance payment to the Contractor of the amounts stated in the Contract Data by the date stated in the Contract Data, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the

advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest will not be charged on the advance payment. The bank guarantee of a joint venture shall be in the name of the joint venture.

**51.2** The Contractor is to use the advance payment only to pay for Equipment, Plant and Mobilization expenses required specifically for execution of the Works. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Engineer.

**51.3** The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment schedule basis. No account shall be taken of the advance (mobilization and equipment only) payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, or Liquidated Damages.

**51.4 Secured Advance:**

The Engineer shall make advance payment in respect of materials intended for but not yet incorporated in the Works in accordance with conditions stipulated in the Contract Data.

**52. Securities**

**52.1** The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in Bhutan Ngultrum. The Performance Security shall be valid until a date 28 days from the date of expiry of Defects Liability Period and the additional security for unbalanced bids shall be valid until a date 28 days from the date of issue of the certificate of completion. The performance security of a joint venture shall be in the name of the joint venture.

**53. Deleted**

**54. Cost of Repairs**

**54.1** Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

**E. Finishing the Contract**

**55. Completion**

**55.1** The Contractor shall request the Engineer to issue a Certificate of Completion of the Works and the Engineer will do so upon deciding that the Work is completed.

**56. Taking Over**

**56.1** The Employer shall issue certificate of design and construction completion within seven days after commission and successful test run. The site shall be taken over after successful completion of defect liability / Operation and maintenance period

**57. Final Account**

**57.1** The Contractor shall supply to the Engineer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Engineer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the

amount payable to the Contractor and issue a payment certificate, within 56 days of receiving the Contractor's revised account.

## **58. Operation and Maintenance Manuals**

- 58.1** If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data.
- 58.2** If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract Data, or they do not receive the Engineer's approval, the Engineer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

## **59. Termination**

- 59.1** The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.
- 59.2** Fundamental breaches of Contract include, but shall not be limited to the following:
- (a) The Contractor stops work for 28 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the Engineer;
  - (b) The Engineer instructs the Contractor to delay the progress of the Works and the instruction is not withdrawn within 28 days;
  - (c) The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
  - (d) If a payment certified by the Engineer is not paid by the Employer to the Contractor within 56 days of the date of the Engineer's certificate;
  - (e) The Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;
  - (f) The Contractor does not maintain a security which is required;
  - (g) The Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and
  - (h) If the Contractor, in the judgment of the Purchaser has engaged in fraud and corruption, as defined in GCC Clause 64, in competing for or in executing the Contract.
  - (i) "The contractor (in case of joint venture) has modified the composition of the joint venture and/or the responsibility of each member of the joint venture from what is stated in joint venture agreement without prior approval of the Employer".
- 59.3** When either party to the Contract gives notice of a breach of contract to the Engineer for a cause other than those listed under Sub Clause 59.2 above, the Engineer shall decide whether the breach is fundamental or not.
- 59.4** Notwithstanding the above, the Employer may terminate the Contract for convenience.
- 59.5** If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

## **60. Payment upon Termination**

- 60.1** If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done less advance payments received up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less tax due

To be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

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

## **61. Property**

- 61.1** All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor's default.

## **62. Release from Performance**

- 62.1** If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

## **63. Suspension of SDP II fund or Credit**

- 63.1** In the event that the GOI, SDP fund suspends the Loan or Credit to the Employer, from which part of the payments to the Contractor are being made:
- (a) The Employer is obligated to notify the Contractor of such suspension within 7 days of having received the SDP's suspension notice.
  - (b) If the Contractor has not received sums due to it upon the expiration of the 28 days for payment provided for in Sub-Clause 43.1, the Contractor may immediately issue a 14-day termination notice.

## **64. Fraud and Corruption**

- 64.1** If the Employer determines that the Contractor has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days' notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site, and the provisions of Clause 59 shall apply as if such expulsion had been made under Sub-Clause 59.5 [Termination by Employer].
- 64.2** Should any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Works, then that employee shall be removed in accordance with Clause 9.
- 64.3** For the purposes of this Sub-Clause:

- (i) “corrupt practice”<sup>6</sup> 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”<sup>7</sup> 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”<sup>8</sup> 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”<sup>9</sup> 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 22.2.

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*“another party” refers to a public official acting in relation to the procurement process or contract execution]. In this context, “public official” includes Thromde,SDP staff and employees of other organizations taking or reviewing procurement decisions.*

*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.*

*“parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non-competitive levels.*

*a “party” refers to a participant in the procurement process or contract execution.*

## **F. Special Conditions of Contract**

### **1. LABOUR:**

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

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

### **2. COMPLIANCE WITH LABOUR REGULATIONS:**

During continuance of the contract, the Contractor and his sub-contractors shall abide at all times by all existing labor enactments and rules made there under, regulations, notifications and bye laws of the Royal Government or local authority and any other labor law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labor law in future either by the Royal Government or the local authority. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

### **3. SUB-CONTRACTING (GCC Clause 7)**

The contractor shall not be required to obtain any consent from the employer for:

- a) the sub-contracting of any part of the Works for which the Sub-contractor is named in the contract;
- b) the provision of labor; and
- c) the purchase of materials which are in accordance with the standards specified in the Contract.

Beyond this if the contractor proposes sub-contracting any part of the work during execution of works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract, the Engineer will consider the following before according approval:

- The contractor shall not sub-contract the whole of the Works.
- The contractor shall not sub-contract any part of the Work without prior consent of the Engineer. Any such consent shall not relieve the contractor from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents or workmen.
- The Engineer should satisfy whether (a) the circumstances warrant such sub-contracting; and (b) the sub-contractors so proposed for the Work possess the experience, qualifications and equipment necessary for the job proposed to be entrusted to them in proportion to the quantum of work to be sub-contracted.
- If payments are proposed to be made directly to that sub-contractor, this should be subject to specific authorization by the prime contractor so that this arrangement does not alter the contractor's liability or obligations under the contract.

#### 4. ARBITRATION (GCC Clause 25.3)

The procedure for arbitration will be as follows:

- 25.3 (a) In case of Dispute or difference arising between the Employer and a domestic contractor 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 Employer and the Contractor. 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 \* Bhutan Council of Arbitration/ **Construction Development Board of Bhutan** /The International Centre for Alternative Dispute Resolution (Bhutan).
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*(Note: 1. All bidders are expected to indicate clearly in the bid, if they proposed sub-contracting elements of the works amounting to more than 20 percent of the Bid Price. For each such proposal the qualification and the experience of the identified sub-contractor in the relevant field should be furnished along with the bid to enable the employer to satisfy himself about their qualifications before agreeing for such sub-contracting and include it in the contract. In view of the above, normally no additional sub-contracting should arise during execution of the contract.*

*2. However, [a] sub-contracting for certain specialized elements of the work is not unusual and acceptable for carrying out the works more effectively; but vertical splitting of the works for subcontracting is not acceptable. [b] In any case, proposal for sub-contracting in addition to what was specified in bid and stated in contract agreement will not be acceptable if the value of such additional sub-contracting exceeds 25% of value of work which was to be executed by Contractor without sub-contracting.*

*3. Assignment of the contract may be acceptable only under exceptional circumstances such as insolvencies/liquidation or merger of companies etc.*

- (b) In the case of dispute with a foreign contractor the dispute shall be settled in accordance with provisions of UNCITRAL Arbitration Rules. The Arbitral Tribunal shall consist of three Arbitrators one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties, and shall act a 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 \* Bhutan Council of Arbitration/ *Construction Development Board of Bhutan* /The International Centre for Alternative Dispute Resolution (Bhutan).
- (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 \* Bhutan Council of Arbitration/ *Construction Development Board of Bhutan* /The International Centre for Alternative Dispute Resolution (Bhutan), both in cases of the Foreign Contractor as well as Bhutan Contractor, shall appoint the arbitrator. A certified copy of the order of the \*Bhutan Council of Arbitration / *Construction Development Board of Bhutan*/ The International Centre for Alternative Disputes Resolution (Bhutan), making such an appointment shall be furnished to each of the parties.
- (d) Arbitration proceedings shall be held at Thimphu, Bhutan, 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 Nu.50 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 \*Bhutann Council of Arbitration/ *Construction Development Board of Bhutan* /The International Centre for Alternative Disputes Resolution (Bhutan).
- (g) Performance under the contract shall continue during the arbitration proceedings and payments due to the contractor by the owners shall not be withheld, unless they are the subject matter of the arbitration proceedings.

## **5. PROTECTION OF ENVIRONMENT:**

Clause 16.2: The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the Central Government or the local authority.

## **6. LIQUIDATED DAMAGES:**

Sub-clause 49.1:

“Time is the essence of the contract and payment or deduction of liquidated damages shall not relieve the contractor from his obligation to complete the work as per agreed construction program and milestones or from any other of the contractor’s obligations and liabilities under the contract.”

## **7. Price Adjustment**

No Price Adjustments allowed under this contract as per Clause 47

## 8. Payments

Clause 43: Considering the specialized work involved in the contract implementation, the payments under the contract will be distributed according to the mile stones and completed items of major work

### SCHEDULE OF PAYMENT

Table 43.1

Sl. No	Items of work	% of Payment	Rate in words	Rate in Figure	Amount (Nu)
1	Submission of detail design including all calculations and drawings of Waste Water Treatment Plants and related civil structures	5%			
2	Completion of civil works including protection works like River protection works, fencing, setting up of laboratory etc.	35%			
3	Physical structures including manufacturing/fabrication supply and installation at site like fabrication of associated mechanical and electrical equipment/ components (including mechanical & electrical foundation, UG cable lines/overhead cables, switch gears and Step down transformer street/compound lighting if required complete) that are necessary for the Package Treatment Plants and complete set up of the laboratory testing equipment. Supply & install DG set. 50% of the payment can be released on arrival of the equipment at the site subject to production of all necessary and relevant documents.	40%			
4	After successful commissioning and trail run for one month. The contractor should demonstrate that Employer's O & M staff are familiar with the treatment plant, basic O &M principle, testing of all test parameters that are required to be carried out at the lab etc. and required treated waste water standards achieved. preparation of training manuals, O&M manuals and As-built drawings and approval by the client.	14%			
5	Operation and Maintenance for a period of 3 years (36 months) after successful commissioning and trail run. The contractor should demonstrate that Employer's O & M staff carry out	6 %			

	basic/regular maintenance along with contractor's employees and required treated waste water standards achieved.				
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**Note:**

1. The payment for each item shall not exceed the allocated portion of the payment indicated above.
2. Five percent (5%) of bill amount of item work 1,2 and 3 shall be deducted as retention money and shall be released only after defects liability period of one (1) year which shall be reckoned after successful commissioning of the plant.

## **SECTION 4: CONTRACT DATA**

## Contract Data

**Items marked "N/A" do not apply in this Contract.**

The following documents are also part of the Contract:	Clause Reference
· The Schedule of Operating and Maintenance Manuals	[58]
· The Schedule of Other Contractors	[8]
· The Schedule of Key Personnel	[9]
· The Methodology and Program of Construction & Environmental Management Plan	[27]
· The Schedule of Key and Critical equipment to be deployed on the work as per agreed program of construction	[27]
· Site Investigation reports	[14]

The Borrower is Royal Government of Bhutan/Ministry of Finance [1.1]

SDP means Small Development Project funded by Government of India (GOI) to assist the Government of Bhutan in implementing the community- oriented projects. [1.1]

The above insertions should correspond to the information provided in the Invitation of Bids.

The Employer is

Name: Executive Secretary, Thimphu Thromde (1.1)

Address: 3rd Floor, NPPF Building, Thimphu, BHUTAN

Name of authorized Representative:

The Supervising Engineer is

Name: Chief Engineer, Infrastructure Division, Thimphu Thromde

Address: 3rd Floor, NPPF Building, Thimphu, BHUTAN

Name of Authorized Representative:

The Adjudicator appointed jointly by the Employer and Contractor is:

\*Name : (1.1)

\*Address :  
(\*to be filled in after the Adjudicator has been appointed)

The name and identification number of the Contract is “Construction of 1.00 MLD Package Waste Water Treatment Plant at Jungzhina in Thimphu” - **Bid No.: TT/INFRA/SEW/SDP II/19-20/1378**

The Works consist of “Design, Built, Operate and Transfer of 1.00 MLD Package Waste Water Treatment Plant and required civil, electrical and mechanical equipment, on the job training, operation & maintenance manual for successful operation of the plant after the installation at Jungzhina in Thimphu.

The influent for the sewage treatment plants will be provided from works carried out under package V of the same project  
The Start Date shall be the date of issue of notice to proceed with the work.(1.1)

The Intended Completion Date for the whole of the Works is **20-5-2021 (tentative)** with the following milestones: [17, 28]

Milestone dates:	Physical works to be completed	Period from the date of issue of notice to proceed with the work
Milestone 1	Design and detailed working drawings for sewage treatment plant	Two (2) months
Milestone 2	Mechanical foundation and civil works.	Ten (10) months
Milestone 3	Equipment Manufacture, assembling transportation and installation.	twelve (12) months

The following documents also form part of the Contract: [2.3]

Implementation plan of all the components including test run of the plant  
 Operation and maintenance plan for Package Sewerage Treatment Plant for one month

The Contractor shall submit a revised Program including Environmental Management Plan for the Works (in such form and detail as the Engineer shall reasonably prescribe) within 14 days of Delivery of the Letter of Acceptance. [27]

*[This program should be in adequate detail and generally conform to the program submitted along with bid in response to ITB Clause 4.3 (k). Deviations if any from that should be clearly explained and should be satisfactory to the Engineer]*

The Site Possession Dates shall be: ..... [21]

The Site is located at

1. Waste Water Treatment Plant: on Right Bank of Wang Chhu near Indian Embassy. [1]

The Defects Liability Period is **365 days** from the date of certification of completion of works. (Where sectional completion certificate is issued this will apply from those dates for those sections). [35]

Insurance requirements are as under: [13]

		Minimum Cover for Insurance	Maximum deductible for Insurance
(i)	Works and Plant and Materials	50% of the cost of the plant	Nu 100,000
(ii)	Loss or damage to Equipment	50% of the cost of equipment	Nu 100,000
(iii)	Personal injury or death insurance:		
	a) for other people;	Nu 25,000	Nu 50,000
	b) for Contractor's Employees	In accordance with the statutory requirements applicable to Bhutan	

Note: The insurance cover shall be for the full 3 years of O & M period for plant & equipment & contractor's employees

The following events shall also be Compensation Events: [44]

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

The period between Program updates shall be 30 days. [27]

The amount to be withheld for late submission of an updated Program shall be Nu 100,000 [27]

The language of the Contract documents is English [3]

The law, which applies to the Contract is the laws of Royal Government of Bhutan [3]

The currency of the Contract is Bhutanese Ngultrum. [46]

Fees and types of reimbursable expenses to be paid to the Adjudicator  
Nu 8000 plus travel and incidental expenditure [25]

Appointing Authority for the Adjudicator: ADRC *Bhutan* [26]

The proportion of payments retained (retention money) shall be 5% from each bill  
Subject to a maximum of 5% of final contract price [48]

The liquidated damages for the whole of the works are 0.05% of the contract price per day  
and that for the milestone are as under: [49]

For milestone 1	0.05% of the contract price per day
For milestone 2	0.05% of the contract price per day
For milestone 3	0.05% of the contract price per day

The maximum amount of liquidated damages for the whole of the works  
is ten percent of final contract price. [49]

The amounts of the advance payment are: [51]

<u>Nature of Advance</u>	<u>Amount (Nu.)</u>	<u>Conditions to be fulfilled</u>
1. Mobilization	5% of the Contract price	On submission of un-conditional Bank Guarantee. (to be drawn before end of 20% of Contract period)
2. Equipment	90% for new and 50% of depreciated value for old equipment. Total amount will be subject to a maximum of 5 % of the Contract price. (This advance is not applicable for equipment already owned or hired/ leased by the contractor.)	After equipment is brought to site as per agreed construction program (provided the Engineer is satisfied that the equipment is required for performance of the contract) and on submission of unconditional Bank Guarantee for amount of advance.
3. Secured advance for non- perishable materials brought to site	75% of Invoice value or Market value - lower of the two.	<ul style="list-style-type: none"> <li>a) The materials are in-accordance with the specification for Works;</li> <li>b) Such materials have been delivered to site, and are properly stored and protected against damage or deterioration to the satisfaction of the Engineer. The contractor shall store the bulk material in measurable stacks.</li> <li>c) The Contractor's records of the requirements, orders, receipt and use of materials are kept in a form approved by the Engineer and such records shall be available for inspection by the Engineer;</li> <li>d) The contractor has submitted with his monthly statement the estimated value of the materials on site together with such documents as may be required by the Engineer for the purpose of valuation of the materials and providing evidence</li> </ul>

of ownership and payment thereof;

- e) Ownership of such materials shall be deemed to vest in the Employer for which the Contractor has submitted an Indemnity Bond in an acceptable format; and
- f) The quantity of materials is not excessive and shall be used within a reasonable time as Determined by the Engineer.

(The advance payment will be paid to the Contractor no later than 15 days after fulfillment of the above conditions).

Repayment of advance payment for mobilization and equipment: [51]

The advance shall be repaid with percentage deductions from the interim payments certified by the Engineer under the Contract. Deductions shall commence in the next Interim Payment Certificate following that in which the total of all such payments to the Contractor has reached not less than 15 percent of the Contract Price or ——— months from the date of payment of first installment of advance, whichever period concludes earlier, and shall be made at the rate of \_\_\_@ percent of the amounts of all Interim Payment Certificates until such time as the advance has been repaid, always provided that the advance shall be completely repaid prior to the expiry of the original time for completion.

Repayment of secured advance:

The advance shall be repaid from each succeeding monthly payment to the extent materials [for which advance was previously paid pursuant to Clause 51.4 of G.C.C. and 51(3) of Contract Data on prepare] have been incorporated into the Works.

The Securities shall be for the following minimum amounts equivalent as a percentage of the Contract Price: [52]

Performance Security for 5 per cent of contract price plus Nu. .... as additional security for unbalanced bids [*in terms of ITB Clause 29.5*].

The standard form of Performance Security acceptable to the Employer shall be an unconditional Bank Guarantee of the type as presented in Section 8 of the Bidding Documents.

\*The date by which operating and maintenance manuals are required is within 28 days of issue of certificate of completion of whole or section of the work, as the case may be. [58]

\*The date by which “as-built” drawings (in scale ...) in 2 sets are required is within 28 days of issue of certificate of completion of whole or section of the work, as the case may be. [58]

The amount to be withheld for failing to supply “as built” drawings and/or operating and Maintenance manuals is 5% of the contract value [58]

The following events shall also be fundamental breach of contract: [59.2]

1. The Contractor has contravened Sub-clause 7 of GCC read with SCC and Clause 9.0 of GCC
2. The contractor does not adhere to the agreed construction program and agreed environmental management plan (Clause 27 of GCC) and also fails to take satisfactory remedial action as per agreements reached in the management meetings (Clause 31) for a period of 60 days.
3. The contractor fails to carry out of the instructions of Engineer within a reasonable time determined by the Engineer in accordance with GCC Clause 16.1 and 23.1.

The percentage to apply to the value of the work not completed representing the Employer's Additional cost for completing the Works shall be 20 percent. [60]



## **SECTION 5: SPECIFICATIONS**

**(REFER SPECIFICATION FOR BHUTAN BUILDING AND ROAD latest edition)**

## Specifications

Unless otherwise specified, the *Specification for Building and Road Works - Latest edition* issued by the, Ministry of Works and Human Settlement, Royal Government of Bhutan, **will hold GOOD.**

For electrical works, kindly refer to *Specification for Electrical Works -latest edition issued* by the, Ministry of Works and Human Settlement, Royal Government of Bhutan.

A separate set of Specifications pertaining to the Water Supply and Sewerage Works, not covered by the *Specification for Building and Road Works -latest edition* is provided in electronic copy in CD form.

The Specifications for the works included in this project can be obtained from the following offices:

**Department of Engineering Services,**  
Ministry of Works and Human Settlement,  
Royal Government of Bhutan,  
Thimphu.  
[www.mowhs.gov.bt](http://www.mowhs.gov.bt)

**Bureau Indian Standards**  
Manak Bhavan,  
9 Bahadur Shah Zafar Marg  
New Delhi 110002  
India  
[www.bis.org.in](http://www.bis.org.in)

**Additional information about the specifications included in the Employer requirements under Section 9 of the bidding documents.**

## **SECTION 6: DRAWINGS**

(site plan enclosed for references)

All drawings to be provided by the contractor

CS

Scanned with CamScanner



ROYAL GOVERNMENT OF BHUTAN  
THIMPHU THROMDE  
Scale: 1: 350



**DEVELOPMENT SITE PLAN**

Plot Location: Jungshina  
Land pooling Percentage:N/A

Owner Name: Thimphu Thromde  
CID No.:  
Thram No.:  
Net Area: 41525 sq. ft.  
Plot No.:

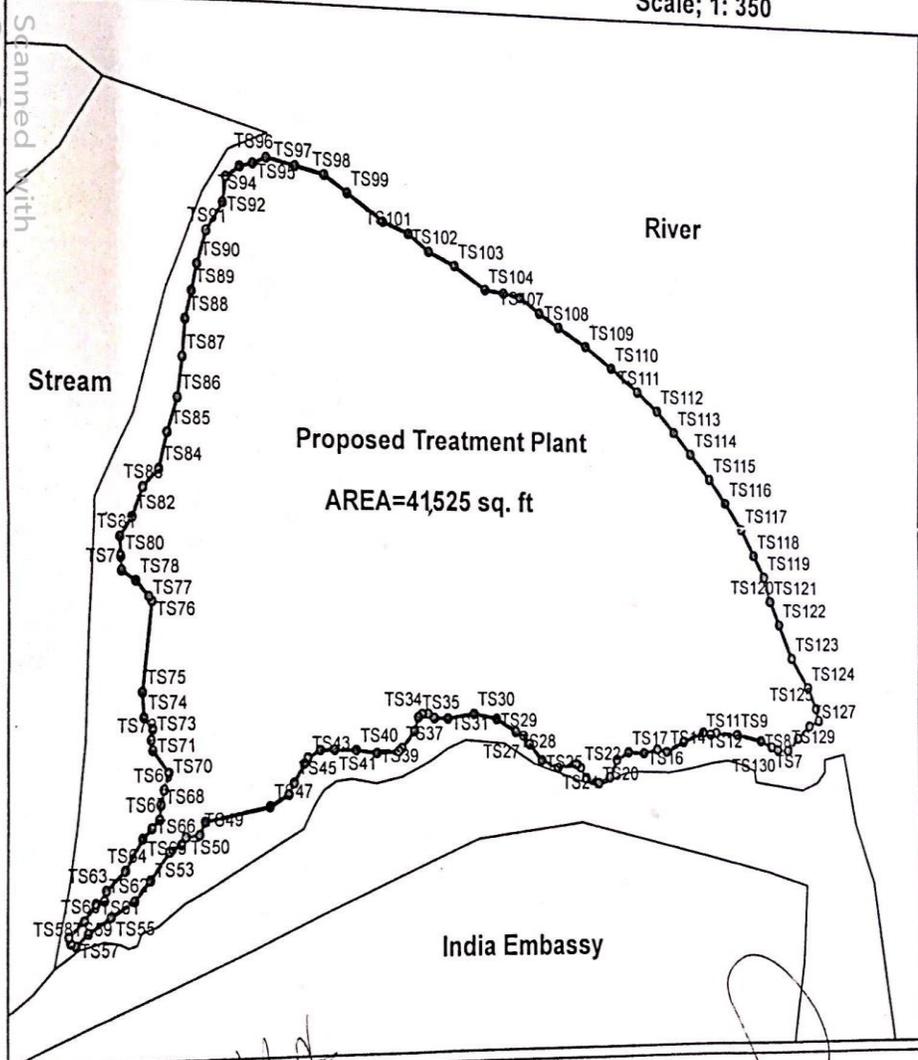
Owner's Signature

Plot precinct as per Thimphu Structure Plan(2007-27):  
SP (Service Precinct) precinct.  
Subdivision of the plot will depend on the minimum plot size required in designated precinct.

**Remarks if any:**

1. This plan shall supercede all the plan issued earlier
2. All the dimensions are in meters.
3. The plot boundary is resurveyd and finalized during NCRP, Thimphu Thromde.
4. Issued base on remarks by Head,SLMS and Internal Memo TT/ENG/(BUDP-II)WB-30/2016-17/82.

Reverse the page to see the plot boundary corditates



Map prepared by:.....  
Name & Signature:.....

Checked by:.....  
Name & Signature:.....

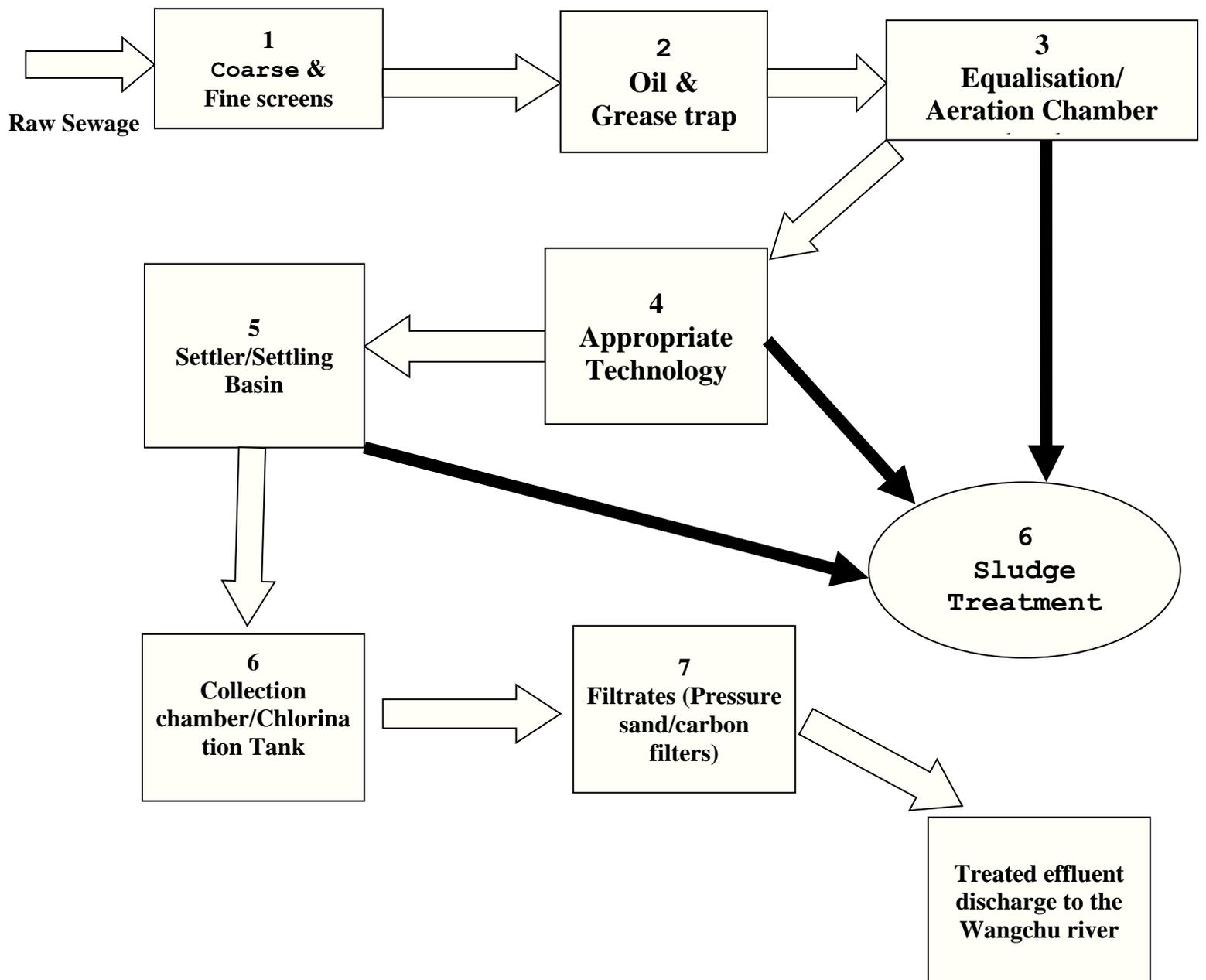
Issuing Authority:.....  
Name & Signature:.....  
Date:.....

Cadastral map and information provided by NLCS  
For details about the plot usage and coverage, please refer Development Control Regulation 2004 or contact DCD, Thimphu Thromde.

**Official Site Plan of STP at Jungshina**

**Note: The above area of 41,525 sq. Ft is for 60% load in first phase and remaining 40% load in second phase. Therefore, the bidders are requested to plan in such a way in order to accommodate both the phase of construction. However, detailed topographical survey has to be done by the bidders to ensure proper layout and levels of the individual components of the Plant.**

**Model for treatment process SCHEMATIC FLOW DIAGRAM**



## **SECTION 7: BILL OF QUANTITIES**

(Bill of Quantity is enclosed but not limited to the below items for Package WWTP)

**Name of work : Design, built, operate and transfer of 1.00 MLD Package Waste Water Treatment Plant for Jungzhina in Thimphu.**

Item No	Description	Quantity	Unit	Rate	Rate in Word	Amount
1	Design, supply and installation (including fabrication and Construction) of package Waste Water Treatment Plant of capacity 1.00 MLD including installation of associated civil, mechanical and electrical equipment/components (including UG cable lines/overhead cables, switch gears, Step down transformer and street/compound lighting with automatic switch if required complete), alternative power source/DG set that are necessary for the treatment of domestic wastewater to the desired effluent standards. The bidder is required to get fully acquainted and understand the detail features, specifications etc. before quoting the rates. The detail features, test result, pre-requisites, design methodology and method of payment are listed in the bidding documents for your references.	1.00	Plant			
2	<b>Civil structures:</b>	1.00	Set			
	a) Bar screen chamber and V notch/par shall flume					
	b) Oil and grease chamber,					
	c) Collection/settling tank and					
	d) Sludge holding tank					
	e) clear water tank					
	f) Civil foundation for mechanical units					
	g) Chain Link Fencing for WWTP area with standard height and required periphery. Standard RCC gate for WWTP and River protection works wherever required and as instructed by concerned site engineer.					
h) Landscaping including walkway, turfing and Plantation of shrubs & trees as per the direction of Thromde Management.						
	i) Structure enclosure to cover the entire WWTP with proper Bhutanese Architecture.					
	ii) Car park for minimum three cars with asphalt or concrete top.					
3	Plant Commissioning charges as per the condition of contract in the bidding documents	1.00	Complete			
4	Establish/setup laboratory testing facilities including chemicals and reagents to conduct, BOD, SS, Fecal coli form, pH, temp.	1.00	Complete			
5	Staff Training by professional instructor for minimum 6 personals.	1.00	Complete			
6	Preparation of O&M Manual including As Built Drawings					
	<b>SUB TOTAL FOR THE PLANT</b>	<b>Nu.</b>				
	<b>Operation &amp; Maintenance</b>					
1	Operation and maintenance of the plant for three years	1.00	Complete			

	<b>SUB TOTAL for O &amp; M:</b>	NU:
	<b>GRAND TOTAL (subtotal for plant + subtotal for O &amp; M)</b>	NU

**Note: The bid price for the three years O & M shall be minimum 6% of the total contract price. Any bids less than 6% shall be adjusted to 6% and accordingly added to the total bid price.**

The O & M payment shall be released as follows:

- a) 2% after completion of the first year of O & M
- b) 2% after completion of the second year of O & M
- c) 2% after completion of the third year of O & M

*The above list is ONLY INDICATIVE and in no way represents a prescriptive instruction. The Bidders will have to give the details based on their proposal.*

*The sizes and specifications especially related to civil works like, perimeter fencing, steel posts and steel gate, parking etc shall be at least to the minimum specified in the Bhutan specifications for roads and building and in the latest BSR edition.*

## **SECTION 8: FORMS OF SECURITIES**

## Forms of Securities

Acceptable forms of securities are annexed. Bidders should not complete the Performance and Advance Payment Security forms at this time. Only the successful Bidder will be required to provide Performance and Advance Payment Securities in accordance with one of the forms, or in a similar form acceptable to the Employer.

<b>Annex A:</b>	Bid Security (Bank Guarantee)
<b>Annex B:</b>	Performance Bank Guarantee
<b>Annex B1:</b>	Performance Bank Guarantee for Unbalanced Items
<b>Annex C:</b>	Deleted
<b>Annex D:</b>	Bank Guarantee for Advance Payment

**BID SECURITY (BANK GUARANTEE)**

WHEREAS, \_\_\_\_\_ [*name of Bidder*] (hereinafter called "the Bidder") has submitted his Bid dated \_\_\_\_\_ [*date*] for the construction of \_\_\_\_\_ [*name of Contract*] (hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that We \_\_\_\_\_ [*name of bank*] of \_\_\_\_\_ [*name of country*] having our registered office at \_\_\_\_\_ (hereinafter called "the Bank") are bound unto \_\_\_\_\_ [*name of Employer*] (hereinafter called "the Employer") in the sum of \_\_\_\_\_<sup>1</sup> for which payment well and truly to be made to the said Employer the Bank binds itself, his 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 after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid;
- or
- (2) If the Bidder having been notified of the acceptance of his bid by the Employer during the period of Bid validity:
- (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
  - (b) fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders; or
  - (c) does not accept the correction of the Bid Price pursuant to Clause 27;

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date \_\_\_\_\_<sup>2</sup> days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

DATE \_\_\_\_\_ SIGNATURE OF THE BANK \_\_\_\_\_

WITNESS \_\_\_\_\_ SEAL \_\_\_\_\_

\_\_\_\_\_  
[signature, name, and address]

1 The Bidder should insert the amount of the guarantee in words and figures denominated in Bhutanese Ngultrum. This figure should be the same as shown in Clause 16.1 of the Instructions to Bidders.

2 45 days after the end of the validity period of the Bid.

## PERFORMANCE BANK GUARANTEE

To: \_\_\_\_\_ [name of Employer]  
\_\_\_\_\_ [address of Employer]

WHEREAS \_\_\_\_\_ [name and address of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. \_\_\_\_\_ dated \_\_\_\_\_ to execute \_\_\_\_\_ [name of Contract and brief description of Works] (hereinafter called "the Contract");

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

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

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of \_\_\_\_\_ [amount of guarantee]<sup>1</sup> \_\_\_\_\_ [in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_ [amount of guarantee]<sup>1</sup> as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

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

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

This guarantee shall be valid until ..... (i.e.) 28 days from the date of expiry of the Defects Liability Period.

Signature and seal of the guarantor \_\_\_\_\_  
Name of Bank \_\_\_\_\_  
Address \_\_\_\_\_  
Date \_\_\_\_\_

\_\_\_\_\_

1 An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract and denominated in Bhutanese Ngultrum.

**PERFORMANCE BANK GUARANTEE (for unbalanced items)**

To: \_\_\_\_\_ [name of Employer]  
\_\_\_\_\_ [address of Employer]

WHEREAS \_\_\_\_\_ [name and address of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. \_\_\_\_\_ dated \_\_\_\_\_ to execute \_\_\_\_\_ [name of Contract and brief description of Works] (hereinafter called "the Contract");

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

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

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of \_\_\_\_\_ [amount of guarantee] <sup>1</sup> \_\_\_\_\_ [in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_ [amount of guarantee]<sup>1</sup> as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

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

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

This guarantee shall be valid until ..... (i.e.) 28 days from the date of issue of the certificate of completion of works.

Signature and seal of the guarantor \_\_\_\_\_  
Name of Bank \_\_\_\_\_  
Address \_\_\_\_\_  
Date \_\_\_\_\_

\_\_\_\_\_

1 An amount shall be inserted by the Guarantor, representing additional security for unbalanced Bids, if any and denominated in Bhutanese Ngultrum.

## BANK GUARANTEE FOR ADVANCE PAYMENT

To: \_\_\_\_\_ [name of Employer]  
\_\_\_\_\_ [address of Employer]  
\_\_\_\_\_ [name of Contract]

Gentlemen:

In accordance with the provisions of the Conditions of Contract, sub clause 51.1 ("Advance Payment") of the above-mentioned Contract, \_\_\_\_\_ [name and address of Contractor] (hereinafter called "the Contractor") shall deposit with \_\_\_\_\_ [name of Employer] a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of \_\_\_\_\_ [amount of guarantee] <sup>1</sup> \_\_\_\_\_ [in words].

We, the \_\_\_\_\_ [bank or financial institution], as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to \_\_\_\_\_ [name of Employer] on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding \_\_\_\_\_ [amount of guarantee]<sup>1</sup> \_\_\_\_\_ [in words].

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

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

Yours truly,

Signature and seal: \_\_\_\_\_  
Name of Bank/Financial Institution: \_\_\_\_\_  
Address: \_\_\_\_\_  
Date: \_\_\_\_\_

\_\_\_\_\_

1 An amount shall be inserted by the bank representing the amount of the Advance Payment, and denominated in Bhutanese Ngultrum.

**A. Special Conditions/ Employer Requirement for Design Build Operate and Transfer (DBOT) contract:**

**Construction of 1.00 MLD Package Waste Water Treatment Plant for Jungzhina in Thimphu**

**I. Background Information**

<b>1. Project Background</b>	Thimphu Thromde desires to have the Design and Construction of the <b>Package Waste Water Treatment Plant of capacity 1.00 MLD</b> . The plant is the first phase and will cater to the population of 10,000 inhabitants. The design of 1.0 MLD WWTP is to treat sewage as per standard practice recommended in waste water Treatment Manual allowing for some over loading capacity and peaking.
<b>2. Project Location</b>	The land for the proposed Waste Water Treatment Plant will be made available on the Right bank of Wang Chhu River near Indian Embassy. Total land area available for the WWTP including area for Caretaker's quarter etc, stands at 3857.8 sqm.
<b>3. Topography</b>	Land area for WWTP inclusive of future expansion will be fenced with chain link fence encompassing the complete area of the treatment plant
<b>4. Communication</b>	The area is accessible with both T-cell and B-mobile.
<b>5. Electricity</b>	a. There is no provision for electricity supply so far. Arrangement for supply of electricity need to be arranged by the contractor in consultation with BPC and Client based on the total load required at the plant area.
<b>6. Other factors</b>	b. Raw sewage from Jungzhina Local area will be transported through HDPE trunk sewer of various size. However, connecting the proposed treatment plant to the sewer network and disposal of effluent should be done under this package.  The plant will be of Package type capable of removing B.O.D., SS, fecal coliform, Nutrients etc. efficiently  The process flow sheet of such a typical Package plant is as follows.
<b>7. Influent Sewage Quality</b>	<p>I. The influent sewage is collected from the domestic area of Jungzhina Local area and flow by gravity to the proposed WWTP .</p> <p>II. Raw sewage to the plant will be made available once the WWTP is constructed.</p> <p>III. The quantity of influent into the first phase treatment will be 1.00 MLD</p> <p>IV. Characteristics of Raw Sewage: The quality of the raw sewage has been examined by the Thimphu Thromde on certain relevant parameters. The average quality test results as obtained is as outlined below.</p> <ul style="list-style-type: none"> <li>✓ pH = 7.8-8.5</li> <li>✓ BOD mg/l = 250-300</li> <li>✓ COD mg/l = 400-500</li> <li>✓ TSS mg/l = 150-200</li> <li>✓ Oil &amp; Grease mg/l = 20 (bio degradable)</li> <li>✓ Fecal Coliform = &lt;math&gt;10^7&lt;/math&gt; per 100ml</li> <li>✓ Odor = NO</li> </ul> <p>However, the contractor is required to carry out their own test of the raw sewage and confirm the values for the above parameters.</p> <p>1. Usual R.C.C. Screen chamber with coarse bar screen and fine screen to remove bigger suspended or floating matter from incoming sewage.</p>

	<ol style="list-style-type: none"> <li>2. Oil and Grease trap of R.C.C. with 30 minutes detention time.</li> <li>3. To regulate flow fluctuations and render sewage of a uniform quality a R.C.C. equalization tank is to be provided for constant rate flow to subsequent units. An Air Blower of suitable capacity (volume per hour and head) is also to be provided for this unit for air mixing by bubble aeration at base of tank.</li> <li>4. Raw screened sewage is then fed into aeration basin/ tank where mixed liquor suspended solids (MLSS) 12,000 to 15,000 p.p.m are maintained. This causes faster biological reaction and decomposition is done in shorter time or in a comparatively smaller space. Here oxygen required for aerobic bacteria is given from an air blower of suitable capacity.</li> <li>5. Suction pump does filtration by sucking sewage &amp; subjected to aeration. The water after filtration is almost free from bacteria and viruses and quite clear. It is claimed that removal is up to 90.00% for all life form of organism, hence either chlorination can be dispensed with or a nominal dose may be applied.</li> <li>6. After reaction in bio filter removal should be up to 90% for all life form of organism so that no chlorination shall be required or a nominal dose only required to be given (designer has to be specific about this aspect)</li> <li>7. Sludge production should be minimal and should be removed periodically by a suction truck or after centrifuging dried on beds, there should be no odor problem at all (designer has to be specific on this aspect in clear terms)</li> </ol>
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**II. Particular Requirement of the Package**

<p><b>1 Project Background &amp; Scope of Work</b></p>	<ul style="list-style-type: none"> <li>➤ The proposed area available for the construction of WWTP is 3857.8 sqm which is 95.35 decimal approximately (the site plan drawing is enclosed)</li> <li>➤ The Scope of Work under this <b>Contract includes the design, supply, construction, installation, testing, trial run, commissioning and performance guarantee test and 3 years of operation and maintenance of the 1.00 MLD package Waste Water Treatment Plant at Jungzhina in Thimphu, Bhutan</b> (hereinafter referred to as “the Works”), following successful completion of the commissioning, completion of operation and maintenance and issuance of the Taking-Over Certificate for the Works.</li> <li>➤ The battery limits for the proposed WWTP shall commence from inlet (Raw Sewage Out-fall sewer end point) and outlet which goes to Wang Chhu river with necessary disposal arrangements.</li> <li>➤ The proposed package WWTP should be compact and odorless. All the treatment units should be closed/covered.</li> <li>➤ The STP should have two parallel units starting from the raw sewage inlet chamber till the final effluent discharge point to facilitate uninterrupted operation I;e when one unit of the plant is being shut down, the other unit is in operation.</li> <li>➤ The Operation &amp; maintenance period is three (3) years.</li> <li>➤ An alternative power source or generator set of adequate capacity is to be provided as a backup during power failure.</li> <li>➤ Proper over flow and by pass provisions during emergencies must be incorporated/put in place.</li> <li>➤ Laboratory set up, store, toilet and wash room within the treatment plant area.</li> </ul>
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	<ul style="list-style-type: none"> <li>➤ Perimeter fencing and gate, car park and road access within the treatment plant (from gate to car park).</li> <li>➤ Site development and land scaping</li> <li>➤ River protection works (gabion wall similar to the existing gabion wall).</li> <li>➤ Compound lighting</li> <li>➤ Water supply and sanitation for the STP</li> <li>➤ Surface drainage of the complete STP area.</li> </ul> <p>a.     <b><u>Survey and Investigation</u></b></p> <p>The following activities shall be carried out / confirmed by the Bidder:</p> <p>Confirm the necessary topographical survey and, if required, sub soil investigations.</p> <p>Conduct raw waste water tests for BOD, total SS, Fecal coliform, pH, temp etc.</p> <p>b.     <b><u>Design Submissions</u></b></p> <p>The bidder shall provide all detailed Designs and Drawings as may be required for execution of the works under the contract. The Design submittals shall include but not limited to:</p> <ul style="list-style-type: none"> <li>i.     Detail layout Plan. The plant shall be designed and constructed with two parallel units with each unit comprising of bar screens, oil &amp; grease chambers, flow measuring devices, v-notch/Parshall flume, equalization tank, sedimentation tank, clear water tanks, sludge holding tank and tertiary treatment units.</li> <li>ii.    Detail hydraulic design &amp; drawings, profiles of the plant indicating the RL at all levels from the last manhole (entry of raw sewage) to the final effluent discharge point into the river.</li> <li>iii.   Process Design, design calculations and Drawings for the WWTP</li> <li>iv.    Structural Design and Drawings of Civil Structures and Ancillary Buildings</li> <li>v.     Design and Drawings for Electro-mechanical components</li> <li>vi.    Necessary Design, Drawings for Instrumentation and Supervisory Control and Data Acquisition (SCADA)</li> <li>vii.   Any other Design, Drawings and Diagrams that may be necessary for execution of the works.</li> <li>viii.  Complete Working drawings to facilitate the construction of all the components.</li> <li>ix.    Detailed layout of the waste water Treatment Plant showing the location of the various units along with perimeter chain link fencing and Gate.</li> <li>x.     Architectural drawings including traditional Bhutanese architecture where ever required.</li> <li>xi.    Storm water drainage system of the Treatment Plant Area</li> <li>xii.   Waste water treatment and disposal system for WWTP and other buildings/care taker's quarter</li> <li>xiii.  Electrifications required for Treatment plant area/compound lighting.</li> <li>xiv.   Provision for drinking water facilities within WWTP area.</li> <li>xv.    Landscaping and plantation within the WWTP area.</li> <li>xvi.   River Protection works.</li> <li>xvii.  Any other site development works required or as suggested / proposed by the client.</li> <li>xviii. operation and maintenance cost for three years which includes (salary of the operators, chemicals, lab tests, electricity and any other consumables). The number of operators required and their qualifications must be mentioned</li> </ul> <p><b>Note: The successful bidder must give a detail presentation of the proposed WWTP. The proposed plant must be most efficient and optimal treatment system in the current Bhutanese context to achieve the given effluent standard.</b></p>
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	<p style="text-align: center;"><b>c. <u>Units of the Treatment Plant</u></b></p> <p>The bidder has to propose while submitting the tender, units of the treatment system in detail with supporting design calculations for achieving the treated sewage quality as mentioned in flow chart diagram. The details shall include but not be limited to:</p> <ol style="list-style-type: none"> <li>i. Inlet Chamber</li> <li>ii. Raw sewage inlet system with online flow measurement</li> <li>iii. Screen chambers (course and fine screen)</li> <li>iv. Oil and grease chambers (Auto removal if applicable)</li> <li>v. Equalization tank for aeration</li> <li>vi. Settling tank basin/settler</li> <li>vii. Chlorination Tank by e-dosing (if required)</li> <li>viii. Filters (Pressure sand &amp; carbon filters) if required.</li> <li>ix. Sludge Treatment arrangement and quantity of sludge for daily disposal</li> <li>x. Outlet with automatic online flow measuring system</li> </ol> <p><b>However, the bidders may also propose other treatment methods but better options that meets the effluent quality (Table 1.2) and to minimize capital and operational costs.</b> Layout and orientation of different treatment units and the future expansion within the area available will also be submitted along with the tender. The Client will evaluate the proposed system for selection of the successful bidder. The tertiary treatment by sand and carbon filters are only optional and if the required effluent standards specified in the data can be met with without the tertiary treatment the bidder may omit the tertiary treatment by sand and carbon filter.</p> <p><b><u>Scope of Construction and Execution</u></b></p> <p><b>d Civil/General Works</b></p> <p>Following are the physical structures and civil works to be designed, built, operated and maintained under this contract</p> <ul style="list-style-type: none"> <li>✓ Raw sewage in-let.</li> <li>✓ Waste Water Treatment Plant, including Pipes, Valves, Pumps, motors fittings, and proposed units of WWTP (proposed by the bidder)</li> <li>✓ Perimeter fencing and gate</li> <li>✓ Car park</li> <li>✓ River training</li> <li>✓ Site development &amp; Land scaping</li> <li>✓ Storm Water Drains with proper outfall within the WWTP area</li> <li>✓ Drinking Water Supply System within the WWTP area</li> <li>✓ Lighting Arrangement for WWTP including compound lighting</li> <li>✓ Treatment and Disposal of wastewater generated from WWTP, Buildings and ancillary Units</li> <li>✓ As Built Drawing</li> <li>✓ O&amp;M Manual</li> <li>✓ Staffs training</li> </ul> <p>e. <b>Presentation:</b> The successful bidder should make a detail presentation on the process and technology adopted for the WWTP to demonstrate and convince the Employer that the proposed plant is the most efficient and optimal treatment system in the current Bhutanese context to achieve the given effluent standard.</p>
<p><b>2. Electro-Mechanical Works</b></p>	<p>a. The scope includes design, equipment selection, inspection including supply, erection, testing and commissioning of all electro-mechanical components including Pipes, Valves, Pumps, motors and all other mechanical and electrical equipment along with detailed technical specification and or</p>

	<p>approved vendors specifications required for successful operation of the plant and other infrastructure within the area boundary. The Bidder shall provide necessary Drawings, Sketches, schematic diagrams or notes for the approval of the Engineer that maybe required for completion of the works in all respects.</p> <p>b. Air blowers, pumps, generators etc. shall be housed separately and the noise level shall be minimum and well within the international accepted levels. If necessary, noise reducers/silencers or other available measures will have to be put in place to further bring down the noise level to an acceptable level. The bidder shall provide necessary test certificates indicating that the equipment has passed the test and is well within the permissible noise limit.</p>
<p><b>3. Instrumentation and Control</b></p>	<p>a. The scope includes conceptualization, design, pre-dispatch inspections, supply, installation, pre- commissioning tests, commissioning, trial run and operation and maintenance of the entire Automation, Instrumentation and Control and Programmable Logic Control System. <b><u>The system should be operative during power failure with proper backup/ with alternative arrangement power source (Generator of sufficient capacity to run the plant).</u></b></p>
<p><b>4. Specifications</b></p>	<p>a. The bidder must submit detailed specifications to be adopted to implement the work and to be approved by the Client. Detail specifications for the following (but not be limited to) must be submitted.</p> <ul style="list-style-type: none"> <li>✓ General Civil work</li> <li>✓ Sanitary and plumbing works</li> <li>✓ Mechanical works</li> <li>✓ Electrical works</li> <li>✓ Instrumentation Automation and Control System</li> <li>✓ Landscaping and plantation of the WWTP area</li> </ul> <p>b. The proposed specifications as suggested by the bidder should be with reference to the official codes of any country or internationally accepted/recognized and that are to be shared with the Client for getting prior approval. The Client’s decision in this regard is final and to be accepted by the bidder.</p>
<p><b>5. Training Client’s Personnel</b></p>	<p>a. The Bidder shall be responsible to provide practical training on all aspects of the operation, maintenance, and repair of the Plant, equipment and facilities to all personnel (not more than six employees) selected by the Client who will ultimately be responsible for the operation, maintenance and repair of the Plant and its facilities.</p> <p>b. The Bidder shall provide a comprehensive training program for the Employer’s personnel during the entire period of the trial run and commissioning, and for a long period thereafter as may be reasonably required to ensure that the designated personnel are adequately trained to take up their responsibilities.</p> <p>c. The Bidder has to provide full time trainers who are skilled in training and familiar with all the normal and special operational conditions of the mechanical, electro-mechanical, electrical, instrumentation and control equipment of the Work.</p> <p>d. All costs for the Bidder’s personnel and the training facilities required for the training, and any incidental training expenses, shall be included in the Contract Price.</p> <p>e. In addition, the Bidder has to provide refresher training to Employer’s designated staff or advanced training during the Contract period. The objective of training is to pass on lessons learned during O&amp;M period to operate and maintain the system independently later on. The training costs, transport, accommodation, and per diem of the trainers shall be borne by the Bidder. The full program shall be drawn out by the Bidder and approved from the Client</p>

<p><b>6. Completeness of the Offer</b></p>	<p>a. The Bidder shall be fully responsible to include in his bid the whole of the Works, including each individual component, designed and constructed in accordance with good engineering practice and best Industrial standards. <b>The offered plant should function as a whole, a fully integrated system that is capable of achieving the required treated sewage parameters in an efficient and economical manner.</b> The offer shall include all buildings, plant, equipment and accessories required for the efficient, safe and satisfactory operation of the facilities. The Bidder within the tendered cost shall provide any accessories which are not specifically mentioned in the specifications/requirement, but which are usual or necessary for completion of the Works and successful performance of the plant and facilities. The Bidder shall, to the maximum extent practical and feasible, endeavor to offer standardized designs and Plant and equipment keeping in view minimization of operation and maintenance requirements. The Bidder shall ensure that his offered designs and equipment are "maintenance-friendly".</p>
<p><b>7. Trail Run of the System</b></p>	<p>a. After execution of the works the Bidder shall make trial runs of the individual components. A continuous operation of the component for a period of 15 days to the satisfaction of the Client will be deemed to demonstrate satisfactory completion of individual component. The cost of electricity, chemicals, and other consumables along with cost of tools and spare parts, which are required for operation and maintenance of the plant and equipment during the period, will be borne by the Bidder. In the event that the System or any of the facilities do not satisfactorily achieve the required performance standards during this period, the trial run period shall be extended until such time as the Bidder has satisfactorily rectified any deficiencies as may be necessary to satisfy the performance requirements, at the risk and cost of the Bidder. The costs towards the Bidder's Representative and other operating personnel during the period of trial run shall also be borne by the bidder.</p>
<p><b>8. Commissioning of the System</b></p>	<p>a. On completion of the Trial Run, the System shall be commissioned by the Bidder. The total time allotted for commissioning of the full system is 30 days. The commissioning of the system shall be considered as fully achieved after the full system has run continuously for a period of 30 days without any breakdown to the satisfaction of Client. If continuous run is not achieved fully to the satisfaction of Client, the Bidder has to do the needful to achieve the same at his own cost. All the costs thereof, including the cost of raw sewage and its transportation to facilitate testing and commissioning, training of staff, maintenance, and any other consumables for operation and maintenance of the system and electricity consumed, including that associated lab test during the commissioning period shall be borne by the Bidder.</p>
<p><b>9. Operation and Maintenance</b></p>	<p>a. Once the commissioning of plant as whole is completed successfully, a commission completion certificate may be issued by the Client. Contract for operation and maintenance shall start thereafter. The Bidder shall be responsible for providing guidance operation and maintenance of the System for a period of <b>three years</b> commencing from the date of successful Commissioning of the system. Notwithstanding the above, the Bidder will be required to rectify any deficiencies that are attributable to defects in the workmanship or quality of materials, Plant, or equipment during the Contract Period. An Operation and Maintenance Manual will be prepared and submitted by the contractor for operating and maintaining the plant. Requirements and conditions to be met during operation and maintenance tenure. The cost of electricity required for operation and maintenance of the plant for a period of three years, will be borne by the client.</p> <p>b. During the O &amp; M period the bidder will appoint a plant in-charge with a minimum qualification of diploma in civil engineering who is well versed in the operation &amp; maintenance of the plant. He/she shall be responsible for the</p>

overall management of the plant including maintaining of records, carrying out preventive maintenance, oversee repairs and prepare and submit reports etc. as requested by the client. The plant manager shall be appointed from the start of the three years O & M. All costs including his/her salary, per diem, transport etc. shall be borne by the contractor and is deemed to have been included in the bid price.

**10. Maintaining Quality of Treated Sewage**

a. The quality of Treated sewage to be maintained during the operation of the treatment plant has been set up based on mostly NEC guideline values. However, for some parameters the values to be achieved would be more stringent than the guideline values according to the situation analysis. The maximum permissible limits of different parameters related to treated sewage quality are presented in Table 1.2. The values of parameters should never exceed the maximum permissible limit during operation of the treatment plant.

**Table 1.2: Treated Sewage Quality to be achieved during Plant Operation**

pH	7-9
B.O.D.	<30 mg/l
Total Suspended solids	<100 mg/l
Fecal coli form	< 1000 MPN/100ml
Odor	Odorless

*The effluent shall be discharged to the Wangchu river in conformity to the standards set by the National Environmental Commission (NEC). Any additional units, if required to be built at a later stage to further improve the effluent quality as per the desired standards shall be provided by the contractor at their own cost. One-time COD test shall be carried out during the testing & commissioning period.*

b. The successful bidder must produce results of all the above parameters after commencement of operation of the Waste Water Treatment Plant during trial run. These analyses may have to be carried out from any Government affiliated laboratories of Bhutan or of any neighboring countries mutually agreed upon by the Client and the bidder. If the values of any parameter(s) exceed the limit given in table 1.2 during the test, proper operational rectifications should be made to bring down the value of the said parameters within maximum permissible limit. After that, general test for selected parameters mentioned in the Table 1.3 have to be done routinely at specified frequency as per the direction of the Client and result should be submitted to the Client.

**Table 1.3: Parameters of treated sewage to be examined In the Plant laboratory and frequency of Testing**

Sl.No	Parameter	Frequency of testing and submission of result
1	pH	once a week
2	Suspended solids	Once in one month and as when deemed necessary
3	Fecal coli form (CFU/100ml) or (MPN/100ml)	once in one month and as when deemed necessary
4	BOD	once in one month and as when deemed necessary

**11. Quality Assurance**

- a. All material and equipment shall conform to International Standards after approval of the Client.
- b. The control schemes proposed for the WWTP shall comprise the following.
  - **The minimum level of automation shall be ensured** such that the plant operations and treated sewage quality parameters are not deteriorated due to lack of operator attention particularly in night shifts.
 The control schemes proposed for the WWTP shall comprise the following but not be limited to:

	<ul style="list-style-type: none"> <li>✓ Pressure indicating system.</li> <li>✓ Level sensing in flow channels</li> <li>✓ The flow measurement system.</li> </ul> <p>c. Bidder shall prepare final detailed design according to relevant International Standard and standard Engineering practice.</p> <p>d. The Bidder should provide guarantees for all the equipment provided in the projects. Irrespective of the suppliers/manufacturers guarantees, the Main/Principal Contractor shall be fully responsible for the performance of the plant and all equipment supplied for the project for the period of three years after the successful commissioning of the plant.</p>
<b>12. Civil Works</b>	a. The Bidder shall comply with the provisions and requirement of the approved Quality Assurance / Quality Control document submitted by the bidder and the International Standard Specifications for Civil Works, as applicable.
<b>13. Materials, Plant and Equipment</b>	<p>a. <b>The Bidder shall place orders for the material and the equipment only after approval of the Client.</b></p> <ul style="list-style-type: none"> <li>i. The drawing has to be approved by the Client before manufacture and testing.</li> <li>ii. The material has to be inspected by the Client or by an inspecting agency approved by the Client at the manufacturer's premise before packing and dispatching.</li> <li>iii. <b><u>The inspection charges of the inspecting agency personal will be borne by the bidder.</u></b></li> <li>iv. The material / plant / equipment should pass the inspection and / or test as specified in the relevant codes proposed by the bidder and approved by the Client.</li> <li>v. The Bidder shall provide the necessary equipment and facilities for tests and the cost thereof shall be borne by the Bidder.</li> <li>vi. Notwithstanding the above, the Client, after examination of the test certificates, reserves the right to instruct the Bidder for retesting, of such equipment / material if required, in the presence of the Bidder's representative.</li> <li>vii. Following approval by the Client, the material manufactured as per the approved standards may be delivered to the Site.</li> <li>viii. For material/equipment the Client will provide an authorization for packing and shipping after inspection.</li> </ul> <p>b. <b>Operation and Maintenance Manual</b></p> <ul style="list-style-type: none"> <li>i. The Bidder, before commencement of the Tests on Completion, shall submit the operation and maintenance manual, in English language, containing descriptions, illustrations, sketches, drawings, sectional drawings, sectional arrangement view and manufacturer's parts numbers to enable the connections, functions, operation and maintenance of all components of the complete plant.</li> <li>ii. The Bidder shall provide the contact address and telephone number of each key equipment supplier for equipment/instrument installed in the plant.</li> <li>iii. The operation manual shall also include the following: <ul style="list-style-type: none"> <li>✓ Technical data of each equipment/instrument</li> <li>✓ Performance characteristics and other relevant details of each equipment/instrument.</li> <li>✓ Instructions for lubricating servicing and overhauling, service life of each equipment/instrument at normal wear and tear.</li> <li>✓ Particulars of lubricating oil and grease to be used, also alternative indigenous commercial lubricating oils, grease etc. suitable for use.</li> <li>✓ Start-up procedure for the WWTP including that of various equipment/s.</li> <li>✓ List of tools mounted on wall panels.</li> <li>✓ List of spares provided in the spare box.</li> <li>✓ Spare parts list, with manufacturer's part numbers and their name and address of nearest dealers/suppliers</li> <li>✓ Inventory management procedures including re-order levels for each component for item. Should include a reasonable recommended list of number</li> </ul> </li> </ul>

	<p>of replaceable spare parts that need to be stacked to avoid plant shut downs due to lack of parts.</p> <ul style="list-style-type: none"> <li>✓ Operator’s Log.</li> <li>✓ List of the photographs/drawings of the plant and machinery as fabricated by the manufacturer.</li> <li>✓ Trouble shooting aspects of the process and equipment/instrument</li> <li>✓ Operating the plant under abnormal conditions e.g. during prolonged power failure/ shut down, sudden influence of waste containing toxic chemicals and restarting the plant or its section after prolonged shut down.</li> <li>✓ Prepare Standard Operating Procedures (SOP) for different units of WWTP and the equipment used.</li> </ul> <p><b>c. The maintenance manual shall also include the following:</b></p> <ul style="list-style-type: none"> <li>i. Emergency response procedures</li> <li>ii. Procedures for break down &amp; preventive maintenance.</li> <li>iii. Preventive maintenance procedures for all the equipment.</li> <li>iv. Emergency maintenance management of the plant and equipment.</li> <li>v. Safety aspects including protection against hazards.</li> <li>vi. Other codes of practices, protocols.</li> <li>vii. Duties &amp; responsibilities of the plant staff including their rotation.</li> </ul> <p><b>d. Tests on Completion (Performance Guarantee Test)</b></p> <ul style="list-style-type: none"> <li>i. The Bidder shall carry out the “Performance Guarantee Test” (PG test) on completion before taking over</li> </ul>
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**III. Inspection and Testing requirements**

<b>1. General</b>	<p><b>1.1</b> All tests shall be carried out by the bidder. Prior to the commencement of these tests, the Bidder shall submit the same for approval of the Client.</p> <p><b>1.2</b> All the tests shall be conducted in the presence of Client and shall not be commenced until the Client approves the aforementioned documents.</p> <p><b>1.3</b> Tests on Physical Completion of Plant and Facilities</p> <p>d. DRY TEST / General</p> <ul style="list-style-type: none"> <li>i. A general inspection to check for correct assembly, installation of all equipment etc., and quality of workmanship.</li> <li>ii. A check on the presence of lubricant, cooling medium, etc.</li> <li>iii. A general check to ensure that all covers, access ladders, water proofing, guard railings, etc are in place; and</li> <li>iv. A check on damp-proofing, rust – proofing, vermin-proofing and particularly the sealing of apertures between building structures, chambers etc.</li> </ul>
<b>2. Hydraulic Wet Test</b>	<p><b>2.1</b> Hydraulic wet tests shall be carried out on completion of dry tests. Raw sewage, partially treated sewage and treated sewage according to the positions/locations of the units shall be used for hydraulic performance of the Works. In order to demonstrate hydraulic wet test, the Bidder shall ensure that each part of the works is hydraulically loaded to its rated throughout for a period of at least twenty-four (24) hours. In order to remove doubt, the following tests, inter alia, shall be carried out:</p> <ul style="list-style-type: none"> <li>a) Pressure testing of all piped systems in accordance with the relevant standards;</li> <li>b) Filling of all structures and check for leaks and structural stability;</li> <li>c) Running of all rotating systems in order to check for: <ul style="list-style-type: none"> <li>i. Correct functionality;</li> <li>ii. Absence of leaks;</li> <li>iii. Allowed temperature rise, smoothness of running and the absence of undue vibration, stress, and noise level; and</li> <li>iv. Check drives running currents, power-factor, efficiency etc. under full load conditions</li> </ul> </li> </ul>

	<p>of all equipment.</p> <p>d) Carry out calibration of instruments, especially flow meters, pressure indicators for raw sewage and treated sewage where appropriate;</p> <p>e) Check valve fittings, diversions etc. for full hydraulic load (or where there is a requirement to withstand no load to overload) on each process element;</p> <p>f) Check for demonstration of correct functionality of electrical, control, and instrumentation systems.</p> <p>g) Assess leakage levels in piping, gates and valves etc.</p> <p><b>2.2</b> During these tests a check on the performance of Plant shall be made, as far as site facilities will allow, to compare its site performance with the factory test data and to identify any constraints on performance due to site conditions.</p>
<b>3. Safety Audit</b>	<p><b>3.1</b> After satisfactory completion of the hydraulic wet tests and prior to the continuous introduction of raw sewage to the plant, a safety audit shall be carried out to ensure compliance with the necessary requirements of safety during operation of the Plant. The safety audit shall be documented. The Clients shall approve the safety audit document.</p>
<b>4. Tests on Completion</b>	<p><b>4.1</b> Performance Guarantee tests (PG tests)</p> <p>I. Once the Bidder is satisfied with the stabilization of critical units and energy efficiency of the system, it will inform the Client in writing that it is ready to perform performance guarantee test (PG Test). The performance guarantee test will be conducted at a mutually agreed convenient date.</p> <p>a) The plant shall test on full capacity for final commissioning.</p> <p>b) The plant shall be operated at rated capacity of 1.00 MLD. The amount of treated sewage should not be less than 1.00 MLD</p> <p>c) During the tests the Bidder shall take samples to demonstrate that each part of the works and the works as a whole is performing in accordance with functional guarantees. In case, functional guarantees are not met during the Performance Guarantee Test, Performance Guarantee Test shall be considered to have failed.</p> <p>d) In case of failure of first Performance Guarantee Test, action shall be initiated in accordance with contract. In any case, the extension for clearing the PG Tests shall not be extended beyond 90 days after the Works has failed the first Performance Guarantee Tests.</p> <p>e) In case of failure of Performance Guarantee Test, in-respect of treated sewage quality parameters as mentioned in table 1.2 the works shall be rejected and the Performance Security shall be forfeited by the Client without referring to the Bidder.</p> <p><b>f) All consumables needed for the Test run, Commissioning and O&amp;M of the works such as laboratory chemicals, lubricants, raw sewage and transportation to site, shall be provided by the Bidder.</b></p>
<b>5. Tests after Completion</b>	<p><b>5.1</b> During O &amp; M period, tests for treated sewage quality as mentioned in <b>Table 1.2</b> shall be done as per the frequency specified in the same table. These shall be recorded as per the standard forms approved by the Client. The values observed on collected samples shall comply with the guaranteed values in 100% samples. For monitoring the compliance of power guaranteed and actual power consumed, the following procedure shall be adopted.</p> <p>a) The process energy meter reading, as per local authority, shall be recorded in the presence of Bidder on every first of the month. Bidder and Client shall sign this monthly record.</p> <p>b) The flow integrator reading will be recorded every day at an appropriate time. The Bidder and the Client shall sign this daily record.</p> <p>c) The values of Coliform counts and Turbidity or SS measured shall also be recorded and signed.</p> <p>d) The Client reserves the right to send part of the sample collected by the Bidder to outside laboratory of its choice, periodically without any notice.</p>

	<p><b>5.2 Performance Certificate</b></p> <ul style="list-style-type: none"> <li>a) The conditions for issuance of a Performance Certificate of the Conditions of Contract shall inter-alia comprise of the following items:</li> <li>b) The completion of the three (3) years operation of the works to the satisfaction of the Client.</li> <li>c) The submission of updated O &amp; M Manuals have been made following three (3) years of operational experience and approved by the Client.</li> <li>d) All defects identified prior to Taking Over and defects identified during the three years operation of the Works have been rectified;</li> <li>e) All Tests after Completion have been completed to the satisfaction of the Client.</li> <li>f) Training(s) detailed as proposed by the bidder and approved by the Client have been completed.</li> </ul>
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**IV. Operation and Maintenance**

<p><b>1. General Requirements for Operation and Maintenance</b></p>	<p><b>1.1</b> The Bidder shall operate and maintain the entire Plant within its contract price for a total operation and maintenance period of three (3) years from the date of receipt of a Certificate for Satisfactory Completion of commissioning the Plant from the Client. All necessary repairs, maintenance, overhaul, replacements etc., shall be made during the O &amp; M to maintain the Plant at the status of formal handing over after the P G test. At the end of O &amp; M period the plant shall be handed over to the Client in a fully functional and new condition except normal wear and tear.</p> <p><b>1.2</b> The O &amp; M bill shall include the cost of supply of all tools, tackles, spares, lubricants, laboratory chemical, and glassware. Water and power supply facilities shall be installed by the Bidder under this package and the power bills for operations shall be also borne by the contractor. The scope of O&amp;M shall include but not be limited to the following items:</p> <ul style="list-style-type: none"> <li>a) Operation and Maintenance including Civil, Electrical, Mechanical and all allied works</li> <li>b) Sampling and testing of raw sewage and treated sewage based on the tests and frequency desired by the Client and mentioned in Section-II.</li> <li>c) Sampling and testing of additional samples for the day-to-day O &amp; M of the WWTP, and as mutually agreed from time to time between the Bidder and the Engineer In Charge.</li> <li>d) Sampling of final treated sewage shall be carried out to ensure that the guaranteed parameters are as stipulated in the bid document. The sampling frequency will be as decided by Client. The Client reserves the right to collect samples at random through any agency nominated by it. The Client shall have the right to seek a part of sample collected by the Bidder without any prior intimation to cross check the results on a random basis. However, the charges for analysis of such samples shall be borne by the Client.</li> <li>e) O &amp; M of all functional and utility buildings, infrastructure and common areas within the Plant campus.</li> <li>f) Proper maintenance of Water Supply, Drainage, Sewerage, Roads, Lighting, Paths, lawns including trimming and upkeep of gardens etc.,</li> <li>g) Maintenance of Proper records of sampling as per approved proforma.</li> <li>h) Loading, unloading and transportation of screenings and sludge out of treatment Plant site to the place as directed by the Client from time to time at the cost of the contractor. The modalities for final disposal of sludge etc. shall be worked out by the Client at a later date.</li> <li>i) Maintenance of log books of all the machinery shall be done separately &amp; collectively, at the WWTP fortnightly and monthly reports of all such machinery and parameters monitored shall be generated and the hardcopy along with soft copy shall be approved by the Client. These reports shall contain sufficient appropriate and adequate data to make the records meaningful and amenable to analyses for evaluating the performance of the Plant as well as to help in O &amp; M decisions.</li> <li>j) Security of the WWTP compound / campus and contents therein shall be Bidder's responsibility.</li> <li>k) The records maintained by the Bidder shall be produced periodically to the Client for proper monitoring. The Engineer in Charge's remarks shall be attended to in the next submission. Consolidated summary reports, containing salient features, shall be furnished to the Client on a monthly, quarterly and yearly basis.</li> </ul> <p><b>1.3</b> The Bidder shall also maintain history sheets of overhauling, maintenance, replacement of all the electrical and mechanical equipment. The O &amp; M shall include the appropriate preventive maintenance of equipment as per the manufacturer's recommendation.</p>
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<p><b>2. Down time:</b></p>	<p><b>2.1</b> The Plant shall never be operated at less than 50% of its design capacity due to maintenance and repair reasons. The period of such exceptional operation shall not exceed two consecutive days and shall not be more than three days a week. The maximum downtime of the whole Plant shall not exceed 8 hours.</p>
<p><b>3. Operation of the Plant as per O &amp; M Manual:</b></p>	<p><b>3.1</b> The Plant shall be operated according to the rules and procedures documented in the O &amp; M manual. The Plant must be in position to work at the design capacity (1.00 MLD) always except during the downtime.</p>
<p><b>4. Awareness &amp; Cleanliness</b></p>	<p><b>4.1</b> The Bidder and his staff shall maintain a high degree of awareness in operation and maintenance of the Plant and all relevant safety codes and procedures. At all times the Plant, its equipment and surrounds shall be kept clean and order including the buildings, floors, walls, roofs, windows, and garden etc.</p>
<p><b>5. Frequency of Preventive maintenance</b></p>	<p><b>5.1</b> The preventive maintenance shall be carried out according to the preventive maintenance schedule of the Plant. For special maintenance tasks, the regular staff may be supplemented with short-term specialists by the Bidder, after duly informing the Client of the need and the schedule.</p>
<p><b>6. Repairs</b></p>	<p><b>6.1</b> Repairs shall be made as and when needed very promptly on the spot or at the Bidder's / Manufacturer's workshop. The need of repair on the spot or at the Bidder's workshop has to be defined in co-ordination with the Client and according to the status of spare parts availability.</p>
<p><b>7. Spare parts</b></p>	<p><b>7.1</b> The Bidder shall keep a reasonable stock of spare parts so that the down time of equipment can be kept within the limits specified.</p>
<p><b>8. General Obligation</b></p>	<p><b>8.1</b> The Bidder shall operate and maintain the entire Plant under this contract for the period of three (3) years as specified in this contract, which may be extendable for a further period at the Client's option with a suitable increase to be mutually agreed within the last six month of O &amp; M contract.</p> <p><b>8.2</b> The Bidder will submit a detailed operation and maintenance plan for approval by the Client. All operation and maintenance activities shall be carried out strictly in accordance with the approved plan.</p>
<p><b>9. Operation</b></p>	<p><b>9.1</b> Operational services</p> <ul style="list-style-type: none"> <li>a) The Bidder shall operate the complete Waste Water Treatment Plant and associated services on a continuous 24-hour basis.</li> <li>b) If it is determined that the facility is not capable of meeting the design parameters for any reason beyond the Bidder's control and not attributable to him, the Bidder shall determine the specific cause of failure/ abnormality in the Plant functioning and report to the Client and seek his directives on the necessary corrective action to be taken/adopted.</li> <li>c) The Bidder at his own expense shall provide all tools, cleaning, and housekeeping equipment, security and safety equipment</li> </ul> <p><b>9.2</b> Laboratory services</p> <ul style="list-style-type: none"> <li>a. The Bidder shall perform all tests, sampling and analyses regularly as approved by the Client and as per the O &amp; M standards.</li> </ul> <p><b>9.3</b> Manpower</p> <ul style="list-style-type: none"> <li>a. The Bidder shall provide experienced managerial, technical, supervisory, laboratory, administrative, and non-technical personnel and labor necessary to operate and maintain the treatment Plant. While doing so due consideration shall be given to the labor laws of Royal Government of Bhutan in force.</li> </ul> <p><b>9.4</b> Reporting</p> <ul style="list-style-type: none"> <li>a. The Bidder shall prepare consolidated daily reports, weekly and monthly reports on Plant</li> </ul>

	operation and maintenance and submit to the Client.
<b>10. Training</b>	<p><b>10.1</b> The Bidder shall be responsible for instructing and training of all his personnel in all aspects of Plant operation and maintenance till the end of the operation and maintenance period. The Bidder shall also be responsible for training personnel designated by the Client and who will operate the Plant at the expiry of the contract.</p> <p>a) The training shall be organized in two (2) stages as follows:</p> <p style="padding-left: 40px;">I. Basic technical training education to be carried out during the final stages of the erection period of the contract through literature, manuals, handouts demonstration at site, etc.</p> <p style="padding-left: 40px;">II. Intensive on-the- job training during commissioning and maintenance period.</p> <p>b) By the end of this training period these personnel should be able to carry out their respective duties efficiently under the supervision of Engineer in Charge and supervisory staff of the Client.</p> <p>c) The Bidder shall provide at his cost all local transportation, literature and other related stationery to be used by trainers and trainees during the training period.</p> <p style="padding-left: 20px;">a. Towards the end of O &amp; M contract period, training shall be conducted once again to Client’s personnel or their authorized personnel. This training shall be for duration of maximum 15 days specified by the client based on the actual assessment.</p> <p>d) The training should be conducted by an experienced trainer who shall be available throughout the training period to ensure that the operators are familiar with all types of operational problems and can independently operate and maintain the plant. The trainer shall also ensure that operators fill in all forms/logs on a regular basis.</p> <p>e) The CV of the trainer must be approved by the client.</p> <p>f) The trainer should have minimum two years of work experience in relevant field and should be able to communicate fluently in English.</p> <p>g) A detail training schedule with course contents of the training must be submitted to the client for approval.</p>
<b>11. Record of Raw and treated sewage Flow</b>	<p><b>11.1</b> Daily inflow (raw sewage) and out flow (treated sewage) record and hydraulic load on each unit of plant must be maintained by the Shift –in- charge and contain data on Plant functioning.</p> <p><b>11.2</b> The bidder may suggest and get approval from the Client for formats for monitoring and recording of overall function of the WWTP.</p>
<b>12. Operation and Maintenance Manual</b>	<p><b>12.1</b> The Bidder has to submit as operation and maintenance manual after the physical completion of the work. This manual will be submitted as draft at the date of physical completion and as final version one month after commissioning.</p>
<b>13. As – Built Drawing</b>	<p><b>13.1</b> The Bidder shall submit to the Client within three months of actual completion, “AS BUILT” drawings. “Completion” Drawings. These Drawings shall be accurate and correct in all respects and shall be shown to and by the Client. These drawings shall be developed in Auto CAD –most recent version. Site plan showing all features as constructed under this contract with all external dimensions of clear spacing among units, diameter and material of pipeline etc. all complete. Architectural, civil and structural details of all components of the Plant, including plans at different levels, elevations from all sides as well as sections etc. complete with all dimensions including structural thickness, concrete grade, reinforcement details, finishing details, schedules of doors and windows, details of associated fittings and features complete. All piping, plumbing and electrical details with dimensions, diameters etc. complete. At specific cases isometric views of piping may be necessary. Dimensional details of all electrical, mechanical and instrumentation equipment including accessories along with arrangement inside the buildings or enclosures, connected piping and cabling, layout, etc. all complete.</p> <p><b>13.2</b> Dimensional details of all control and measuring devices, probes, valves, gates, consoles, panels, switch boards, cable layout etc. for the complete Plant. Fine diagrams and circuit diagrams shall be used wherever applicable.</p>

	<p><b>13.3</b> L-Section for sewer lines showing sewer profile, ground profile, soil condition, bedding location of specials, valves, and other accessories complete.</p> <p><b>13.4</b> Dimension details of all site development works such as roads, drainage, cables, pipelines, landscaping, etc. complete with layout, cross sections, levels, etc. complete.</p> <p><b>13.5</b> All drawings shall be prepared in appropriate scale and with adequate notes, legends, titles, etc. for clarity. The size and formats suggested by the bidder should be approved by the engineer-in-charge prior to submission.</p>
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**V. Technical Schedule**

<p><b>1. Salient features</b></p>	<p>a. Design, supply and installation (including fabrication and Construction) of package Waste Water Treatment Plant of capacity 1.00 MLD including installation of associated civil, mechanical and electrical equipment/ components that are necessary for the treatment of domestic wastewater to the desired effluent standards.</p> <p>b. The package plant shall be provided on the DBO concept i.e. ‘Design, Built and Operate’ and install on either surface or sub-surface as suitable for the site conditions. The WWTP shall essentially consist of units such as bar-screen chamber, oil and grease trap, flow measuring device, biological treatment unit and sludge treatment units (preferably a compact one owing to space constrains).</p> <p>c. Total land area available for provision of WWTP of 1.0 MLD capacity (catering to the needs of ultimate population) including area for circulation, etc., stands at 3857.8 sqm. However, only 1.00 MLD capacity WWTP shall be built under this package while the other WWTP of equivalent capacity shall be built at later stage for which required area shall be made available. A tentative site plan indicating the area may be referred to while configuring the plant layout. The WWTP shall be able to function to the desired level of efficiency up to the minimum temperature of 8 deg. C.</p> <p>d. However, the Employer wishes to clarify that whatever technical specifications are proposed or considered by the Bidder, all equipment which is to be provided by the successful bidder shall conform in all respects to the international standards or as specified in the tender documents, or better, and shall be subject to the approval of the Client. No claim for additional payments shall be entertained during the course of the approval process or thereafter on this account.</p> <p>e. Wherever the Client has allowed an alternative (option) to be provided, the Bidder shall clearly describe, in these Schedules, the option that he is offering. The Bidder shall be wholly responsible to ensure that his offer is compete in all respects, and that all related Plant, equipment and Works which are required to be provided, and which are deemed to be necessary by the Client, are incorporated into his offer.</p> <p>f. It is expected that the Bidder shall quote for supply of equipment and materials of best makes, which conform to the highest international standards. The bidder may refer to the list of preferred or approved makes (in this document) as also in notification provided in the Bhutan Schedule of Rates as acceptable for the works. In its offer, the Bidder should only consider makes from reputed manufacturers of equipment corresponding to the state-of-the-art technology and to the latest international standards.</p> <p>g. Information provided by the Bidder in these Schedules will be used to assist in evaluation of the Bid. However, acceptance of the Bidder’s proposal for the purposes of bid evaluation should not be construed as approval by the Client. All details will subsequently be subject to approval of the Client, during execution of the Works based upon the detailed designs / drawings / data-sheets / specifications / manufacturer’s credentials, details of Sub-bidders, agreements with Sub-bidders, necessary resources in terms of personnel, plant and equipment, construction methodology, work plan, safety plan, procurement plan, QA/QC plan, financing plan, etc., that are required to be submitted by the successful bidder in conformity with the terms and conditions of the Contract for independent assessment and approval by the Client or his Representative before execution.</p> <p>h. Following particulars have to be indicated by the Bidders. They will be considered in</p>
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	<p>tender evaluation in order to assess the suitability and conformity of their offers. However, it is clearly stated that, whichever technical particulars are proposed or considered by the Bidders for his financial offer, the equipment to be finally provided in case of award, shall correspond in all details to the specifications of the tender documents and is subject to the approval of the Engineer in Charge. No claim for additional payments shall be accepted in the course of the approval process or thereafter.</p>		
<p><b>2. Specific Details</b></p>	<p><b>Description of the Proposed WWTP Units</b>, the Bidder shall describe the Waste Water Treatment system to be adopted in sufficient detail so that the Employer can assess the suitability of the Bidder's Proposal.</p> <p>b. <b>Technical Requirements for WWTP</b> The Bidder should provide the detailed technical parameters adopted including preliminary sizing of the Treatment units proposed. The Bidder shall submit the following information:</p>		
<p><b>Sl. No.</b></p>	<p><b>Parameter</b></p>		
<p>A1</p>	<p>Description of the Treatment Units Proposed</p>	<p>(Attach Separate Sheet)</p>	
<p>A2</p>	<p>Hydraulic Flow Chart Enclosed</p>	<p>(Attach Calculations)</p>	
<p>A3</p>	<p>General Layout Plan</p>	<p>(Attach Drawings)</p>	
<p>A4</p>	<p>Preliminary Sizing of the Units</p>	<p>(Attach Calculations)</p>	
<p>A5</p>	<p>Treated Sewage Output</p>	<p><b>1.00 MLD and the treated sewage quality as specified in Table 1.2</b></p>	
<p>A6</p>	<p>Working Hours</p>	<p><b>24 hours a day</b></p>	
<p>B1</p>	<p>Inlet Chamber of STP</p> <ul style="list-style-type: none"> <li>■ Size of Chamber</li> <li>■ Size of Inlet Pipe with Flange</li> </ul>		
<p>B2</p>	<p>Raw sewage Flow Measuring Channel</p> <ul style="list-style-type: none"> <li>■ Width / Depth of Channel (m)</li> <li>■ Details of Flow Measuring devices (including make and Model)</li> <li>■ Accuracy of measurement</li> </ul>	<p>Attach separate sheet</p>	
	<p>Details of Treatment Units For each unit the following data have to be provided</p> <ul style="list-style-type: none"> <li>■ Name of the treatment unit</li> <li>■ Number of units</li> <li>■ Design consideration</li> <li>■ Performance criteria</li> <li>■ Details of all electro-mechanical components, if required in the unit (capacity, make, model and other details complete)</li> </ul>	<p>Attach Separate sheet</p>	
<p>For example, for each key item of the Treatment Unit, the following data may have to be furnished as given below. Similarly, all the relevant data for each unit proposed by the bidder should be provided</p>			
<p><b>2.1 Data Sheet for Mechanical Items</b></p>			
<p>The bidder must furnish technical details of mechanical items required in the proposed treatment plant in separate sheets; however, indicative Data sheet for Pumps and valves are provided.</p>			
<p>Typical Data Sheet for Pumps</p>			
<p><b>Sl</b></p>	<p><b>Parameter</b></p>		<p><b>Data to be filled by Bidder</b></p>
<p>1.0</p>	<p>Usage Description</p>	<p>:</p>	
<p>1.1</p>	<p>Make</p>	<p>:</p>	

1.2	Model	:	
1.3	Type	:	
2.0	Performance		
2.1	Capacity (lps)	:	
2.2	Head (m)	:	
2.3	Efficiency (%)	:	
2.4	Speed (rpm)	:	
2.5	NPSH required (m)	:	
2.6	Shut off Head (m)	:	
2.7	Power Required at duty point (kW)	:	
2.8	Power required at shut off (kW)	:	
2.9	Recommended motor (kW)	:	
3.0	Construction		
3.1	Type of Impeller (Enclosed / Semi open)	:	
3.2	No. of Impeller	:	
3.3	Suction Size (mm)	:	
3.4	Delivery Size (mm)	:	
3.5	Wt. Of pump (kg)	:	
4.0	Material		
4.1	Casing	:	
4.2	Impeller	:	
4.3	Shaft	:	
4.4	Casing Ring	:	
4.5	Shaft Sleeve	:	
4.6	Gland Packing	:	
4.7	Base Plate	:	
4.8	Fasteners	:	
5.0	Characteristic		
5.1	Performance curves	:	

	5.2	Torque-Speed Curve	:	

Data Sheet for Valves

Sl	Parameter		Data to be filled by Bidder
1.0	Usage Description		
1.1	Make	:	
1.2	Rating (bar)	:	
1.3	Size (mm)	:	
1.4	Weight (kg)	:	
1.5	Reference to IS Code	:	
2.0	Construction		
2.1	Gear Arrangement (Yes/No)	:	
2.2	Closing (Clockwise / Anticlockwise)	:	
2.3	Type (Rising / Non-rising spindle)	:	
3.0	Material		
3.1	Body	:	
3.2	Wedge / Disc	:	
3.3	Spindle / Shaft	:	
3.4	Shoe / Seal	:	
3.5	Channel	:	
3.6	Back seat bush	:	
3.7	Seat ring	:	
3.8	Wedge Ring	:	
3.9	Fasteners	:	
4.0	Testing		
4.1	Body Test Pressure (bar)	:	
4.2	Seat Test Pressure (bar)	:	
4.3	Back Seat Test Pressure (bar)	:	

	4.4 Duration (minute)	:																																																		
<p><b>2.2 Data Sheet for Electrical Equipment</b></p> <p>The Bidder shall provide a description of all major Electrical components proposed for the STP. The Bidder shall also include data sheet for the various process Equipment, he proposes to use viz. Transformer, Induction motor, Capacitor etc.</p> <p><b>2.3 Data Sheet for Automation, Instrumentation and Control</b></p> <p>The Bidder shall provide a description of the Automation and Process Control proposed for the STP. The Bidder shall also include data sheets for the various process equipment, proposed to be used. Typical Data Sheets for Electro-magnetic Flow Meter, level Transmitter. The details of the equipment and instruments to be used for analysis of the parameters as specified in Table 2.2 in the laboratory must be provided.</p> <p>Data sheet for Full Bore Electro-Magnetic Flow meter</p> <table border="1" data-bbox="448 594 1349 846"> <thead> <tr> <th>Sl. No.</th> <th>Parameter</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Quantity with application and location</td> <td></td> </tr> <tr> <td>2</td> <td>Range</td> <td></td> </tr> <tr> <td>3</td> <td>Panel Mounted Flow indicator and integrators</td> <td></td> </tr> <tr> <td>4</td> <td>Other Technical Specifications</td> <td></td> </tr> <tr> <td>5</td> <td>Make / Name of Manufacturer</td> <td></td> </tr> </tbody> </table> <p>Data sheet for level Transmitter</p> <table border="1" data-bbox="448 877 1349 1066"> <thead> <tr> <th>Sl. No.</th> <th>Parameter</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Quantity with application and location</td> <td></td> </tr> <tr> <td>2</td> <td>Range</td> <td></td> </tr> <tr> <td>3</td> <td>Other Technical Specifications</td> <td></td> </tr> <tr> <td>4</td> <td>Make / Name of Manufacturer</td> <td></td> </tr> </tbody> </table> <p><i>Data sheet for On-line Turbidity Analyzer</i></p> <table border="1" data-bbox="448 1098 1349 1287"> <thead> <tr> <th>Sl. No.</th> <th>Parameter</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Quantity with application and location</td> <td></td> </tr> <tr> <td>2</td> <td>Range</td> <td></td> </tr> <tr> <td>3</td> <td>Other Technical Specifications</td> <td></td> </tr> <tr> <td>4</td> <td>Make / Name of Manufacturer</td> <td></td> </tr> </tbody> </table> <p><b>2.4 Site Organization</b></p> <p>The Bidder shall describe the roles and responsibilities of each of the personnel proposed and shall describe the roles, relationships, and division of responsibilities between the site management and the representative head/branch office that will be responsible for the Project. In particular, the Bidder shall provide details of the technical and financial responsibility and authority of the Project Manager who will be responsible for the day-to-day operations at the Site.</p> <p><b>2.5</b> The Bidder shall provide a preliminary organization chart, which indicates the relationship between the site management and the representative head/branch office, the direct on-site works operations, the sub-bidders and suppliers, and the Employer's Representative. Details shall be furnished separately for the design and construction phase, and for the operations and maintenance phase.</p> <p><b>2.6 Plant and Construction Equipment</b></p> <p>The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key plant and construction equipment. A separate Form shall be prepared for each item of plant and/or equipment listed, or for alternative equipment proposed by the Bidder.</p> <p>The overall requirements and mobilization/deployment schedule for each major item of</p>					Sl. No.	Parameter		1	Quantity with application and location		2	Range		3	Panel Mounted Flow indicator and integrators		4	Other Technical Specifications		5	Make / Name of Manufacturer		Sl. No.	Parameter		1	Quantity with application and location		2	Range		3	Other Technical Specifications		4	Make / Name of Manufacturer		Sl. No.	Parameter		1	Quantity with application and location		2	Range		3	Other Technical Specifications		4	Make / Name of Manufacturer	
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plant and equipment (such as Plant & Equipment to be used, excavators, concrete batching plants, hot mix plants, etc.,) shall be summarized in the format.

Item of Plant/Equipment		
Equipment Information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current Status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

**2.7 Construction Schedule**

The Bidder shall submit his proposed construction program in sufficient detail so as to demonstrate: the order in which he proposes to carry out the Works (including each stage of design, procurement, manufacture, pre-delivery inspection and testing, delivery to Site, construction, erection, testing and commissioning); all major events and activities in the production of Construction Documents; the periods for the design reviews and approvals and for any other submissions, approvals and consents specified by the Employer or his Requirements; the sequence of all tests specified in the Contract; etc.

The Bidder should pay particular attention to demonstrating how his proposed program for supply of major items of plant and equipment to be incorporated into the Permanent Works (Schedule XI) is to be managed to satisfy the requirements of the Contract, including the time required for design, placing of confirmed orders, manufacturing, pre-delivery inspections and tests, delivery to the Site, storage, installation, etc.

The construction schedule/work program shall be developed either on a commercially available project management software or on an excel sheet in bar chart form with detail activities and sub activities indicating clearly the sequence of activities, the inputs of the technical experts for the installations of various electromechanical equipment and other resources required.

The Bidder's attention is drawn to the requirements set out in Section II, Particular Requirement in this Package, and the Bidder is required to clearly demonstrate how he proposes to meet the Milestone Targets that have been established to ensure that pro-rata progress is maintained on all sub-components of the Works throughout the execution period.

**2.8** Details shall be furnished separately for the design and construction phase, and for the operations and maintenance phase.

List of Manufacturers, Suppliers and Vendors

The Bidder shall provide details on the proposed manufacturers / vendors / suppliers of major items of materials, plant and equipment that are to be incorporated into the Permanent Works.

Sl. No.	Description of Item (Material / Plant / Equipment)	Name and Address of Manufacturer/Supplier/Vendor	As per List of Preferred Makes / Approved by BSB
A)	Mechanical Work Components		
			Yes/No
			Yes/No
			Yes/No

	B)	Electrical Work Components		
			Yes/No	
			Yes/No	
			Yes/No	
	C)	Instrumentation and Process Control		
			Yes/No	
			Yes/No	
			Yes/No	
	D)	Civil, Building and Road Works		
			Yes/No	
			Yes/No	
			Yes/No	
	<p><b>2.9</b> Energy Consumption; the bidder should clearly specify the energy (power) requirement during different stages construction work. During Operation and maintenance stage, maximum power requirement for each month should be specified. It must be noted that during O&amp;M time, if the actual power consumption will be more than the specified figure, the cost for extra requirement of power will deducted from the subsequent bill of the bidder.</p>			
	<p><b>2.10</b> Bidders QA &amp; QC Plan</p> <p>The Bidder shall provide his proposed Quality Assurance and Quality Control (QAQC) Plan which describes the type, frequency and procedure of tests to be done on sites; type, frequency and procedure of tests to be done at manufacturers’ locations outside the sites; all parameters to be measured in these tests; permissible limits of such parameters; details of laboratories to be established at sites; details of testing equipment &amp; machines and their calibration schedules; details of the Bidder’s internal systems for assuring quality control at the manufacturers’ outside the sites; details of qualifications and experience of the Quality Control professionals to be deployed for the entire project; and the systems of Quality Audit to be instituted for systematic and professional management as well as adherence with the highest standards of quality of all construction works.</p> <p>The Bidder shall provide separate descriptions of its proposed QA/QC plan during the design and construction phase, and the subsequent operations and maintenance phase. The Bidder shall also provide copies of the company’s standard rules and regulations regarding quality assurance and quality control procedures for works in general and works of a similar nature.</p>			